



5.3 Department of Primary Industries and Resources

Issues identified by the Department of Primary Industries and Resources are provided in Table 5-32. A response to each issue is provided in Section 5.3.1 through Section 5.3.81.

Table 5-32 Issues identified by the Department of Primary Industries and Resources

Issue reference	Issue raised
DPIR 1	<p>Chapter 1: Introduction, 1.4.2 Apirnta Facility - <i>The surface storage and transfer facility would provide for the temporary storage of up to 400,000 tonnes of waste per annum...</i></p> <p>How long will materials be in 'temporary storage' before being transported for storage in the underground 'rooms'? It is assumed that the disposal of waste in the Chandler Facility would take some time due to inventory and segregation purposes. Will the warehouse be able to cope with incoming waste if underground waste disposal is at a slower rate than incoming waste or if mining is temporarily suspended or under care and maintenance and there is no capacity to store waste underground? Or will the proponent simply suspend accepting external waste?</p>
DPIR 2	<p>Chapter 1: Introduction, 1.4.2 Apirnta Facility - <i>The surface storage and transfer facility would provide for the temporary storage of up to 400,000 tonnes of waste per annum...The waste would be stored either in a warehouse, within an open storage yard or within a liquid storage tank.</i></p> <p>The proponent needs to clarify:</p> <ul style="list-style-type: none"> • How each waste material is being stored safely e.g. heavy metals, asbestos-like materials, fly ash, etc. • Risks that may affect the site such as flooding, groundwater contamination (liquid wastes and salt storage), airborne emission - contaminated dust , etc.
DPIR 3	<p>Chapter 2: Proposal need, alternatives and benefits, 2.2.1 Need for a safe and secure storage facility for waste materials – <i>Deep rock salt repositories have very high integrity for waste disposal, due to the inert nature of the salt and its geological plasticity (salt will creep over time, effectively self-healing which contributes to the passively safety case advantage of geological repositories)...</i></p> <p><i>Over time, any material inside the room will become encapsulated within the salt strata...</i></p> <p>What is the risk of dissolution of the natural salt barriers? Is the waste packaging compatible with the salt barriers i.e. they won't deteriorate over time?</p>
DPIR 4	<p>Chapter 2: Proposal need, alternatives and benefits, 2.2.1 Need for a safe and secure storage facility for waste materials – <i>The current market analysis suggests the volumes and sources of waste would be provided from the following and as shown in Figure 2-12.</i></p> <p>The potential waste customers are fairly broad. It is understood that company/department names cannot be provided for confidentiality reasons, however, have potential waste customers been specifically/directly sourced in the NT? Will waste be accepted from other states?</p>
DPIR 5	<p>Chapter 3: Project Description, 3.6.4 Salt mining operations – <i>...the proponent would defer processing for the first five years of mining resulting in approximately 3.5 million tonnes of salt being stockpiled on the surface. The stockpile would be located to the south of the mine infrastructure area at the proposed Chandler Facility...could reach a height of approximately 20 metres...</i></p>



Issue reference	Issue raised
	How would the stockpile be managed and protected from the elements (i.e. wind and rain) for five years?
DPIR 6	Chapter 3: Project Description, 3.6.5 Waste storage and isolation operations – In terms of the dry packaged waste backfill, are there any wastes that could potentially react with the salt barrier if unintentionally released? Has an environmental risk assessment of the two hydraulic backfilling methods been conducted, taking into consideration the above-ground risks, such as the plant and transport of the backfilling material? It appears that risk has mostly been assessed in terms of the backfilling composition.
DPIR 7	<p>Chapter 3: Project Description, 3.10.1 Henbury Access Road, Surface Water Assessment – The proponent proposes to construct a 30km haul road from the Stuart Highway to the Apirnta facility and then to the Chandler facility crossing the railway line and major watercourses, such as the Finke River. A construction plan, including impact from the construction and ongoing use of the road is required.</p> <p><i>Cross culverts and/or weirs at water course crossings, including the Finke River. Where significant drainage/creek crossings are required, culverts would be constructed...</i></p> <p>Culverts or weirs may not be feasible for the Finke River crossing (and other major creeks) given that high intensity flash flooding is an identified hazard in the area. Access to the site could be restricted for several weeks or months after a major flood event.</p> <p>Culverts and weirs affect river flow and downstream habitats. The effect of these constructions must be considered.</p> <p>Permanent bridges may provide a safer and improved environmental solution and reduced erosion and sediment control costs.</p>
DPIR 8	<p>Chapter 3: Project Description, Section 3.4.3 Aboveground infrastructure - Dry optical sorting facilities are <i>likely</i> to be located within the mine infrastructure area in the vicinity of the run of mine salt stockpile. The final location of these facilities would be determined during detailed design of the Proposal."</p> <p><i>Table 3-1 Key characteristics of the proposal</i> Salt mining of an average of 750,000 tonnes per annum with salt processing <u>deferred for the first 5 years</u> of mining operations.</p> <p>More information is required on the salt mining, sorting and storing, such as, but not limited to: timeframes for each phase, area required, site construction (e.g. non-permeable pad), water requirements, run off containment and treatment, etc.</p>
DPIR 9	<p>Chapter 3: Project Description, Section 3.4.3 Aboveground infrastructure - Fig 3-15 Proposed aboveground layout of the Chandler Facility</p> <p>The Waste Water Evaporation pond is located next to the Bore water dam.</p> <p>Is there a risk of cross contamination? Will the pond be lined? Explain the need for a bore water dam. Is a tank a better option?</p>
DPIR 10	Chapter 4: Approvals Pathway, 4.7 Approval timeframes – <i>Figure 4-3 Environmental impact assessment process (NT EPA)</i>



Issue reference	Issue raised
DPIR 11	<p>This figure is illegible.</p> <p>Chapter 6: Risk Assessments, Section 6.6 Post mitigation risk assessment – Table 6-10 Risk Assessment</p> <p>A range of hazards were identified by the NT EPA through a preliminary assessment of the proposal as 'risks' including changes to surface water hydrology.</p> <p><i>Altered hydrology surrounding the mine infrastructure area.</i></p> <p>This risk is categorised as 'beneficial.'</p> <p>The proponent needs to clarify how "<i>Altered hydrology</i>" may be beneficial.</p>
DPIR 12	<p>Chapter 6: Risk Assessments, Section 6.6 Post mitigation risk and Appendix R Surface Water Assessment – Table 6-10 Risk assessment</p> <p>Hazard identified by the Proponent in the EIS:</p> <p><i>Flash flooding into mine infrastructure area</i> <i>Mitigation - Storm water drains/flood relief</i></p> <p>And</p> <p><i>Appendix R Surface Water Baseline conditions</i> <i>Executive Summary</i></p> <p><i>Water quality data is limited but suggests a system characterised by low frequency/large magnitude floods... At this point, no numerical flood modelling has been conducted. Instead, a conceptual hydrological model has been prepared.</i></p> <p>Flood modelling must be conducted prior to designs of "Storm water drains/flood relief" and should include the haul road and Apirnta site.</p>
DPIR 13	<p>Chapter 7: Biodiversity, Introduced species - A total of seven introduced species were recorded within the proposed development footprint and vicinity. Of the seven weed species recorded, one species is listed as a weed of national significance by the Australian Weeds Strategy (2005). Three species are declared weeds under the Weeds Management Act.</p> <p>Location and pictures of the declared weeds should be provided and a weed management plan submitted in the MMP.</p>
DPIR 14	<p>Chapter 7: Biodiversity, 7.3.2 Vegetation communities - Land has also been previously cleared for tracks and a small amount of land has been cleared previously for mining exploration by Central Petroleum.</p> <p>The location of land disturbed by other Operators should be included in a map.</p>
DPIR 15	<p>Chapter 7: Biodiversity, 7.3.3 Conservation-significant species - Some habitats have been recorded as suitable habitat for threatened fauna species and some secondary signs of threatened fauna species have been identified during surveys.</p> <p>What management measures would be undertaken for the threatened fauna species, whose secondary signs have been identified?</p>



Issue reference	Issue raised
DPIR 16	Chapter 7: Biodiversity, 7.5.1 Fauna strike - How would Tellus manage the risk of fauna strike especially during dusk and dawn?
DPIR 17	<p>Chapter 8: Groundwater, 8.1.3 Groundwater monitoring– In Section 8.1.3 (Groundwater monitoring), groundwater quality is said to be monitored quarterly, and in Table 8-8 (Proposed groundwater mitigation and management measures), the frequency of reporting is four-monthly.</p> <p>Clarification is required regarding frequency of reporting. Is the proponent intending on submitting a detailed report to the DPIR and NTEPA every four months with the sample data?</p>
DPIR 18	<p>Chapter 8: Groundwater, 8.1.3 Groundwater monitoring– More frequent groundwater monitoring is required, especially during the pre-mining and construction phase of the project to ensure that data can be used to ascertain background water quality and ensure that no groundwater impacts are occurring. Initial monitoring should have already commenced and needs to be undertaken on a regular basis.</p> <p>If quarterly monitoring is still to be proposed, evidence that groundwater quality results obtained are representative of pre-mining water quality is required. A discussion outlining the potential risks of less frequent monitoring, for example a delay in identifying groundwater contamination, needs to be included.</p> <p>To satisfy the requirement that background water quality has been adequately assessed, QA and QC procedures need to be detailed, potential temporal changes in water quality should be discussed, and the statistical confidence in the results presented.</p>
DPIR 19	<p>Chapter 8: Groundwater, 8.1.4 Summary of mitigation and monitoring measures – GW.1 Sustainable use of groundwater reserves</p> <p><i>Apply for water abstraction licences and permits under the Water Act. Pre-construction</i></p> <p>Please provide mitigation measures to enable 'Sustainable use of groundwater reserves' as well as management measures.</p>
DPIR 20	<p>Chapter 8: Groundwater, 8.1.4 Summary of mitigation and monitoring measures – GW. 4 Develop of detailed groundwater quality database</p> <p><i>Report groundwater quality results to the DPIR and the NT EPA every <u>four</u> months (April, August and December) to compare seasonal data against project activities.</i></p> <p>Please describe the components of the 'groundwater quality' sampling being undertaken.</p>
DPIR 21	<p>Chapter 8: Groundwater, 8.1.4 Summary of mitigation and monitoring measures – GW. 5 Undertake a hydro-census (condition) survey of local groundwater users prior to construction to ascertain bore condition and current status of the bores located within a 25 kilometre spatial buffer around the proposed Chandler Facility.</p> <p>Explain how/why 25km was chosen? Will the same be done for the Apirnta facility?</p>
DPIR 22	<p>Chapter 8: Groundwater, 8.1.4 Summary of mitigation and monitoring measures – GW. 7 Develop a detailed groundwater database</p> <p><i>Complete a groundwater isotope study for monitoring bores prior to construction.</i></p>



Issue reference	Issue raised
DPIR 23	<p>When is this planned? Will this be done for both the Chandler and Apirnta facility area?</p> <p>Chapter 8: Groundwater, 8.3.4 Local Hydrogeological setting, Groundwater levels and flow – <i>Overall, there is minimal response to rainfall recharge in the piezometric surfaces monitored, indicating the aquifer is dominated by lateral flow rather than vertical flow. In the uppermost formation, the Horseshoe Bend Shale Formation, there is a minor and delayed response (a 0.06 metre rise over 15 days) to rainfall recharge at WT2 and WT6a only.</i></p> <p>The response from WT6a has not been plotted, is this WT6?</p>
DPIR 24	<p>Chapter 8: Groundwater, 8.3.4 Local Hydrogeological setting, Recharge and discharge – Calculations of the expected time for groundwater levels to rebound back to current levels on completion of mining need to be included.</p> <p>The extent of groundwater drawdown needs to be mapped, ideally with contours, and a list of potentially impacted bores provided. All stakeholders that use or rely on groundwater from potentially impacted bores need to be consulted and briefed on the potential impacts (or lack thereof).</p>
DPIR 25	<p>Chapter 8: Groundwater, 8.3.4 Local Hydrogeological setting, Water use – Landholder bores – Groundwater users within the 75km of the project area Fig 8.10 and Groundwater users within the 25km of the Chandler facility Fig 8.11.</p> <p>An accurate detailed model of the groundwater in and around all the sites (Apirnta and Chandler) is required including details on the number of bores located in the area that are within the drawdown zone or may be affected.</p> <p>Tellus must confirm, by more detailed study, that there will be no effect on other users of groundwater, including natural vegetation, from the drawdown, or any other reason, from the mine over time.</p>
DPIR 26	<p>Chapter 8: Groundwater, 8.3.4 Local Hydrogeological setting – Figure 8.12 Surface water monitoring network</p> <p>Monitoring locations should also include the Finke River before confluence with Hugh River, the Hugh River before confluence with Finke River, and Finke River after the Hugh River confluence.</p>
DPIR 27	<p>Chapter 8: Groundwater, 8.4.2 Surface water and groundwater connectivity – <i>However, characterisation of the water type of the springs located along the Finke River to the south and south-east of the Chandler Facility suggest the source of water from these springs is likely to be derived from the perched shallow alluvial sediment and not the deeper groundwater system connected to the Chandler Facility approximately 50 km away. This implies a lack of connectivity, which would mean that any potential drawdown impacts in the deeper groundwater systems arising from Proposal dewatering through abstraction or mining activities would not impact surface water resources.</i></p> <p>Further investigation must be conducted to confirm this implication prior to extraction commencing.</p>
DPIR 28	<p>Chapter 8: Groundwater, 8.4.4 Water balance – Table 8-3 Water balance (average rainfall per year) shows there will be 0 inflows into the shaft and therefore 0 inputs into the water balance.</p> <p>Detailed calculations showing potential maximum inflows need to be presented for completeness and to provide a clear picture of the potential worst-case scenarios risks.</p>



Issue reference	Issue raised
DPIR 29	<p>Chapter 8: Groundwater, 8.4.4 Water balance – <i>Table 8-3 Water balance (average rainfall per year)</i></p> <p><i>Direct rainfall on water storage areas of 143ML/y.</i></p> <p>Please provide more detailed information e.g. location and size of water storage areas and rainfall data.</p>
DPIR 30	<p>Chapter 8: Groundwater, 8.5.1 Direct impacts, Discussion of drawdown impacts – A figure that shows the expected extent of drawdown in contours for the life of mine (LoM) operation, should be included. While LoM is never certain, the potential maximum times should be outlined. While Appendix P contains a simplified version of this, a more detailed version, which includes a contour overly of the mine area, is required.</p>
DPIR 31	<p>Chapter 8: Groundwater, 8.5.2 Indirect impacts – <i>There is the potential for low to moderate impacts to River Red Gum and Coolabah vegetation proximal to the Proposal areaL as these ecosystems are considered to be partially dependent on groundwater.</i></p> <p><i>As discussed in Section 8.3, two ecological communities (Eucalyptus camaldulensis var. Obtuse and Eucalyptus coolabah subsp. Arida) have been identified by DENR to persist within the riparian corridors of the Finke and Hugh Rivers. The root structure is considered to be shallow (less than 15 metres) and dependent on the perched shallow groundwater systems (i.e. near-surface alluvial sources) associated with ephemeral creeks, rather than the water table at about 80 metres depth.</i></p> <p>These assumptions need to be verified. Please outline the low to moderate impacts. How will the mine affect the "perched shallow groundwater systems" and associated vegetation?</p> <p>Clarification is required on "<u>partial dependence</u>" vs "<u>dependence</u>"?</p> <p>Outline the risks including, but not limited to, excessive groundwater drawdown, drainage of the perched groundwater systems, contamination, etc.</p>
DPIR 32	<p>Chapter 8: Groundwater, 8.6 Assessment of risk during operation – <i>Table 8-6 Operation raw water demands</i></p> <p><i>Process Water - Saline 45ML/y.</i></p> <p><i>Re-use from hydraulic backfill process and Langra formation.</i></p> <p>These figures should be separated to determine how much water is reuse vs abstraction.</p>
DPIR 33	<p>Chapter 9: Surface water, General – The water quality results, analysis, and discussion within both the main document and the appendix (appendix R) are lacking detail. The report does not explain:</p> <ul style="list-style-type: none"> • the observed elevated concentrations of metals, • filtered and total metal concentration variations, • management strategies relating to the livestock exclusion, or • the potential for site-specific guidelines. <p>Please provide all available data, information and a detailed discussion within relation to this issue.</p>
DPIR 34	<p>Chapter 9: Surface water, 9.2.4 Water quality guidelines – <i>The most appropriate guideline values to compare water quality data against were therefore considered to be national guidelines outlined in ANZECC 2000 Water Quality Guidelines for two</i></p>



Issue reference	Issue raised
	<p>conditions:</p> <ul style="list-style-type: none"> • The 95 % freshwater aquatic ecosystem protection. • Primary industries livestock protection. <p>The 95% species protection guidelines are recommended only if baseline environmental assessments are not available. Given the project has not commenced, there is still sufficient time to obtain baseline data and develop site specific guidelines in line with ANZECC recommended best practice. This needs to be undertaken prior to commencing any further project activities.</p>
DPIR 35	<p>Chapter 9: Surface water, 9.2.4 Water quality guidelines – <i>In this study, bulk sediment samples have been collected and analysed for metal concentrations and percentage < 63 µm grain size. In this instance, a very simple form of normalisation was suitable whereby bulk sediment concentration data (expressed as mg/kg dry weight) was divided by the percentage 1< 63 µm % passing' (expressed as a decimal) (Simpson et. al. 2013). Bulk metal concentrations for the current dataset can then be compared on a spatial basis in order to evaluate sediment enrichment, independent of differences in particle size in different creeks.</i></p> <p>This is not an appropriate approach given that smaller particles (such as clays) contain negatively charged surface sites, which positive metal ions are able to bind to, while larger sized particles (such as sands) do not contain a charged surface and therefore generally do not bind metal ions.</p>
DPIR 36	<p>Chapter 9: Surface water, 9.2.6 Design rainfall– Rainfall flow transformation</p> <p><i>The Clark Unit Hydrograph (CUH) method has been used to transform the effective rainfall hyetographs for each catchment into flow hydrographs. The CUH method requires the Time of Concentration (Tc) and CUH Storage Coefficient (Sc) to be calculated using the following equations:</i></p> <p><i>Tc= 0.76*Area^{0.38} where: Tc= Time of Concentration (hours) Area = Catchment area (km²)</i></p> <p><i>Sc= Tc *ratio/(1-ratio) Sc= CUH Storage Coefficient (hours) ratio= 0.65 for flat rural catchments</i></p> <p>The flat rural landscape value used for the ratio section of the Clark Unit Hydrograph suggests that the area surrounding the mine is flat, however in section 9.3.1 (Topography), the comment is made that 11... The topography of the Proposal is characterised by rolling hills and dunes, and sand ridges. However, the general area of the Proposal is bisected by a number of large hills that were created by tectonic activity hundreds of millions of years ago to the north, east and west."</p> <p>Please clarify the use of the flat rural landscape value with respect to this later comment.</p>
DPIR 37	<p>Chapter 9: Surface water, 9.3.7 Surface water – <i>No breakthrough to the dune area to the north of the sub-catchment is observed, with water in this area locally-derived from runoff from the adjacent dune system. Furthermore, no connectivity between the dune area and the Hugh River to the north is anticipated. No assessment downstream from the confluence between the Hugh and the Finke is deemed necessary because the flow contribution from the Proposal area to flows below this point is considered to be insignificant.</i></p> <p>The comment that contributions from the proposed area will not be significant below the confluence of the Hugh and Finke Rivers has not been substantiated. How were the impacts of the proposal area on the reach downstream of the Hugh and Finke confluence assessed? Please provide all available information behind this rationale.</p>
DPIR 38	<p>Chapter 9: Surface water, 9.3.7 Surface water – <i>Figure 9-15 Conceptual Site Hydrological</i></p>



Issue reference	Issue raised
	<p><i>Model</i></p> <p>The Figure shows that the ROM area will be located adjacent the Halfway Creek flow path. During high rainfall events, is there the potential for stockpiled material to be carried downstream, potentially resulting in altered water chemistry of the downstream environment? How has this risk been assessed?</p>
DPIR 39	<p>Chapter 9: Surface water, 9.3.8 Water quality – The Surface water discussion does not address the necessary points. The results have been presented in text format. A graphical representation of the data would be more appropriate in most cases.</p> <p>The water quality section details various potential influences to surface water quality but does not discuss these in relation to the results observed.</p> <p>The location coordinates associated with the data should be presented in Latitude and Longitude or UTM and not only mine grid values.</p> <p>The discussion should contain at least two distinct sections, one for aquatic ecosystem protection and one for livestock drinking water comparison. If there are more uses of water within the project-impacted region these should also be included for discussion.</p>
DPIR 40	<p>Chapter 9: Surface water, 9.4.1 Direct impacts – Chandler Facility</p> <p><i>The current plan is to relocate Halfway Dam...further down the creek line and utilise its current site as the salt stockpile. Therefore, further detailed investigation is required to:</i></p> <ul style="list-style-type: none"> • Find a suitable location for a new dam; • Assess the effect of any mine activity in the catchment upstream on flow yield/reliability; and • Inform the dam location, intake structure and dam capacity. <p>This statement implies that a dam in (or near) a creek will be used as a salt stockpile area.</p> <p>Please clarify this statement and outline any risks from stockpiling salt in a dam or in this area.</p>
DPIR 41	<p>Chapter 9: Surface water, 9.4.2 Indirect impacts – <i>Using an Initial Loss of 40 mm, rainfall depths would result in no runoff for the majority of design events of 5 years ARI or less. While selecting a higher ongoing loss is expected to result in no effective rainfall from much of the longer-duration storm profiles.</i></p> <p>The calculations should be repeated using the worst possible conditions (a higher ARI and lower initial loss) to enable an assessment of potential environmental risk.</p>
DPIR 42	<p>Chapter 9: Surface water, 9.4.2 Indirect impacts – <i>The calculated peak flows for the Finke at the haul road crossing (22.8 kilometres) should be validated against recorded data for the Finke at the Stuart Highway (upstream of the haul road) and at the rail crossing (downstream of the haul road).</i></p> <p>The validation needs to be undertaken and included as part of the EIS.</p>
DPIR 43	<p>Chapter 9: Surface water, 9.4.2 Indirect impacts, Road flooding – <i>The information would inform the road design, including options to mitigate flooding of the road, such as road raising and the use of culverts or bridges to pass flow. Such crossings would not be expected to interrupt natural streamflow and geomorphological processes.</i></p> <p>Any construction across any streams needs to ensure that stream flow is not significantly altered, including causing pooling of water on the upstream side of the stream crossing.</p>



Issue reference	Issue raised
DPIR 44	<p>Chapter 9: Surface water, 9.7 Mitigation and monitoring – Table 9-16 Mitigation and management measures (surface water) SW2 <i>Improved water quality and attenuation of surface water flow. Treat runoff to improve water quality resulting in an attenuation of flows, mitigating any increase in runoff peak flows or volumes.</i> <i>Timing Pre-construction.</i></p> <p>Improving water quality by treating run off will be difficult to achieve without major construction e.g. diversions, dams, etc. especially in high intensity rain. More planning detail will be required.</p> <p>The "Pre-construction" timing does not seem logical.</p>
DPIR 45	<p>Chapter 9: Surface water, 9.7 Mitigation and monitoring – SW5 <i>Minimisation of impacts from the Henbury Access Road at the Finke River crossing.</i></p> <p><i>Limit the engineering required to cross the river.</i></p> <p>Tellus must undertake engineering as required (including bridges etc.) to create the least impact on the river at the crossing.</p>
DPIR 46	<p>Chapter 9: Surface water, 9.7 Mitigation and monitoring – SW 16 Additional monitoring. Catchment drainage</p> <p><i>SW17 & 18 Additional investigations during detailed design. Develop two-dimensional modelling of flow paths and inundation in the mine lease area,</i></p> <p><i>SW19 Model flood risk and scour protection at the crossing of the Finke River.</i></p> <p><i>SW20 Model flood risk¹ of haul crossings (bridges, culverts, causeways) of drainage lines.</i></p> <p><i>SW21 Develop site specific water quality guidelines.</i></p> <p><i>SW23 Preventing erosion and sedimentation</i></p> <p>The monitoring and investigation is mostly pre-construction and should be in progress or planned before any major works commence.</p> <p>Please confirm these measures are in progress or provide timelines for these studies to commence.</p>
DPIR 47	<p>Chapter 9: Surface water, 9.7 Mitigation and monitoring – SW25 No offsite release of salt laden sediment</p> <p><i>A clay lined drainage swale would be constructed around the perimeter of the run of mine salt stock pile to prevent offsite release of salt laden sediment.</i></p> <p>The nature and source of the clay and the thickness of the liner as well as the sizing will need to be determined prior to approval.</p> <p>Also the provision of detail such as overflow drainage and storage, etc.</p>



Issue reference	Issue raised
DPIR 48	<p>Chapter 9: Surface water, 9.7 Mitigation and monitoring, Table 9-16 Mitigation and management measures – SW29 Prevent sediment runoff</p> <p><i>Provision of a sediment trap, such as a mulch bank or a sediment fence, on the downslope boundaries of the Apirnta Facility, Chandler Facility and haulage roads is recommended. The mulch banks and sediment fencing should be positioned on the contour where possible.</i></p> <p>Installing mulch bank or a sediment fence, on the downslope boundaries is a significant commitment that requires maintenance. Regular scheduled inspections and maintenance is required.</p>
DPIR 49	<p>Chapter 9: Surface water, 9.8.1 Summary of risk assessment– The following sections of the risk assessment require a detailed explanation of how the risk is being, or will be, mitigated and managed.</p> <ol style="list-style-type: none"> 1. <i>Salt dissolution and transport off-site</i> 2. <i>Altered hydrology surrounding Maryvale Hills</i> 3. <i>Contamination of Finke River through loss of containment</i>
DPIR 50	<p>Chapter 12 Economic and social, 12.3.7 Workforce - <i>The workforce in the local region comprises of around 20,500 people of which nearly 19,300 are located in Alice Springs Local Government Area and the remaining 225 in the Sandover Plenty SA2 area.</i></p> <p>The figures of 19,300 + 225 does not equate to 20,500 people.</p>
DPIR 51	<p>Chapter 13: Closure and rehabilitation, 13.2.1 Decommissioning and closure – What aspects of the mine would be progressively rehabilitated over the minelife?</p>
DPIR 52	<p>Chapter 13: Closure and rehabilitation, 13.2.2 Rehabilitation objectives – <i>Table 13-1 Guiding rehabilitation principals</i></p> <p>These principles cover landforms, contaminated soils, voids and hazards.</p> <p>They should also include surface water and ground water - e.g. surface water courses returned to original, no connection of poor quality water into groundwater, no mixing of aquifers, etc.</p>
DPIR 53	<p>Chapter 13: Closure and rehabilitation, 13.3.1 Waste rock and acid mine drainage – <i>The assessment indicated that the overburden materials, consisting of sandstones, siltstones, dolomitic siltstone and minor gypsum could be classified as Non-Acid Forming-Barren (NAF-Barren).</i></p> <p><i>Examination of rock chip samples and core sample collected from the project site confirmed this assessment. The overburden materials have significant excess buffering capacity and considered to be a non-acid forming rock types with excess acid neutralising capacity. The waste rock is chemically inactive and has no foreseeable detrimental impact to the environment (Atkins 2017).</i></p> <p>The above statement will need verification.</p>
DPIR 54	<p>Chapter 13: Closure and rehabilitation, 13.3.2 Financial assurance – The proponent would provide appropriate financial assurance for the expected closure and rehabilitation costs of the Proposal. The proponent intends on this financial assurance being via appropriate contributions to a security bond that is administered by the DPIR.</p> <p>Partial security releases may be possible if progressive rehabilitation is undertaken during the mine life.</p>



Issue reference	Issue raised
DPIR 55	<p>Chapter 13: Closure and rehabilitation, 13.3.2 Financial assurance – Should unexpected closure occur, what will be the fate of the waste in the Apirnta Facility assuming it is at capacity (i.e. 400,000 tonnes)? As an example, if the company were to go into voluntary administration, where would the money be sourced to continue the waste disposal or would the waste be returned to the customer?</p>
DPIR 56	<p>Chapter 13: Closure and rehabilitation, 13.3.10 Final Landform– <i>Rehabilitation would also be supported through a financial security established under the Mining Management Act 2001.</i></p> <p>The proponent should be aware that the security bond will not be released until closure activities are complete, rehabilitation has been successfully demonstrated and closure criteria met.</p>
DPIR 57	<p>Chapter 13: Closure and rehabilitation, 13.3.10 Final Landform– <i>To create the final landform, the techniques described in...</i></p> <p>This section appears to be incomplete.</p> <p>What is the final landform i.e. waste rock dump? Has backfilling the waste rock material into the underground mine been investigated as a potential option for closure to return the land to pre-mining conditions?</p>
DPIR 58	<p>Chapter 13: Closure and rehabilitation, 13.3.11 Re-vegetation – <i>Re-vegetation during closure and rehabilitation of the Proposal would be best achieved by conserving top soil in protected locations (low windrows) at the beginning of the project... Even 20 yr old topsoil is better for re-vegetating sites than using subsoil, fertiliser and seed...</i></p> <p>In the DPIR's experience, topsoil is rarely managed appropriately for use in final closure of the site, often becoming a source of weeds or erosion. How will topsoil stockpiles be managed to prevent weed invasion and ensure the long term viability of native seed and retention of root stock to assist in the natural regeneration of vegetation in rehabilitation? Is there a possibility of the topsoil turning saline due to long-term exposure to rainfall and wind-blown salt deposition on the topsoil? It is unclear where the topsoil stockpiles will be stored in relation to the product stockpiles.</p>
DPIR 59	<p>Chapter 13: Closure and rehabilitation, 13.3.11 Re-vegetation – <i>Planting of root stock nursery plants is not normally appropriate for these conditions, but may have occasional specialised need...</i></p> <p>Sentence appears incomplete.</p>
DPIR 60	<p>Chapter 15: Air quality, 15.3.1 Surrounding land sensitivity – The prevailing wind directions should be shown on Figure 15-1.</p>
DPIR 61	<p>Chapter 15: Air quality, 15.3.2 Air quality– It is concerning that baseline air quality data is being derived from monitoring locations in Darwin. Not only is there a significant geographical distance between Darwin and the proposed project area, but the data is not representative of the site at all. Baseline studies should be conducted within the proposed project area for a more representative data set.</p>
DPIR 62	<p>Chapter 16: Noise and vibration, 16.4 Assessment of risks during construction, operation and closure and rehabilitation – Although risk from noise is low, the risk from vibration to the cultural heritage item is of concern, especially near the Chandler facility. The worst case estimation at shows that cosmetic damage might still occur at 200m with a mass charge of 30kg. Therefore, there must be a mitigation method to keep vibration at reasonable levels for any activity undertaken at the 200m vicinity of the heritage site.</p>
DPIR 63	<p>Chapter 16: Noise and vibration, 16.4 Assessment of risks during construction, operation and closure and rehabilitation – The cultural heritage site is deteriorating along the lifetime</p>



Issue reference	Issue raised
	with or without the development project. How will the proponent handle the public perception in the case of an aesthetic change of the heritage site during the construction of operation phases? Is there a compensation mechanism in place?
DPIR 64	<p>Appendix L: Sediment and Erosion Management Plan, 6 Erosion and Sediment Control – For best-practice advice on erosion and sediment control, it is recommended that you contact the Department of Environment and Natural Resources for advice.</p> <p>Sediment traps, basins or dams can be useful in the Top End, but are generally not used in the Arid Zone. They are effective, but temporary forms of sediment control, especially in close proximity to surface water aquatic ecosystems.</p> <p>As Central Australia has few surface water aquatic ecosystems, they are generally not used. Greater emphasis should be placed on erosion control rather than focussing on sediment (the result of erosion).</p> <p>Suitable alternatives include the removal of all impediments to natural water flows (e.g. windrows, any roads or structures above or below natural ground level), appropriate batter slopes (minimum of 1V:4H), surface roughening, or ripping (to promote water infiltration) and vegetation (the best form of protection against the impacts of raindrop, water and wind erosion).</p>
DPIR 65	Appendix L: Sediment and Erosion Management Plan, 7 Installation Sequences – The design and placement of erosion and sediment control structures and controls should be provided in the Mining Management Plan (MMP) for approval by DPIR.
DPIR 66	<p>Appendix L: Sediment and Erosion Management Plan, 9.1 General Notes – <i>Figure 9-1</i></p> <p>This map should illustrate the locations of the proposed infrastructure and roads to show their locations in relation to high, intermediate and low risk erosion areas.</p>
DPIR 67	<p>Appendix I: Hydraulic Backfill Report, 2.1 Input – <i>Table 1 List of potential wastes CSG Wastes</i> <i>Coal Seam Gas (CSG) Wastes (dirty salt and brine)</i> <i>35,000 tonnes pa (the largest waste category) annually as a liquid.</i></p> <p>The waste will arrive in portable tanks. What is the risk of CSG production waste contaminating local groundwater?</p> <p>More detail is required, including:</p> <ul style="list-style-type: none"> • the nature of the waste, (hazardous, spillage risks) • any on site treatment required • tank size, weight, number, • storage (dams?) and disposal. • haul road suitability (size, number and weight of tanks).
DPIR 68	<p>Appendix I: Hydraulic Backfill Report, 7.7 Variables of the assumed prices – <i>K-UTEC was assigned by Tellus to prepare a general assessment study to evaluate the possibilities of flushing or viscous slurry backfilling in their Chandler project.</i></p> <p><i>The application of hydraulic backfilling is a good option to dispose suitable wastes in excavated rooms of salt mines. Suitable wastes can be liquid or solid with a grain size small enough to achieve appropriate hydraulic properties.</i></p> <p><i>A big factor in the assumptions made is the suitability of the CSG (Coal Seam Gas) wastes for providing the fluid for the hydraulic backfill mixture. If it turns out that the CSG wastes cannot</i></p>



Issue reference	Issue raised
	<p><i>be used, water would have to be mixed with rock salt to obtain saturated solutions. The facilities and materials needed for this would bring up capex and apex considerably ... With the information presented to us we conclude that hydraulic backfilling might be feasible in the Chandler project.</i></p> <p>It appears the proponent may be relying on CSG waste disposal as part revenue. There is a risk of liquid CSG waste contaminating local groundwater.</p> <p>Please provide detail and risk assessment of Coal Seam Gas (CSG) production waste contaminating local groundwater.</p>
DPIR 69	<p>Appendix J: Rehabilitation and Closure Plan, 6.6 Borrow Pits – How will borrow pits be rehabilitated; i.e. backfilling, battering? What is the timing for rehabilitation?</p>
DPIR 70	<p>Appendix P: Groundwater, 10.2.2 Mining – <i>The proponent would construct multiple engineering barriers to prevent groundwater inflow during the construction of subsurface works to limit the extent of dewatering. Details of mitigating/control measures, notably including shotcreting of any significant inflow areas along the decline and/or mine path, are provided in Section 11...</i></p> <p>The following is an extract from Shotcreting: Recommended Practice, 2nd Edition.</p> <p>"2.4.2 Design for Serviceability Ground water flows Excessive ground water flows can affect the shotcrete bond to the substrate and the ultimate performance due to excessive water pressure build up behind the shotcrete. Refer to Clause 5.7.2.2 for suggested techniques to mitigate the risks associated with ground water."</p> <p>Please discuss the proposed techniques with regard to clause 5.7.2.2.</p>
DPIR 71	<p>Appendix Q:Water Management Plan, 2.2 Northern Territory legislation, 2.2.1 Water Act – <i>In addition, if water pollution comes from a mining operation onto land that is not part of the mining title, this would be regulated under the Water Act and a waste discharge licence, with set water quality requirements, would be required. Please note, the Proposal will not be discharging waste water and therefore will not require a waste discharge licence. All waste water is expected to be re-used in other site operations such as hydraulic backfill processing or dust suppression.</i></p> <p>The impact on soil structure and the flow on impacts to dust generation on site need to be addressed before any water with high electrical conductivity or elevated metal concentrations are used for dust suppression. Alternative management strategies need to be discussed unless it can be shown that high EC water will not affect soil structure and dust generation.</p> <p>In addition the use of waste water for dust suppression can potentially result in contaminated runoff occurring, as salts build up over time and are washed into adjacent streams during the first flush rains.</p> <p>It should be noted that the Mining Management Act contains a mechanism to address off-site environmental impacts from a mine site.</p>
DPIR 72	<p>Appendix R: Surface Water Assessment, Surface Water Baseline Conditions, 5.8 Data limitations and recommendations – <i>It is recommended that flow monitoring sites are established on at least five representative creeks surrounding the Proposal area in order to redress the knowledge gap identified in Section 5.7 and determine hydrological behaviour of lower order drainage lines. In particular, flow monitoring on the following sites would be advantageous for stormwater management design for the Proposal area: Apirnta Creek</i></p>



Issue reference	Issue raised
	<p>tributary at rail crossing, Chambers Pillar Road Creek; Charlotte Range Creek; Halfway Creek draining west past Halfway Dam; and Mary's Gully.</p> <p>These recommendations should be incorporated and monitoring should commence as soon as practicable to gain as much as data as possible for predicting creek flows, flood levels, etc.</p>
DPIR 73	<p>Appendix R: Surface Water Assessment, Chandler Salt Mine Project Flood Assessment, 3.2 Road flooding – <i>Peak flows and time-series hydrographs have been derived for each of the catchments (Fig 3.3) crossed by the access road and haul road between the mine site and the Stuart Highway. In total, the access and haul roads cross a significant watercourse or flow line 20 times over a total distance of 90 km. At each of these locations, there is the potential for the haul road to be flooded or to pond water (if the road is carried on an embankment across the floodway).</i></p> <p>Risks include (but are not limited to):</p> <ul style="list-style-type: none"> • Environmental impact - downstream sediment and erosion, waterways, floodplain, vegetation, • excessive road closure time, • excessive repair cost. <p>These risks should be factored in construction and operation costs and environmental impact assessments. Note: significant flooding of roadways can be anticipated, on average, once every three years (Section 5.3. Flow characteristics).</p>
DPIR 74	<p>Appendix R: Surface Water Assessment, Chandler Salt Mine Project Flood Assessment, 6 Conclusions and recommendations – <i>The crossing of the Finke River (between Apirnta and the Stuart Highway) could require a bridge, if the intention is to keep that section of road open at all times.</i></p> <p>Please provide detail on the type of crossing planned for construction across the major rivers (Finke) and the possible impacts on the river and other watercourses downstream from the crossing during and post construction. The construction proposed must be adequate not to restrict water flow during flood events.</p> <p>Provide more detail on the vehicle usage of the roadway (numbers and type of vehicle - peak usage times etc.)</p> <p>The long term benefits from the bridge construction such as uninterrupted access to the site and reduced Erosion and Sediment controls and maintenance may justify the cost.</p>
DPIR 75	<p>Appendix R: Surface Water Assessment, Chandler Facility - Erosion and Sediment Control Assessment, 6.1.2.1 Proposal erosion risk – <i>There are 'intermediate', 'high' and 'very high' erosion risk cells along the Apirnta Creek corridor. This highlights the benefit of establishing vegetated buffer zones along the watercourse to protect from excessive erosion (Section 4.2) and establishing stringent protocols for working near watercourses ... It should be particularly noted that a long corridor of 'intermediate' erosion risk land crosses the Proposal footprint along Mary's Creek.</i></p> <p>Establishing vegetated buffer zones along the watercourse to protect from excessive erosion (Section 4.2) and establishing stringent protocols for working near watercourses are recommended here (Sections 5.2.2 and 6.1.2). Due to the high level of scrutiny afforded to the Chandler Facility, additional erosion control safeguards may be considered here and there would be an opportunity for added project value in the form of establishing a no-go habitat corridor in this area with wider buffers than the guidelines suggest. (Sections 5.2.2 and 6.1.2).</p>



Issue reference	Issue raised
	<p>The proponent must include the vegetated buffer zones along the watercourse and stringent protocols for working near watercourses in planning and action of works.</p>
DPIR 76	<p>Appendix R: Surface Water Assessment, Chandler Facility - Erosion and Sediment Control Assessment, 6.1.2.1 Proposal erosion risk – <i>Gully erosion is present on the lee-side of Maryvale Hills, due to concentration of runoff water, steep gradient and lack of vegetative cover. These gullies will likely transmit large sediment loads down- gradient into the Chandler facility drainage structures leading to lower capacity, possible flooding and increased maintenance requirements. The channels are also likely to migrate over time, possibly undermining critical infrastructure.</i></p> <p>Tellus should investigate whether stabilisation, such as control of water flow, gully fill, gully formalisation and subsequent monitoring, would be beneficial during detailed design as recommended in DLRM, 2013b.</p>
DPIR 77	<p>Appendix R: Surface Water Assessment, Chandler Facility - Erosion and Sediment Control Assessment, 6.2.2 Mitigation measures – <i>Provision of a sediment trap, such as a mulch bank or a sediment fence, on the downslope boundaries of the Apirnta Facility, Chandler Facility and haulage roads is recommended...</i></p> <p><i><u>Buffer strips and vegetation filters should be employed, where practical, along the haulage road instead of sediment trapping structures (DLRM, 2013b). The Apirnta Facility and Chandler Facility sites may require additional sediment control measures, such as excavated sediment traps, especially if works are planned to be undertaken during months when rainfall within the area is traditionally higher. Works should be planned to intercept and retain sediment to prevent it spreading into Apirnta, Chambers, Charlotte, Halfway and Mary's Creeks.</u></i></p> <p>Please ensure that all the recommendations in Section 6.2.2 (Mitigation measures) are included in the construction and operation controls in the mine operation and are installed as per recommendations.</p>
DPIR 78	<p>Appendix R: Surface Water Assessment, Chandler Facility - Erosion and Sediment Control Assessment, 6.2.2 Mitigation measures – <i>Provision of a sediment trap, such as a mulch bank or a sediment fence, on the downslope boundaries of the Apirnta Facility, Chandler Facility and haulage roads is recommended.</i></p> <p>These structures require regular inspection and maintenance. A maintenance schedule must be included.</p>
DPIR 79	<p>Appendix R: Surface Water Assessment, Chandler Facility - Erosion and Sediment Control Assessment, 7 Rehabilitation and landscaping – <i>Under current design plans, the existing Halfway Dam will need to be decommissioned and a new dam constructed in an alternative location... <u>Extensive planning should be undertaken and protective measures implemented when decommissioning a dam</u> to reduce the environmental impacts.</i></p> <p>When (if) dam works commence provide evidence of ESCP planning and action during construction and decommissioning.</p>
DPIR 80	<p>Appendix R: Surface Water Assessment, General – Tellus must incorporate all the recommendations outlined in the Surface Water Assessment, BECA January 2017.</p> <p>A more detailed study of effects of site construction, road construction, etc. on waterways, floodplains and vegetation is required.</p>



Issue reference	Issue raised
	<p><i>During detailed design and following completion of detailed design, additional work requirements for the outline ESCP are recommended. These include:</i></p> <ul style="list-style-type: none"> • <i>Detailed survey of the sites plotted to inform ESCP's;</i> • <i>Dam evaluation as detailed in Section 7;</i> • <i>Investigate whether a gully rehabilitation program on the Maryvale Hills up-gradient from the Chandler Facility is warranted, based upon ongoing monitoring (Section 9) and proximity of planned infrastructure;</i> • <i>Roof water drainage volume estimation;</i> • <i>Sinkhole inspections on the construction sites to verify buffer zones;</i> • <i>Soil pits dug once excavation depths and known. Dispersion and soil characterisation testing should be performed for surficial and suitable depth increment samples for the Apirnta Facility, Chandler Facility and Haulage Road;</i> • <i>Water monitoring plan for construction and operation;</i> • <i>Wildlife corridor design for the newly created Halfway Dam</i> <p><i>The plan should be accompanied by Landscape Mgmt Plan for operation and legacy of the site (Section 7).</i></p>
DPIR 81	<p>Appendix R: Surface Water Assessment, General – The water quality results obtained for the Chandler project area contain substantial concentrations of metals. The highest value for copper observed is 70 times the recommended ANZECC 95% species protection trigger value. The values presented are not clearly labelled as filtered or total components; this should be included in the results for better interpretation.</p> <p>Presumably, no filtered metal data has been presented. All conclusions and interpretations are therefore unreliable for aquatic ecosystem protection. Further sample collection and data interpretation is required.</p>

5.3.1 DPIR 1

Issue raised

The surface storage and transfer facility would provide for the temporary storage of up to 400,000 tonnes of waste per annum...

How long will materials be in 'temporary storage' before being transported for storage in the underground 'rooms'? It is assumed that the disposal of waste in the Chandler Facility would take some time due to inventory and segregation purposes. Will the warehouse be able to cope with incoming waste if underground waste disposal is at a slower rate than incoming waste or if mining is temporarily suspended or under care and maintenance and there is no capacity to store waste underground? Or will the proponent simply suspend accepting external waste?

Proponent's response

Waste materials would be temporarily stored at the proposed Apirnta Facility prior to being transported for underground storage/permanent isolation at the proposed Chandler Facility. Waste would be stored or permanently isolated at the proposed Chandler Facility in year five (given that construction is anticipated to take three years with an additional one year for testing and commissioning).



The indicative operational schedule for the Proposal is provided in Table 3-14 in Section 3.6.1 of the draft EIS.

The Apirnta Facility would have a licensed capacity to temporarily store up to 400,000 tonnes of waste. The waste would be stored either in a warehouse, within an open storage yard or within a liquid storage tank. The proponent would suspend accepting waste once the licensed capacity has been reached at the Apirnta Facility.

An updated schedule to the draft EIS is provided in Table 5-33.



Table 5-33 Updated project schedule (July 2017)

Location	Infrastructure	Activity	Business (salt/waste/both)	Commencement	Duration
Source of waste to Apirnta rail siding (not part of EIS)	<ul style="list-style-type: none"> Rail Roads Ports TOLL Dangerous Goods licensed warehouses across Australia (refer to EIS Supplement for more information) 	Transport of waste via public roads, ports and rail.	Waste	2018 or late 2017 depending on the approval of the WA Sandy Ridge Facility and Chandler Facility	Life of project
Apirnta (a storage and transfer facility with capacity for temporary storage up to a maximum of 400,000 tonnes of waste)	Rail siding	waste in and salt out	Both	Jun-18	Life of project
	Temporary storage - warehouse	Storage of waste (6,600 m ²)	Waste	Within 12 months of the Chandler Facility being approved	Life of project
	Temporary storage - pad	Storage of up to 400 000 tonnes of waste	Waste	Within 12 months of the Chandler Facility being approved	Life of project
	Liquid storage tank	Storage of up to 40,000 litres	Waste	Within 12 months of the Chandler Facility being approved	Life of project
	Supporting infrastructure	Rail spur / access roads / power / water	Both	within 3 years	Life of project
	Quarantine zone	Waste quarantine of rejected wastes not meeting Tellus Waste Acceptance Criteria	Waste	Within 12 months of the Chandler Facility being approved	Life of project



Location	Infrastructure	Activity	Business (salt/waste/both)	Commencement	Duration
	Laboratory	On-site verification of wastes	Waste	Within 12 months of the Chandler Facility being approved	Life of project
	Office	Administration activities of site operations	Both	Within 12 months of the Chandler Facility being approved	Life of project
	Maintenance and storage shed	On-site maintenance activities	Both	Within 12 months of the Chandler Facility being approved	Life of project
	Loading bay, weighbridge and vehicle wash-down facility	Daily waste and salt operations	Both	Within 12 months of the Chandler Facility being approved	Life of project
	Truck driver amenities	Rest and recovery	Both	Within 12 months of the Chandler Facility being approved	Life of project
	Water and sewerage services	Daily water supply	Both	Within 12 months of the Chandler Facility being approved	Life of project
	Power plant/ electricity	Daily power supply	Both	Within 12 months of the Chandler Facility being approved	Life of project
	Security (fences, light, camera)	Prevent vandalism	Both	Within 12 months of the Chandler Facility being approved	Life of project



Location	Infrastructure	Activity	Business (salt/waste/both)	Commencement	Duration
Maryvale Road - Chandler	Access	Basic road improvements would be required for heavy vehicle access for construction equipment, workers, and deliveries during construction	Both	Within 24 months of approval	Construction
Stuart Highway - Apirnta	Henbury Access Road (60 km)	Stuart Hwy to Arpita for workers and deliveries	Both	After mining has begun	Life of project
Apirnta - Chandler	Chandler Haul Road (30 km)	Transport waste	Both	After the decline is complete (~year 4)	Life of project
Apirnta - Chandler	Chandler Haul Road (30 km)	Transport salt	Both	After the decline is complete (~year 4)	Life of project
Apirnta - Chandler	Light aircraft / helicopter landing area	emergency	Both	During construction	Life of project
Chandler	Underground mine	mining salt	Salt	commences Dec 2021	25 years with a 25 year rolling licence
	Underground storage facility	permanent waste placement	Waste	commences March 2022	25 years with a 25 year rolling licence
	Underground storage facility	temporary waste placement	Waste	commences March 2022	Passively safe for geological time
	Vertical Shafts (x2)	construction	Salt	Late 2018 or early 2019 (dependent on when Chandler Facility is approved and completion of the BFS/FID).	3 years plus 1 year commissioning
	Vertical Shafts (x2)	operation (for egress and salt export)	Salt	2021	Life of project
	Shaft hoist	Operation	Both	2022	



Location	Infrastructure	Activity	Business (salt/waste/both)	Commencement	Duration
	Decline	construction	Waste	Late 2018 or early 2019 (dependent on when Chandler Facility is approved and completion of the BFS/FID).	Life of project
	Decline	operation	Waste	2021	Life of project
	Salt process plant and transfer station	Refine salt to saleable product	Salt	commences year 5	Life of project
	Stockpile - ROM	Stockpile raw salt prior to processing	Salt	commences year 5	Life of project
	Soil and overburden stockpiles		Both	Construction - 2018 - 2021	Operation
	Hydraulic backfill plant	Mix waste into viscous solution for emplacement	Waste	2022	Operation
	Dry Processing salt plant		Salt	Dec 2021	Life of project
	Technology park	Investigating recycle/reuse of waste	Waste	First 5 years of operation	Life of project
	Waste unloading area	Waste Acceptance Procedure	Waste	Construction - 2018 - 2021	Life of project
	Waste storage warehouse	Waste Zoning Guide	Waste	As above	Life of project
	Maintenance buildings	Proactive maintenance for all plant	Both	As above	Life of project
	Administration buildings	Oversee construction and operation activities	Both	As above	Life of project
	Accommodation village	Rest and recovery for construction and operation workforce	Both	As above	Life of project
	2 megawatt solar/diesel hybrid power plant	Provide power during operation	Both	As above	Life of project



Location	Infrastructure	Activity	Business (salt/waste/both)	Commencement	Duration
	Dirty water runoff/storage dam/s	Constructed to ensure any potential dirty water is separated from clean water	Both	As above	Life of project
	Sewerage treatment facility	Required to manage domestic sewer wastes produced during construction and operation.	Both	As above	Life of project
	Fuel storage facility	Safe management / bunding of fuels during construction and operation	Both	As above	Life of project
	Utility reticulation	Adequate management of utility provisions	Both	As above	Life of project
	Compressor building	Power supply	Both	As above	Life of project
	Bore field	Water supply and hydraulic backfill	Waste	As above	Life of project
	Explosives magazine	Supply for decline construction activities	Waste	As above	Life of project
	Container wash-down compound	Clean and sterilise containers for re-use	Both	As above	Life of project
	Vehicle wash-down area	Clean and sterilise trucks	Both	As above	Life of project
	Waste batching/paste plant	Part of the hydraulic backfill process	Waste	As above	Life of project
	Switch yard???	Part of overall power supply and back-up for underground ventilation	Both	As above	Life of project
	First aid and emergency response building	Ensure adequate provisions for Health and Safety of workers	Both	As above	Life of project
	Security, visitors and training building	Ensure site safety and site education	Both	As above	Life of project
	Security gatehouse	Ensure site safety	Both	As above	Life of project



Location	Infrastructure	Activity	Business (salt/waste/both)	Commencement	Duration
	Landfill?	Required to manage domestic wastes produced during construction and operation.	Both	As above	Life of project
	Sewage Treatment Facility?	As above (cell B52)	Both	As above	Life of project
	Potable water source/storage?	Drinking water supply will require a RO plant due to hyper saline groundwater levels (~15-18k TDS at 180m bgl)	Both	As above	Life of project



5.3.2 DPIR 2

Issue raised

The surface storage and transfer facility would provide for the temporary storage of up to 400,000 tonnes of waste per annum...The waste would be stored either in a warehouse, within an open storage yard or within a liquid storage tank.

The proponent needs to clarify:

- How each waste material is being stored safely e.g. heavy metals, asbestos-like materials, fly ash, etc.

Proponent's response

As discussed in Section 3.2.6 of the draft EIS, waste that passes the Waste Acceptance Criteria (WAC) would be arranged aboveground (at the proposed Apirnta Facility) and underground (at the proposed Chandler Facility) according to a strict Waste Zoning Guide (WZG). Waste materials would be grouped into compatible waste type groups that can be stored together safely. Dangerous goods segregation protocols would be adopted in accordance with *Australian/New Zealand Standard AS/NZS 3833 The Storage and Handling of Mixed Classes of Dangerous Goods in Packages and Intermediate Bulk Containers*. The WZG is provided in Appendix C of the draft EIS.

The WZG would be updated prior to construction of the Proposal to include specific waste zoning guidance and plans for both the Apirnta Facility and the Chandler Facility.

Issue raised

The surface storage and transfer facility would provide for the temporary storage of up to 400,000 tonnes of waste per annum...The waste would be stored either in a warehouse, within an open storage yard or within a liquid storage tank.

The proponent needs to clarify:

- Risks that may affect the site such as flooding, groundwater contamination (liquid wastes and salt storage), airborne emission - contaminated dust, etc.

Proponent's response

Potential environmental, social and economic risks associated with the construction, operation and closure and rehabilitation of the Proposal (which is defined as encompassing the proposed Chandler Facility, Apirnta Facility, Chandler Haul Road and Henbury Access Road) have been assessed in Chapter 7 through Chapter 19 of the draft EIS.

Surface water (flooding)

Risks to surface water are discussed in Chapter 9 and Appendix R of the draft EIS. Specifically, the risks associated with flooding at the site of the proposed Apirnta Facility are outlined in Section 9.4.2



of the draft EIS. As discussed, the sites drainage patterns would be altered as a result of constructing impervious hardstand areas and re-contouring the land to suit the proposed infrastructure at the Apirnta Facility. Drainage would be designed to contain all runoff occurring with the site (including that from flooding events). After on-site treatment has taken place, the water would be used for ablutions, at the wash down facility and in the rainwater tanks. The capacity of the stormwater drainage system would accommodate a 1 in 100 year rainfall event over a 24-hour period. No stormwater would be discharged off-site.

The design requirements for the storm water drainage system was beyond the scope of the surface water assessment and would be addressed in detailed design and later updated within the draft Water Management Plan attached in Appendix Q of the draft EIS.

Groundwater

Risks to groundwater are discussed in Chapter 8 and Appendix P of the draft EIS. Specifically, the risks associated with groundwater contamination at the site of the proposed Apirnta Facility are outlined in Chapter 9 of the draft EIS. Contamination of groundwater at the site of the proposed Apirnta Facility would be unlikely owing to the depth of the nearest groundwater unit (which will be measured during the Stage II groundwater research program).

Waste materials stored in the warehouse would be sealed in storage containers and wrapped in plastic on wooden pallets then stacked in high-bays. The storage yard would be used for the temporary storage of waste materials that would be sealed in shipping containers. The liquid storage tank would be used to store a variety of liquid wastes. Liquid wastes would be stored on a sealed hardstand within a bunded area sufficient to hold 110% of all material.

In the event of an accidental spill, liquids would be prevented from leaving the site. Contaminated waste would be collected and contained within new drums that could be used at a later date for reuse in the hydraulic backfill process.

Air quality

The risks associated with wind-blown spilled dry waste and liquid wastes are presented in detail in Section 15.5.3 and Appendix X (Part B, Part C and Part D) of the draft EIS. A substantial focus of the risk assessment is identifying the risks associated with loss of containment, and the subsequent release to atmosphere of waste materials. The risk assessment presents risk contours associated with various loss of containment scenarios, from partial losses from single storage vessels (IBC and FIBC) (i.e. accidental spillages), through multiple simultaneous containment failure to the loss of containment from the entire site.



5.3.3 DPIR 3

Issue raised

Deep rock salt repositories have very high integrity for waste disposal, due to the inert nature of the salt and its geological plasticity (salt will creep over time, effectively self-healing which contributes to the passively safety case advantage of geological repositories).

Over time, any material inside the room will become encapsulated within the salt strata...

What is the risk of dissolution of the natural salt barriers? Is the waste packaging compatible with the salt barriers i.e. they won't deteriorate over time?

Proponent's response

Please refer to NT EPA 36.

5.3.4 DPIR 4

Issue raised

The current market analysis suggests the volumes and sources of waste would be provided from the following and as shown in Figure 2-12.

The potential waste customers are fairly broad. It is understood that company/department names cannot be provided for confidentiality reasons, however, have potential waste customers been specifically/directly sourced in the NT? Will waste be accepted from other states?

Proponent's response

The proponent confirms that the licence it seeks to temporarily store and isolate waste under the *Waste Management Pollution Control Act* does include seeking waste from other Australian States and Territories.

5.3.5 DPIR 5

Issue raised

...the proponent would defer processing for the first five years of mining resulting in approximately 3.5 million tonnes of salt being stockpiled on the surface. The stockpile would be located to the south of the mine infrastructure area at the proposed Chandler Facility...could reach a height of approximately 20 metres...

How would the stockpile be managed and protected from the elements (i.e. wind and rain) for five years?

Proponent's response

Please refer to NT EPA 65.



5.3.6 DPIR 6

Issue raised

In terms of the dry packaged waste backfill, are there any wastes that could potentially react with the salt barrier if unintentionally released? Has an environmental risk assessment of the two hydraulic backfilling methods been conducted, taking into consideration the above-ground risks, such as the plant and transport of the backfilling material? It appears that risk has mostly been assessed in terms of the backfilling composition.

Proponent's response

Please refer to NT EPA 34 and 36.

5.3.7 DPIR 7

Issue raised

The proponent proposes to construct a 30km haul road from the Stuart Highway to the Apirnta facility and then to the Chandler facility crossing the railway line and major watercourses, such as the Finke River. A construction plan, including impact from the construction and ongoing use of the road is required.

Cross culverts and/or weirs at water course crossings, including the Finke River. Where significant drainage/creek crossings are required, culverts would be constructed...

Culverts or weirs may not be feasible for the Finke River crossing (and other major creeks) given that high intensity flash flooding is an identified hazard in the area. Access to the site could be restricted for several weeks or months after a major flood event.

Culverts and weirs affect river flow and downstream habitats. The effect of these constructions must be considered.

Permanent bridges may provide a safer and improved environmental solution and reduced erosion and sediment control costs.

Proponent's response

Please refer to NT EPA 9.

5.3.8 DPIR 8

Issue raised

Dry optical sorting facilities are likely to be located within the mine infrastructure area in the vicinity of the run of mine salt stockpile. The final location of these facilities would be determined during detailed design of the Proposal."



Table 3-1 Key characteristics of the proposal

Salt mining of an average of 750,000 tonnes per annum with salt processing deferred for the first 5 years of mining operations.

More information is required on the salt mining, sorting and storing, such as, but not limited to: timeframes for each phase, area required, site construction (e.g. non-permeable pad), water requirements, run off containment and treatment, etc.

Proponent's response

Please refer to NT EPA 6.

5.3.9 DPIR 9

Issue raised

Fig 3-15 Proposed aboveground layout of the Chandler Facility

The Waste Water Evaporation pond is located next to the Bore water dam.

Is there a risk of cross contamination? Will the pond be lined? Explain the need for a bore water dam. Is a tank a better option?

Proponent's response

Please refer to NT EPA 6.

5.3.10 DPIR 10

Issue raised

Figure 4-3 Environmental impact assessment process (NT EPA)

This figure is illegible.

Proponent's response

Noted. Please refer to Figure 5-74 (amended Figure 4-3 of the draft EIS).

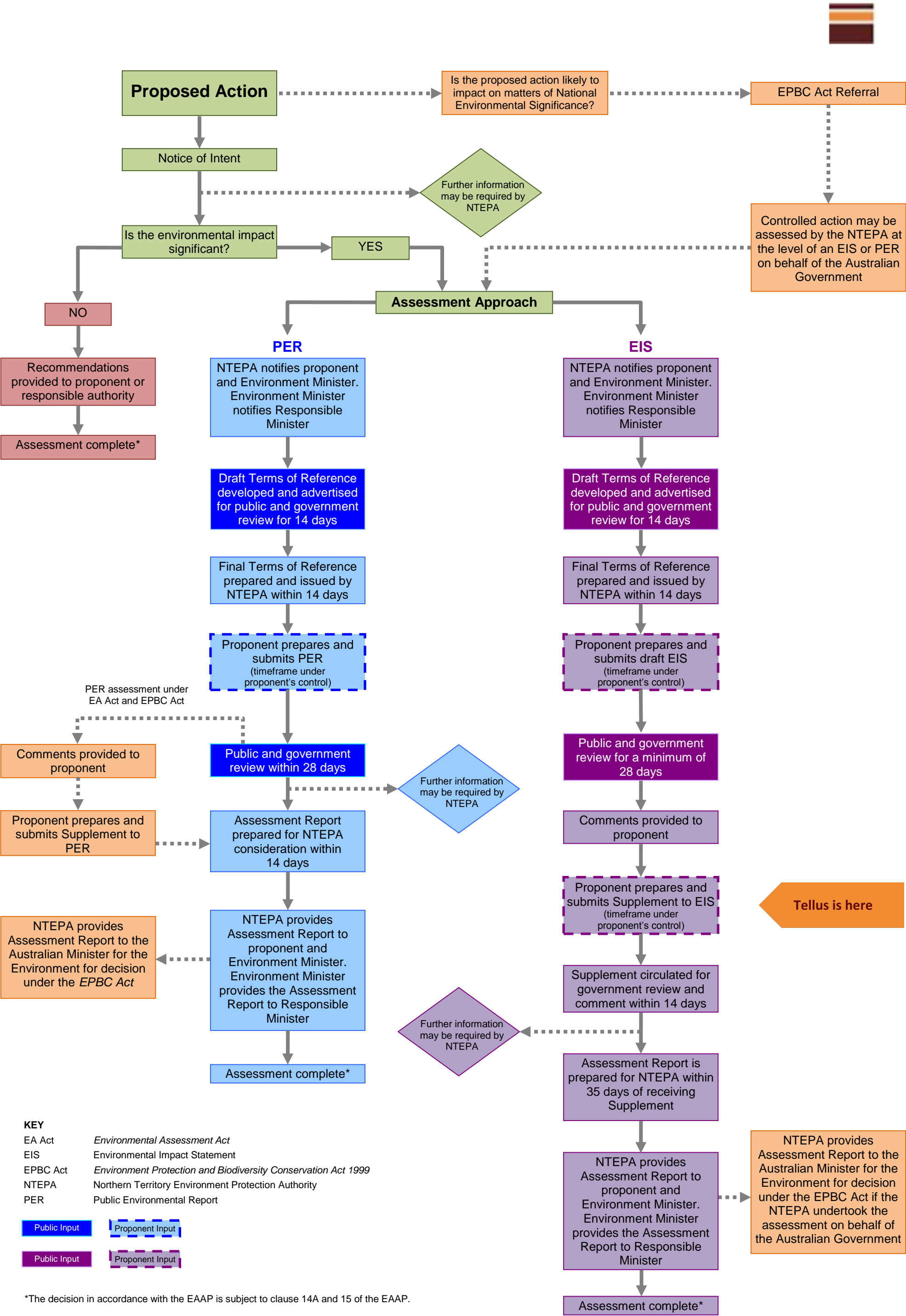


Figure 5-74. Amended figure 4-3 from the draft EIS (Environmental impact assessment process (NT EPA))



5.3.11 DPIP 11

Issue raised

Table 6-10 Risk Assessment

A range of hazards were identified by the NT EPA through a preliminary assessment of the proposal as 'risks' including changes to surface water hydrology.

Altered hydrology surrounding the mine infrastructure area.

This risk is categorised as 'beneficial.'

The proponent needs to clarify how "Altered hydrology" may be beneficial.

Proponent's response

Refer to NT EPA 13.

5.3.12 DPIP 12

Issue raised

Table 6-10 Risk assessment

Hazard identified by the Proponent in the EIS:

Flash flooding into mine infrastructure area

Mitigation - Storm water drains/flood relief

And

Appendix R Surface Water Baseline conditions

Executive Summary

Water quality data is limited but suggests a system characterised by low frequency/large magnitude floods... At this point, no numerical flood modelling has been conducted. Instead, a conceptual hydrological model has been prepared.

Flood modelling must be conducted prior to designs of "Storm water drains/flood relief" and should include the haul road and Apirnta site.

Proponent's response

Refer to NT EPA 14.



5.3.13 DPIR 13

Issue raised

A total of seven introduced species were recorded within the proposed development footprint and vicinity. Of the seven weed species recorded, one species is listed as a weed of national significance by the Australian Weeds Strategy (2005). Three species are declared weeds under the Weeds Management Act.

Location and pictures of the declared weeds should be provided and a weed management plan submitted in the MMP.

Proponent's response

Please refer to proponent's response to DENR 20 (Section 5.6.20).

5.3.14 DPIR 14

Issue raised

Land has also been previously cleared for tracks and a small amount of land has been cleared previously for mining exploration by Central Petroleum.

The location of land disturbed by other Operators should be included in a map.

Proponent's response

Please refer to proponent's response to DEE 1 (Section 5.1.1).

5.3.15 DPIR 15

Issue raised

Some habitats have been recorded as suitable habitat for threatened fauna species and some secondary signs of threatened fauna species have been identified during surveys.

What management measures would be undertaken for the threatened fauna species, whose secondary signs have been identified?

Proponent's response

Mitigation and management measures proposed to minimise the impacts on flora and fauna (including conservation-significant species) during construction, operation, and closure and rehabilitation of the Proposal are summarised in Table 7-11, Chapter 7 of the draft EIS and are detailed in Table 12-1 in Appendix 6 (Draft Biodiversity Management Plan) of Appendix O (Risks to Biodiversity Report) of the draft EIS. Table 12-1 has also been revised so that the mitigation measures are 'SMART' (refer to the proponent's response to DEE 14, specifically Table 5-12 in



Section 5.1.14). These measures would be incorporated into the CEMP, OEMP and/or RCP for the Proposal.

The mitigation and management measures listed in Chapter 9 (Surface water), Chapter 11 (Human health and safety), Chapter 15 (Air quality) and Chapter 16 (Noise and vibration) of the draft EIS would also be implemented to minimise potential impacts associated with erosion and sedimentation, contamination, altered hydrology, dust, and noise and vibration on flora and fauna (including conservation-significant species).

5.3.16 DPIR 16

Issue raised

How would Tellus manage the risk of fauna strike especially during dusk and dawn?

Proponent's response

As discussed in Section 7.4.2 of the draft EIS, increased vehicle movements within the proposed development footprint and vicinity during construction may result in an increased incidence of fauna strike (resulting in injury or mortality). Section 7.5.1 similarly addresses vehicle strike during operations, and Section 7.6.2 during closure and rehabilitation. Mitigation and management measures to reduce fauna injury/mortality were summarised in Table 7-11 of the draft EIS. An extract of Table 7-11 (with regards to fauna injury/mortality) has been reproduced below as Table 5-34.

Mitigation and management measures were also detailed in Table 12-1 in Appendix 6 (Draft Biodiversity Management Plan) of Appendix O (Risks to Biodiversity Report) of the draft EIS. Note, though, that Table 12-1 has been revised so that the mitigation measures are 'SMART' (refer to the proponent's response to DEE 14, specifically Table 5-12 in Section 5.1.14). These measures would be incorporated into the CEMP, OEMP and/or RCP for the Proposal.

Table 5-34 Biodiversity mitigation and management measures (fauna injury/mortality)

ID	Outcome	Mitigation/management measure	Timing
B.11	Reduced incidence of fauna injury/ mortality	Ensure fauna is removed from areas intended to be cleared by a qualified ecologist.	Pre-construction and construction
B.12	Reduced incidence of fauna injury/ mortality	Avoid driving during high risk times; dawn, dusk and at night, where possible.	Construction, operation, closure and rehabilitation
B.13	Reduced incidence of fauna injury/ mortality	Prohibit off-road driving.	Construction, operation, closure and rehabilitation
B.14	Reduced incidence of fauna injury/ mortality	Develop and maintain a fauna strike register.	Construction, operation, closure and rehabilitation
B.15	Reduced incidence of fauna injury/ mortality	Limit access of third parties on-site.	Construction, operation, closure and rehabilitation



ID	Outcome	Mitigation/management measure	Timing
B.16	Reduced incidence of fauna injury/ mortality	Ensure traffic adheres to speed limits and local road rules.	Construction, operation, closure and rehabilitation
B.17	Reduced incidence of fauna injury/ mortality	Ensure speed limit and potential fauna crossing signs clearly are displayed on Chandler Haul Road, Henbury Access Road and other access tracks, as necessary.	Construction, operation, closure and rehabilitation

5.3.17 DPIR 17

Issue raised

In Section 8.1.3 (Groundwater monitoring), groundwater quality is said to be monitored quarterly, and in Table 8-8 (Proposed groundwater mitigation and management measures), the frequency of reporting is four-monthly.

Clarification is required regarding frequency of reporting. Is the proponent intending on submitting a detailed report to the DPIR and NTEPA every four months with the sample data?

Proponent's response

The proponent has developed a rigorous Stage II groundwater investigation program to inform the BFS and detailed design. Stage II investigations will also deliver more detailed information for the construction and operation of the proposed Chandler Facility. The Stage II program is included in Table 5-30.

As part of the Stage II program, data loggers would be installed into existing Stage II groundwater bores that are shown on Figure 5-41 and Figure 5-42. Telemetry would also be installed on existing bores named WT1 and WT2.

The advantages of having data loggers and telemetry in place will provide the proponent (and therefore Government) with real time data that allows:

- Further scientific assessment of groundwater levels and quality.
- Revision of the proponent's existing conceptual groundwater model.

Whilst the data loggers and telemetry will provide real time data at selected bores, there will remain a requirement for the proponent to collect, collate and analyse groundwater data within the proposed Stage II bores. Should the proposal be approved, the proponent has proposed a Stage II monitoring and reporting program to provide Government with confidence that the proponent is committed to (a) understanding local and regional groundwater resources and (b) reporting the findings of its research in a transparent manner. Please refer to Table 5-27 for more information.



5.3.18 DPIR 18

Issue raised

More frequent groundwater monitoring is required, especially during the pre-mining and construction phase of the project to ensure that data can be used to ascertain background water quality and ensure that no groundwater impacts are occurring. Initial monitoring should have already commenced and needs to be undertaken on a regular basis.

If quarterly monitoring is still to be proposed, evidence that groundwater quality results obtained are representative of pre-mining water quality is required. A discussion outlining the potential risks of less frequent monitoring, for example a delay in identifying groundwater contamination, needs to be included.

To satisfy the requirement that background water quality has been adequately assessed, QA and QC procedures need to be detailed, potential temporal changes in water quality should be discussed, and the statistical confidence in the results presented.

Proponent's response

Please refer to NT EPA 52.

5.3.19 DPIR 19

Issue raised

GW.1 Sustainable use of groundwater reserves

Apply for water abstraction licences and permits under the Water Act.

Pre-construction

Please provide mitigation measures to enable 'Sustainable use of groundwater reserves' as well as management measures.

Proponent's response

Based on the expected water budget for construction (70 megalitres per annum for 3 three years) and operation (113 megalitres per annum), the proponent will apply for a licence to abstract the expected volumes of water under the NT *Water Act*. The objective of taking this action is to ensure the proposal's water abstraction can be monitored by the NT Government and for the proponent to report its sustainable use of groundwater resources linked to its mining lease area.

In addition, the proponent commits to preparing and submitting an annual groundwater report. Its contents would be determined by requirements of the *Water Act* and associated Regulations. Where appropriate, the annual groundwater report will also address the requirements of the project's Mine Management Plan.



The existing WMP details management commitments relating to neighbouring landholder bores (see Table 5.1 – WMP 2), including the commitment to undertake a landholder bore baseline assessment to establish the operational status of the bores. Since the submission of the draft EIS, the proponent has undertaken an additional review of surrounding pastoral and NT owned bores to collate information for a future groundwater hydro census that will be undertaken in the BFS program. The results of the hydro-census will be supplied to DPIR and include in the annual groundwater report.

A pumping test has been undertaken at the site with the objective of establishing the sustainable yield of the groundwater resource. The test bore was pumped at a constant rate of approximately 4 L/s, generating a groundwater drawdown of approximately 0.4 m at a distance of 1 km. The peak project water demand is approximately 3.42 L/s.

Proposed production bores have been located at a minimum distance of 2 km from identified landholder bores to ensure neighbouring supplies remain operational and consistent with observed baseline conditions.

Tellus propose to install cumulative flow meters on all production bores and reconcile cumulative water usage on a weekly basis to ensure water usage is consistent with projected water demands (see Section 4 for more detail). The results of this research will be included in the annual groundwater report.

5.3.20 DPIR 20

Issue raised

GW. 4 Develop of detailed groundwater quality database

Report groundwater quality results to the DPIR and the NT EPA every four months (April, August and December) to compare seasonal data against project activities.

Please describe the components of the 'groundwater quality' sampling being undertaken.

Proponent's response

Please refer to NT EPA 53.

5.3.21 DPIR 21

Issue raised

GW. 5 Undertake a hydro-census (condition) survey of local groundwater users prior to construction to ascertain bore condition and current status of the bores located within a 25 kilometre spatial buffer around the proposed Chandler Facility.

Explain how/why 25km was chosen? Will the same be done for the Apirnta facility?



Proponent's response

Please refer to NT EPA 54.

5.3.22 DPIR 22

Issue raised

GW. 7 Develop a detailed groundwater database

Complete a groundwater isotope study for monitoring bores prior to construction.

When is this planned? Will this be done for both the Chandler and Apirnta facility area?

Proponent's response

Please refer to NT EPA 55.

5.3.23 DPIR 23

Issue raised

Overall, there is minimal response to rainfall recharge in the piezometric surfaces monitored, indicating the aquifer is dominated by lateral flow rather than vertical flow. In the uppermost formation, the Horseshoe Bend Shale Formation, there is a minor and delayed response (a 0.06 metre rise over 15 days) to rainfall recharge at WT2 and WT6a only.

The response from WT6a has not been plotted, is this WT6?

Proponent's response

Yes, WT6a is WT6.

5.3.24 DPIR 24

Issue raised

Calculations of the expected time for groundwater levels to rebound back to current levels on completion of mining need to be included.

The extent of groundwater drawdown needs to be mapped, ideally with contours, and a list of potentially impacted bores provided. All stakeholders that use or rely on groundwater from potentially impacted bores need to be consulted and briefed on the potential impacts (or lack thereof).

Proponent's response

The pumping test completed in July 2015 by Tellus demonstrates that the groundwater system can support localised abstractions of >4 L/s without generating significant drawdown (i.e. no drawdown



observed in monitoring bores >1km from the pumped source). Tellus are proposing to abstract 3.42 L/s to meet their peak project water demand. This demand will be met by a number of production/dewatering sources across the project area which will be confirmed following the results of the Stage II groundwater drilling program which will include additional pump testing. The results of the additional pump testing will:

- Be compared to the 2015 pump test results.
- Be used to expand on the calculated draw down modelling completed for the draft EIS.
- Be used to update the existing drawdown mapping completed for the draft EIS.

Given the results of the initial pumping test and projected peak water take, groundwater levels are expected to rebound immediately to pre-mining water levels upon cessation of project-related groundwater abstraction.

A conceptualised groundwater drawdown contour map has been developed (refer to Figure 5-75). As discussed in Section 8.4 of the draft EIS, drawdown has been calculated using the De Glee (1930) analytical model of steady state drawdown in leaky aquifer systems.

The groundwater drawdown contour map is a conservative estimation of drawdown. In this case, the drawdown map significantly over-estimates project-related groundwater drawdown. It assumes that each production/dewatering source is continuously pumped at the peak project water demand of 3.42 L/s.

Groundwater drawdown has been mapped with respect to registered landholder bores, known springs, potential groundwater dependent ecosystems, and the Finke and Hugh Rivers.

The proponent will locate all production/dewatering sources at a minimum distance of 2 km from all sensitive groundwater receptors. This will form an additional management commitment for the draft EIS (refer to Table 4-1).

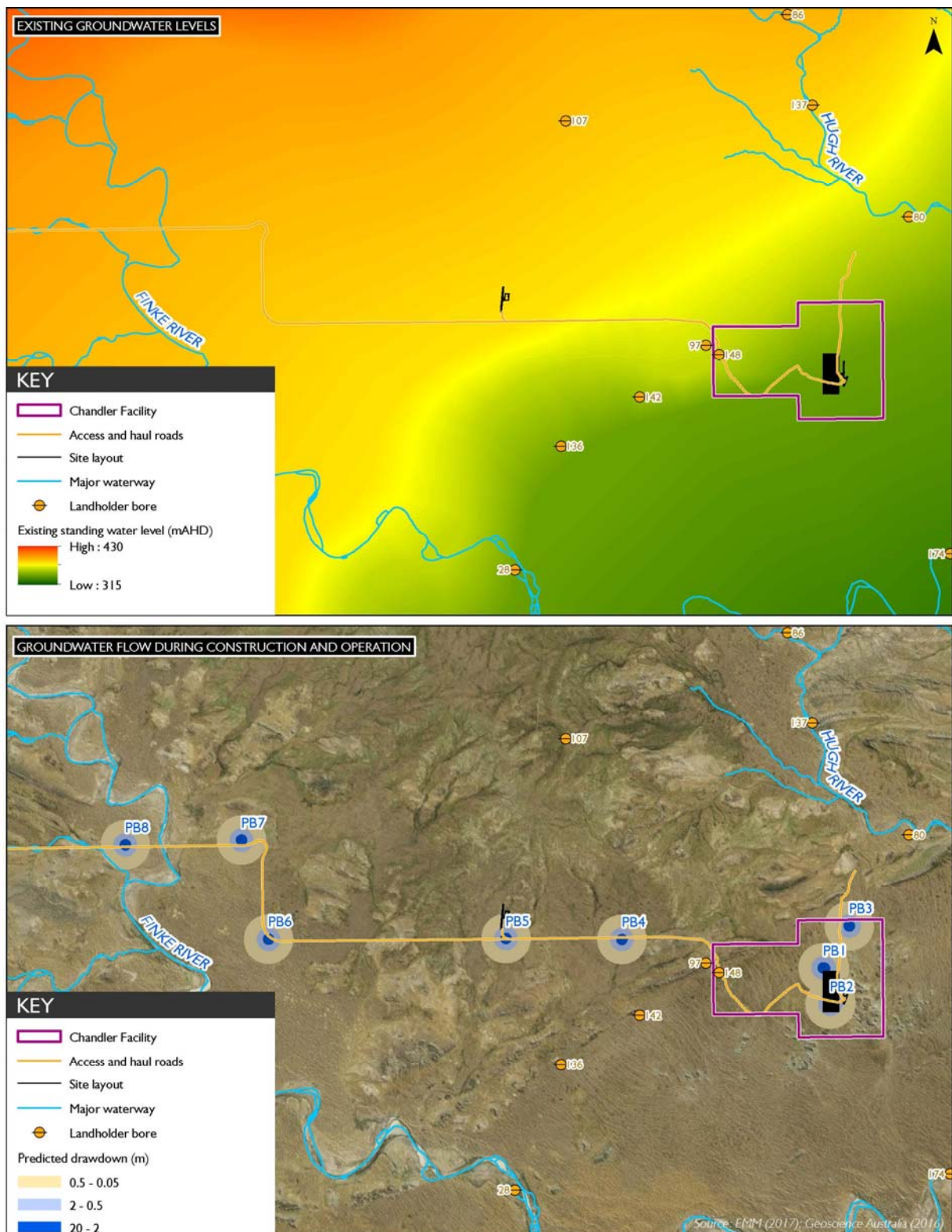


Figure 5-75 Likely groundwater drawdown related to operations for the Chandler Facility



5.3.25 DPIR 25

Issue raised

Groundwater users within the 75 km of the project area Fig 8.10 and Groundwater users within the 25km of the Chandler facility Fig 8.11.

An accurate detailed model of the groundwater in and around all the sites (Apirnta and Chandler) is required including details on the number of bores located in the area that are within the drawdown zone or may be affected.

Tellus must confirm, by more detailed study, that there will be no effect on other users of groundwater, including natural vegetation, from the drawdown, or any other reason, from the mine over time.

Proponent's response

All production sources have been located at a minimum distance of 2 km from identified sensitive groundwater receivers that were identified in DPIR 21. As such, no short, medium or long term adverse impact is expected at any of the identified sensitive groundwater receivers.

5.3.26 DPIR 26

Issue raised

Figure 8.12 Surface water monitoring network

Monitoring locations should also include the Finke River before confluence with Hugh River, the Hugh River before confluence with Finke River, and Finke River after the Hugh River confluence.

Proponent's response

The proponent has developed a detailed Stage II surface water monitoring program in response to public and government feedback on the draft EIS. To compliment baseline studies undertaken for the draft EIS, additional surface water reconnaissance was conducted by the proponent between April and June at the following local and regional locations (refer to Figure 4-1 through Figure 4-4):

- Hugh River where it crosses Chambers Pillar Road.
- Chambers Pillar Road west of the Hugh River and before the proposed private Chandler Access Road.
- Chandler Access Road.
- Halfway Creek (east catchment).
- Halfway Creek (south catchment).



- Halfway Creek (west catchment).
- Finke River west of the confluence with the Hugh River.

Environmental river traverses (cross sections) were completed at the following locations:

- Upstream and downstream of the Hugh River where it crosses Chambers Pillar Road.
- Longitudinal sections along the main channel of the Hugh River.
- Halfway Creek (east catchment).
- Halfway Creek (south catchment).
- Halfway Creek (west catchment).
- Finke River west of the confluence with the Hugh River.

The cross sections are shown in Figure 4-1 through Figure 4-4.

The environmental traverses will be used in Stage II works to calculate biomass at each river crossing and link them to NT land resource management (refer to Plate 5-5 and Plate 5-6). The Stage II surface water program will also include a surface water monitoring location along the Finke River after the confluence with the Hugh River (refer to Figure 4-1).

The Stage II surface water program proposed by the proponent will have five components. A summary of the program is provided in Table 5-35.



Plate 5-5 Finke River environmental traverse location looking south



Plate 5-6 Hugh River environmental traverse location looking north



Table 5-35 Stage II surface water program

Activity	Location	Comment	Timing
Surface water sampling	Existing proponent hydro-stations	<ul style="list-style-type: none"> • Collection of water samples. • Record maximum height of water flow. • Record type and height of debris / organic matter. • Take photos from original photo point marks. 	During or immediately after a rainfall event.
Surface water sampling	<ul style="list-style-type: none"> • Halfway Creek. • Roo Gully. • Dingo Gully. • Snake Gully. • Ridey Gully. • Oak Gully. • Mary's Creek. • Hugh River (upstream and downstream of Chambers Pillar Road). • Finke River (upstream of confluence with Hugh River). • Finke River (downstream of confluence with Hugh River). 	Opportunistic sampling and maximum depth measurements.	During or immediately after a rainfall event.
Surface water sampling	Upgrade existing hydro-stations.	Improve sampling equipment.	Before Christmas 2017.
Bed load sampling	Undertake bed load sediment sampling at: <ul style="list-style-type: none"> • Halfway Creek. • Mary's Creek. 		Before Christmas 2017.



Activity	Location	Comment	Timing
	<ul style="list-style-type: none"> • Hugh River (upstream and downstream of Chambers Pillar Road). • Finke River (upstream of confluence with Hugh River). • Finke River (downstream of confluence with Hugh River). • Apirnta Creek (at the Railway Crossing) 		
Soil auger sampling (in-stream and on river banks)	<ul style="list-style-type: none"> • Halfway Creek. • Mary's Creek. • Hugh River (upstream and downstream of Chambers Pillar Road). • Finke River (upstream of confluence with Hugh River). • Finke River (downstream of confluence with Hugh River). 	To improve data collection for local and regional geomorphology and bed loads.	Before Christmas 2017
Underflow sampling	<ul style="list-style-type: none"> • Hugh River (upstream and downstream of Chambers Pillar Road). • Finke River (upstream of confluence with Hugh River). • Finke River (downstream of confluence with Hugh River). 	Opportunistic sampling of underflow and soakage's in the Finke River and Hugh River Paleo channels.	During or immediately after a rainfall event.
Install new automated water sampler	Mary's Creek hydro-station (see Figure 5-42)	Required to gather more accurate data on water quality.	December 2017
Install new automated water sampler	Halfway Creek (see Figure 4-3).	Required to gather more accurate data on water quality.	December 2017



Activity	Location	Comment	Timing
Install new automated water sampler	Hugh River (see Figure 4-1).	Downstream of the Chambers Pillar Road Crossing.	2018
Flood modelling	<ul style="list-style-type: none"> • Across the MIA. • Hugh River traverses. • Finke River traverses. • Apirnta Facility. 	During the BFS study.	Quarter 3, 2018
Levelling of environmental traverses and biomass assessment	<ul style="list-style-type: none"> • Hugh River (upstream and downstream of Chambers Pillar Road). • Finke River (upstream of confluence with Hugh River). • Finke River (downstream of confluence with Hugh River). 	The environmental traverses require levelling following rare major rainfall events and obvious change to the traverse ground level section.	Before Christmas 2017.
Annual report	For existing and proposed hydro-stations	An annual inspection and hydro-station report will be undertaken for all existing and proposed stations, this to include in future, annual levelling of creek cross sections.	Annually (July).
Isotopic sampling	<ul style="list-style-type: none"> • Hugh River (upstream and downstream of Chambers Pillar Road). • Finke River (upstream of confluence with Hugh River). • Finke River (downstream of confluence with Hugh River). • Regional springs and soaks including Dalhousie Springs. 	To date and characterise surface water springs located along the Finke River to the south and south-east of the proposed Chandler Facility to confirm or prove otherwise, the source of water from these springs is likely to be derived from the perched shallow alluvial sediment and not the deeper groundwater system connected to the Chandler Facility approximately 50 km away.	Before Christmas 2017.



5.3.27 DPIP 27

Issue raised

However, characterisation of the water type of the springs located along the Finke River to the south and south-east of the Chandler Facility suggest the source of water from these springs is likely to be derived from the perched shallow alluvial sediment and not the deeper groundwater system connected to the Chandler Facility approximately 50 km away. This implies a lack of connectivity, which would mean that any potential drawdown impacts in the deeper groundwater systems arising from Proposal dewatering through abstraction or mining activities would not impact surface water resources.

Further investigation must be conducted to confirm this implication prior to extraction commencing.

Proponent's response

Please refer to the commitment made by the proponent in Table 5-35 (specifically the activity named "isotopic sampling").

5.3.28 DPIP 28

Issue raised

Table 8-3 Water balance (average rainfall per year) shows there will be O inflows into the shaft and therefore O inputs into the water balance.

Detailed calculations showing potential maximum inflows need to be presented for completeness and to provide a clear picture of the potential worst-case scenario risks.

Proponent's response

The proponent proposes to locate production/dewatering bores adjacent to the ventilation shafts and mine decline in Stage III construction works. Advanced dewatering of the local groundwater system adjacent to the proposed excavations will result in dry working conditions, negating the possibility for groundwater inflow into the excavations.

In addition, Tellus propose to 'seal' (shotcrete) active fracture horizons. Sealing groundwater fracture-bearing zones will prevent groundwater ingress once construction dewatering ceases and groundwater levels rebound.

These proposed advanced dewatering and subsequent sealing methods will remove the risks associated with groundwater ingress. The assessment of groundwater ingress into shafts and/ or the decline was also covered by the proponent in Chapter 6 (Environmental Risk Assessment).



5.3.29 DPIP 29

Issue raised

Table 8-3 Water balance (average rainfall per year)

Direct rainfall on water storage areas of 143ML/y.

Please provide more detailed information e.g. location and size of water storage areas and rainfall data.

Proponent's response

The proponent installed an Automated Weather Station in November 2015. Since then, daily records of rainfall have been recorded. A summary of that data is included in Figure 5-76. The highest rainfall recorded in any one month was 529.4 mm in December 2015 which is an anomaly when compared to the remaining 19 months of data. The lowest recorded rainfall to date has been shared between April and May in 2017 with 0 mm. The wettest months on average to date belong to December and January. Total rainfall recorded over a 20 month period is 969.8 mm which is an average of 48.5 mm a month. The proponent will continue to monitor rainfall data to inform future flood modelling that will be undertaken during the BFS.

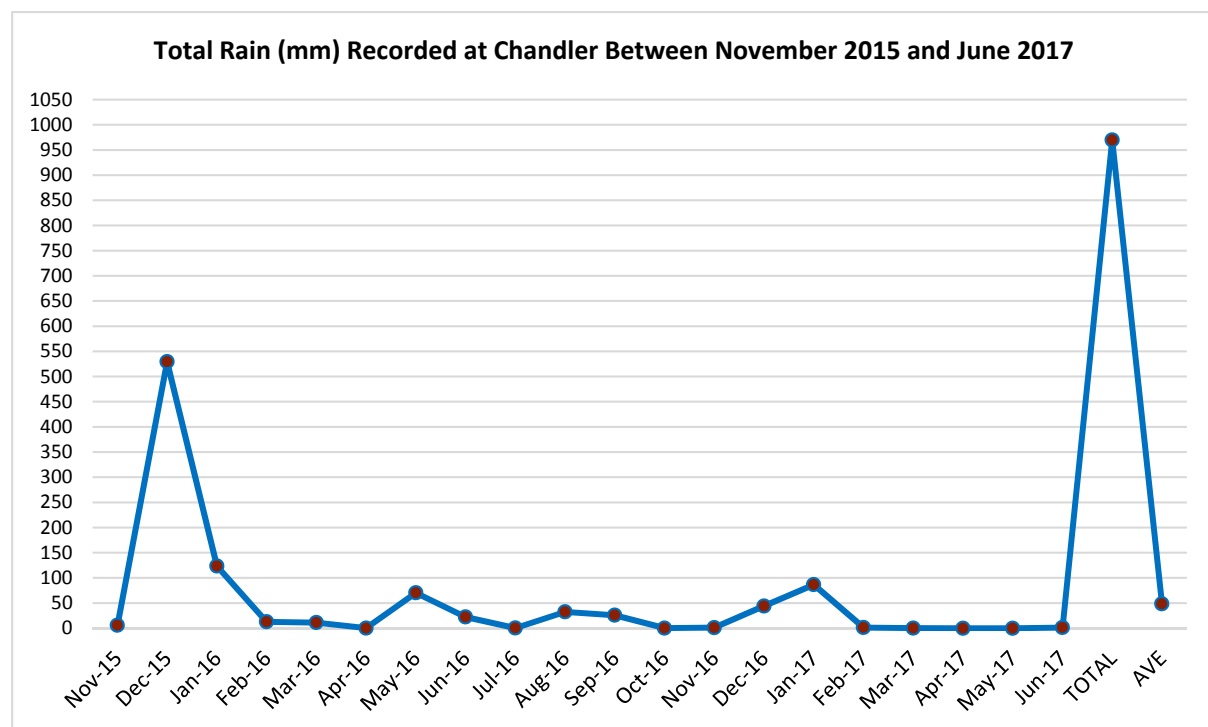


Figure 5-76 Rainfall data recorded at Chandler AWS between November 2015 and June 2017

Water storage areas will be required for dirty water runoff from hardstand areas within the MIA. Drainage and sedimentation areas will also be required for all spoil stockpiles and run of mine salt. Indicative locations and sizes of water storage areas will be provided in the forthcoming Mine



Management Plan and after detailed surface water modelling and design has been completed across the mine infrastructure area.

Please note - the final layout of the proposed Chandler MIA will be closer to finalisation at the completion of the BFS.

5.3.30 DPIR 30

Issue raised

A figure that shows the expected extent of drawdown in contours for the life of mine (LoM) operation, should be included. While LoM is never certain, the potential maximum times should be outlined. While Appendix P contains a simplified version of this, a more detailed version, which includes a contour overlay of the mine area, is required.

Proponent's response

Project-related groundwater drawdown predictions have been provided in Section 8.4 of the Groundwater Assessment. Groundwater drawdown has been estimated using analytical steady state modelling methods.

Modelling utilises site-specific aquifer characteristics based on completed pumping tests undertaken in 2015. The model also incorporates the peak project water demand of 113 megalitres per annum of 3.42 L/s. Modelling conservatively assumes that a single production/dewatering bore continuously achieves the peak project water demand (3.42 L/s). The calculated drawdown from the production/dewatering source is 0.4 m at a distance of 1 km from production/dewatering sources.

Cumulatively distance drawdown buffers have been applied around each of the proposed production/dewatering bores (refer to Figure 8.1 – Groundwater Assessment in the draft EIS).

Contour overlay

A figure showing the cumulative extent of project-related groundwater drawdown relative to the project area, key sensitive environmental and human users (i.e. GDEs, landholder bores, Hugh River and Finke River) has been prepared (refer to Figure 5-75).

5.3.31 DPIR 31

Issue raised

There is the potential for low to moderate impacts to River Red Gum and Coolabah vegetation proximal to the Proposal area as these ecosystems are considered to be partially dependent on groundwater.

*As discussed in Section 8.3, two ecological communities (*Eucalyptus camaldulensis* var. *Obtuse* and *Eucalyptus coolabah* subsp. *Arida*) have been identified by DENR to persist within the riparian*



corridors of the Finke and Hugh Rivers. The root structure is considered to be shallow (less than 15 metres) and dependent on the perched shallow groundwater systems (i.e. near-surface alluvial sources) associated with ephemeral creeks, rather than the water table at about 80 metres depth.

These assumptions need to be verified. Please outline the low to moderate impacts. How will the mine affect the "perched shallow groundwater systems" and associated vegetation?

Clarification is required on "partial dependence" vs "dependence"?

Outline the risks including, but not limited to, excessive groundwater drawdown, drainage of the perched groundwater systems, contamination, etc.

Proponent's response

Please refer to NT EPA 59.

5.3.32 DPIR 32

Issue raised

Table 8-6 Operation raw water demands

Process Water - Saline 45ML/y.

Re-use from hydraulic backfill process and Langra formation.

These figures should be separated to determine how much water is reuse vs abstraction.

Proponent's response

Please refer to NT EPA 60.

5.3.33 DPIR 33

Issue raised

The water quality results, analysis, and discussion within both the main document and the appendix (appendix R) are lacking detail. The report does not explain:

- the observed elevated concentrations of metals,
- filtered and total metal concentration variations,
- management strategies relating to the livestock exclusion, or
- the potential for site-specific guidelines.

Please provide all available data, information and a detailed discussion within relation to this issue.



Proponent's response

Please refer to NT EPA 61.

5.3.34 DPIR 34

Issue raised

The most appropriate guideline values to compare water quality data against were therefore considered to be national guidelines outlined in ANZECC 2000 Water Quality Guidelines for two conditions:

- *The 95 % freshwater aquatic ecosystem protection.*
- *Primary industries livestock protection.*

The 95% species protection guidelines are recommended only if baseline environmental assessments are not available. Given the project has not commenced, there is still sufficient time to obtain baseline data and develop site specific guidelines in line with ANZECC recommended best practice. This needs to be undertaken prior to commencing any further project activities.

Proponent's response

The proponent agrees with the above statement that *the 95% species protection guidelines are recommended only if baseline environmental assessments are not available*. However, baseline data collated over the two-year EIS preparation period was extremely opportunistic owing to resource and budget constraints.

As indicated in response to DPIR 33 above, it is agreed that SSTVs need to be developed. In addition to the monitoring locations given in the draft EIS, it is proposed to install automatic samplers at the following locations (refer to Figure 4-1 to Figure 4-4):

- In Halfway Creek downstream of the proposed surface facilities.
- In Halfway Creek upstream of the proposed surface facilities.
- On the Hugh River upstream of Chambers Pillar Road.
- On the Hugh River downstream of Chambers Pillar Road.
- On the Finke River at the Railway Crossing (NT Govt G0050140).
- On the Finke River upstream of the confluence with the Hugh River.

Industry-standard solar/battery powered automatic samplers should be installed at each of the sites. Each automatic water sampler would be actuated by a water level sensor installed in the nearby stream. Multiple samples would be taken at pre-set changes in water level. Samples would be automatically bottled and held in a refrigerated compartment within the sampler. An automatic telephone message would be sent by the sampler upon actuation to alert responsible personnel.



Samples would then be recovered as soon as possible. Sub-samples should be field-filtered and appropriate preservative added prior to prompt dispatch in a chilled container to a National Association of Testing Authorities (NATA) registered laboratory for analysis. The suite of analytes would be the same as for the sampling program to date, however both total and dissolved metals analysis should be undertaken.

Results from analysis of samples from these sites will form the primary basis for the development of SSTVs. Sampling from the existing “CS” sites would continue via grab samples. These would also be field filtered and analysis undertaken of both total and dissolved metals

In addition, the proponent has collected further underflow surface water samples since the submission of the draft EIS and, is committed to a detailed Stage II surface water program (refer to Table 5-35). Therefore, the proponent recognises and agrees with DPIR that there is sufficient time remaining prior to construction to:

- Collect additional baseline data at a local and regional level.
- Develop site specific guidelines in line with ANZECC recommended best practice.
- Submit site specific guidelines to DPIR for discussion with the proponent. This should occur at the completion of the BFS and prior to construction.



5.3.35 DPIP 35

Issue raised

In this study, bulk sediment samples have been collected and analysed for metal concentrations and percentage < 63 µm grain size. In this instance, a very simple form of normalisation was suitable whereby bulk sediment concentration data (expressed as mg/kg dry weight) was divided by the percentage 1< 63 µm % passing' (expressed as a decimal) (Simpson et. al. 2013). Bulk metal concentrations for the current dataset can then be compared on a spatial basis in order to evaluate sediment enrichment, independent of differences in particle size in different creeks.

This is not an appropriate approach given that smaller particles (such as clays) contain negatively charged surface sites, which positive metal ions are able to bind to, while larger sized particles (such as sands) do not contain a charged surface and therefore generally do not bind metal ions.

Proponent's response

Please refer to NT EPA 63.

5.3.36 DPIP 36

Issue raised

Rainfall flow transformation

The Clark Unit Hydrograph (CUH) method has been used to transform the effective rainfall hyetographs for each catchment into flow hydrographs. The CUH method requires the Time of Concentration (Tc) and CUH Storage Coefficient (Sc) to be calculated using the following equations:

*Tc= 0.76*Area^{0.38} where: Tc= Time of Concentration (hours) Area = Catchment area (km²)*

*Sc= Tc *ratio/(1-ratio) Sc= CUH Storage Coefficient (hours) ratio= 0.65 for flat rural catchments*

The flat rural landscape value used for the ratio section of the Clark Unit Hydrograph suggests that the area surrounding the mine is flat, however in section 9.3.1 (Topography), the comment is made that 11... The topography of the Proposal is characterised by rolling hills and dunes, and sand ridges. However, the general area of the Proposal is bisected by a number of large hills that were created by tectonic activity hundreds of millions of years ago to the north, east and west."

Please clarify the use of the flat rural landscape value with respect to this later comment.

Proponent's response

The calculation of peak streamflow has been revised using the most applicable and accepted methodology for arid Australia, as outlined in the latest edition of Australian Rainfall and Runoff Guideline (ARR) (Geoscience Australia 2016).



Modelling has involved estimation of peak flow rates at multiple locations on watercourses upslope of the proposed Chandler Haul Road consistent with Figure 9-22 and Table 9-15 presented in the draft EIS (BECA, 2017). Modelling involved the use of the RORB runoff routing model, with no sub-catchment split (i.e. a single catchment reporting to each stream node calculation point). Model routing parameter (k_c) values were based on the following recommended regional relationship given in ARR (Geoscience Australia 2016):

$$k_c = 1.06 L^{0.87} S_e^{-0.46}$$

Where

L = main stream length (km)

S_e = equal area slope (m/km)

This relationship is not dependent on topography or landscape.

Modelling was undertaken using recommended median and lower bound rainfall loss parameters (refer DPIR 41) as well as updated rainfall data and temporal patterns. Revised peak flow rate, depth and velocity estimates are presented in Table 5-36.

Depth and velocity estimates are based on existing stream channel geometry inferred from available (2 m vertical interval) topographic contours. Estimates of the length of road flooded and duration of flooding have not been undertaken. This task will be dependent on the exact road crossing configuration (e.g. at grade crossings, culverts, fords, etc.), to be determined during detailed design.

Table 5-36 Chandler Haul Road flood estimates – 1 % AEP

Crossing distance from Stuart Highway (km)	Peak flow rate (m ³ /s)		Maximum depth (m)		Maximum velocity (m/s)	
Loss parameters	Median	Low	Median	Low	Median	Low
59.6	52.3	69.3	1.02	1.13	0.95	1.02
65.7	223	308	0.93	1.05	0.99	1.07
67.9	198	280	0.59	0.67	0.95	1.04
69.0	92.4	130	0.53	0.61	0.73	0.80
71.0	126	180	1.06	1.22	1.13	1.24
72.8	65	90	0.94	1.07	0.59	0.65
78.3	141	193	0.93	1.05	0.98	1.06

Notes:

1. km = kilometres;
2. m³/s = cubic metres per second;
3. m = metres; and
4. m/s = metres per second.



5.3.37 DPIR 37

Issue raised

No breakthrough to the dune area to the north of the sub-catchment is observed, with water in this area locally-derived from runoff from the adjacent dune system. Furthermore, no connectivity between the dune area and the Hugh River to the north is anticipated. No assessment downstream from the confluence between the Hugh and the Finke is deemed necessary because the flow contribution from the Proposal area to flows below this point is considered to be insignificant.

The comment that contributions from the proposed area will not be significant below the confluence of the Hugh and Finke Rivers has not been substantiated. How were the impacts of the proposal area on the reach downstream of the Hugh and Finke confluence assessed? Please provide all available information behind this rationale.

Proponent's response

Please refer to NT EPA 64.

5.3.38 DPIR 38

Issue raised

Figure 9-15 Conceptual Site Hydrological Model

The Figure shows that the ROM area will be located adjacent the Halfway Creek flow path. During high rainfall events, is there the potential for stockpiled material to be carried downstream, potentially resulting in altered water chemistry of the downstream environment? How has this risk been assessed?

Proponent's response

Refer to NT EPA 38

5.3.39 DPIR 39

Issue raised

The Surface water discussion does not address the necessary points. The results have been presented in text format. A graphical representation of the data would be more appropriate in most cases.

The water quality section details various potential influences to surface water quality but does not discuss these in relation to the results observed.

The location coordinates associated with the data should be presented in Latitude and Longitude or UTM and not only mine grid values.



The discussion should contain at least two distinct sections, one for aquatic ecosystem protection and one for livestock drinking water comparison. If there are more uses of water within the project-impacted region these should also be included for discussion.

Proponent's response

Please refer to NT EPA 66.

5.3.40 DPIR 40

Issue raised

Chandler Facility

The current plan is to relocate Halfway Dam...further down the creek line and utilise its current site as the salt stockpile. Therefore, further detailed investigation is required to:

- *Find a suitable location for a new dam;*
- *Assess the effect of any mine activity in the catchment upstream on flow yield/reliability; and*
- *Inform the dam location, intake structure and dam capacity.*

This statement implies that a dam in (or near) a creek will be used as a salt stockpile area.

Please clarify this statement and outline any risks from stockpiling salt in a dam or in this area.

Proponent's response

Please refer to NT EPA 67

5.3.41 DPIR 41

Issue raised

Using an Initial Loss of 40 mm, rainfall depths would result in no runoff for the majority of design events of 5 years ARI or less. While selecting a higher ongoing loss is expected to result in no effective rainfall from much of the longer-duration storm profiles.

The calculations should be repeated using the worst possible conditions (a higher ARI and lower initial loss) to enable an assessment of potential environmental risk.

Proponent's response

Please refer to NT EPA 68.



5.3.42 DPIP 42

Issue raised

The calculated peak flows for the Finke at the haul road crossing (22.8 kilometres) should be validated against recorded data for the Finke at the Stuart Highway (upstream of the haul road) and at the rail crossing (downstream of the haul road).

The validation needs to be undertaken and included as part of the EIS.

Proponent's response

Only a very short number of years of data exists for recorded flows at two NT Government gauging stations on the Finke River:

- G0050140 – Railway Bridge (2009 to 2017).
- G0050116 – S Road Xing (2004 to 2017).

Therefore, peak annual flow frequency analyses were undertaken in order to estimate flow rates corresponding to AEPs (or 'Return Period') in Table 9-13 of the draft EIS (BECA, 2017). Peak annual (water year) recorded flow rates were ranked and plotted on a log flow-probability graph. A Log-Pearson Type III distribution was fitted to each graph (refer to Figure 5-77 and Figure 5-78).

Peak annual flow rates and fitted data have been plotted on the figures for both G0050140 and G0050116. The Log-Pearson Type III distribution values for each gauging station were then scaled in proportion to the ratio of the gauging station catchment area to the estimated catchment area at the proposed Chandler Haul Road crossing.

The resulting scaled values are plotted in Figure 5-79 together with statistical regressions. Also plotted on Figure 5-79 are the values from Table 9-13 of the draft EIS (BECA, 2017) which lie between the two sets of scaled values.

It should be noted that the above method of deriving 1% AEP peak flow rates involves significant extrapolation because of the relatively short period of record. G0050140 has 6 years with recorded non-zero flow, while G0050116 has 13 years of non-zero data. This is reflected in the large gap in the calculated Log-Pearson III 5%/95% confidence limits (refer to Figure 5-77 and Figure 5-78).

In addition, the method of scaling peak flows does not take full cognisance of routing effects. Significantly higher peak flow rates have been recorded at gauging station G0050116 (upstream) than the downstream station (G0050140). For example, in January 2010 the upstream site, G0050116 recorded a peak flow rate of 1,516 m³/s. The downstream site, G0050140 recorded a peak flow rate of 456 m³/s for the same flow event. This trend is evident throughout the years of concurrent record.

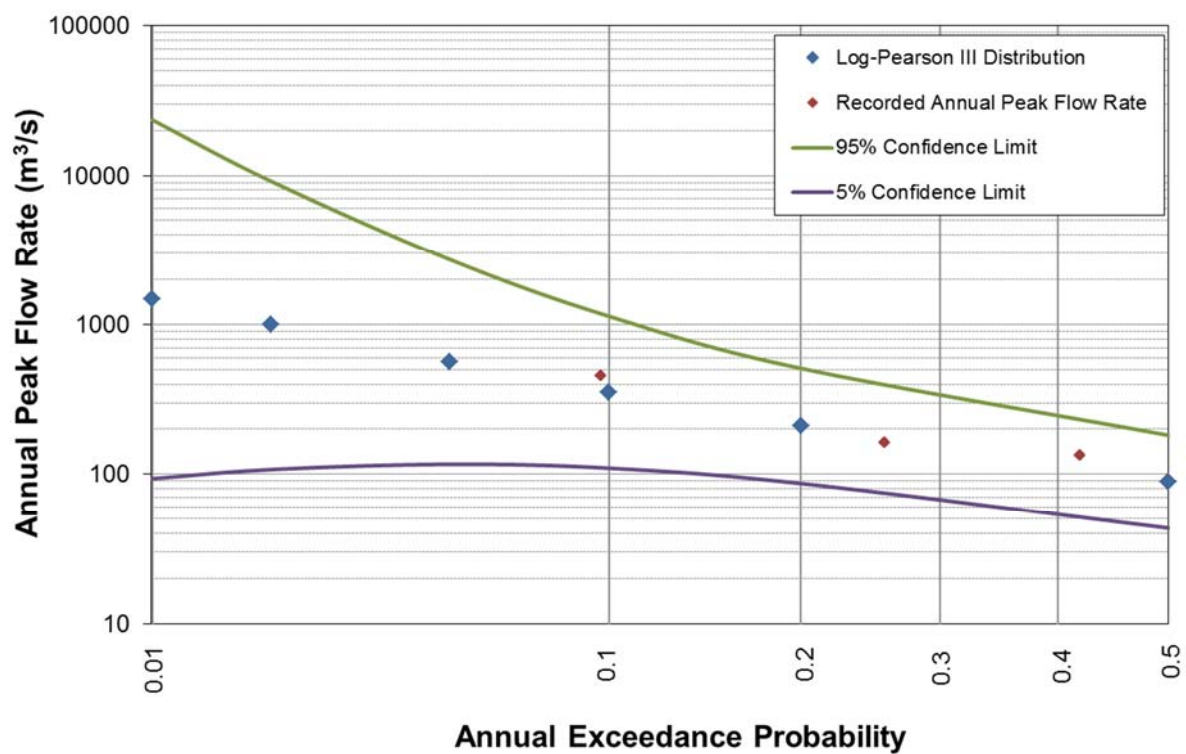


Figure 5-77 Annual peak flow frequency analysis – G0050140 – Finke River Railway Bridge

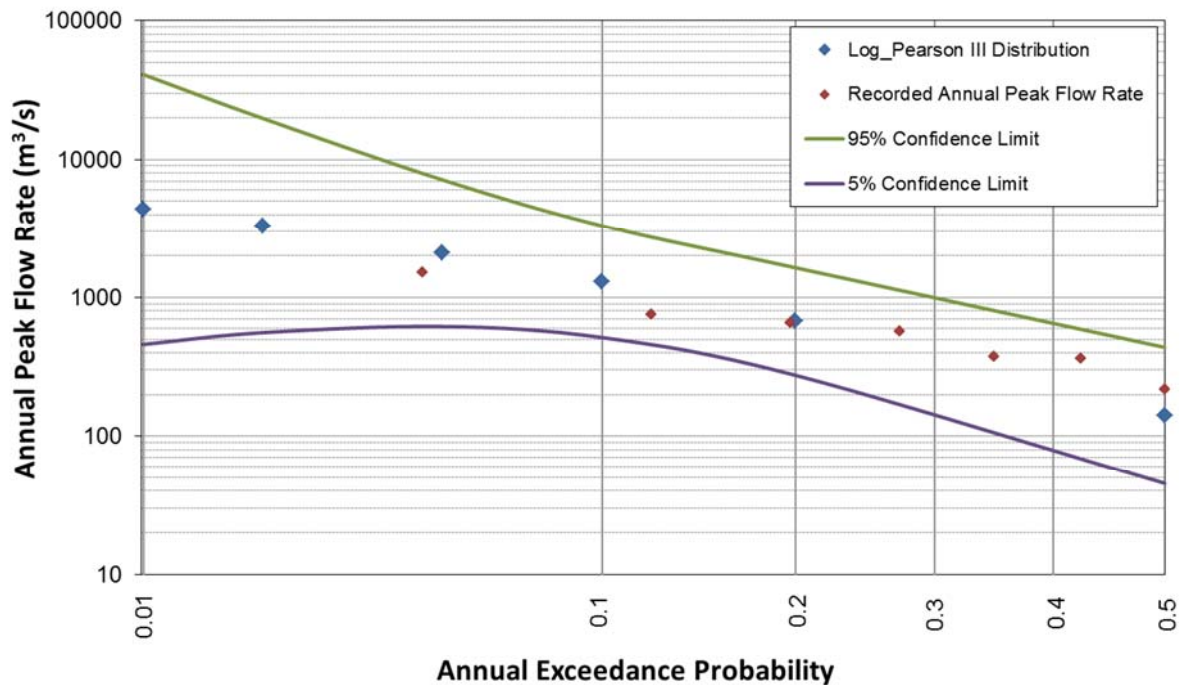


Figure 5-78 Annual peak flow frequency analysis – G0050116 – Finke River S Road Xing

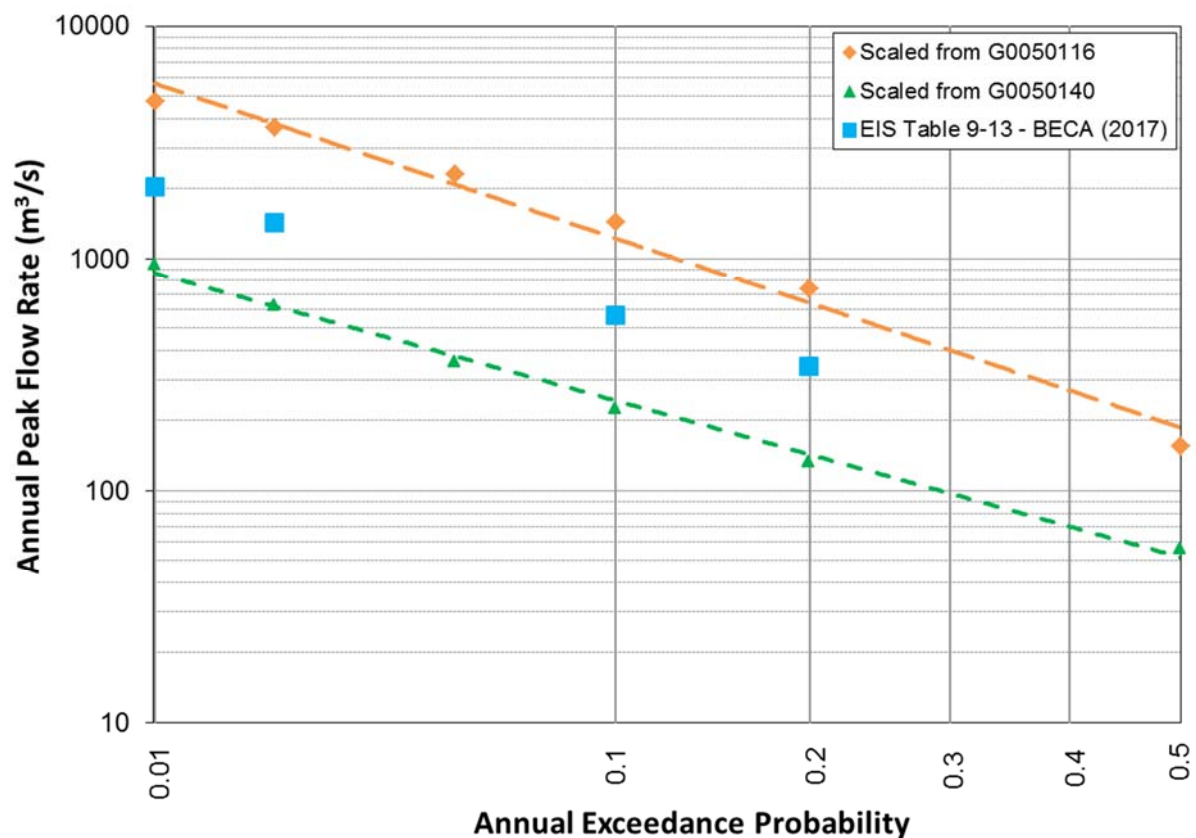


Figure 5-79 Estimated annual peak flow rates – Finke River at proposed haul road crossing

5.3.43 DPIR 43

Issue raised

The information would inform the road design, including options to mitigate flooding of the road, such as road raising and the use of culverts or bridges to pass flow. Such crossings would not be expected to interrupt natural streamflow and geomorphological processes.

Any construction across any streams needs to ensure that stream flow is not significantly altered, including causing pooling of water on the upstream side of the stream crossing.

Proponent's response

Please refer to NT EPA 9.



5.3.44 DPIP 44

Issue raised

Table 9-16 Mitigation and management measures (surface water)

SW2

Improved water quality and attenuation of surface water flow. Treat runoff to improve water quality resulting in an attenuation of flows, mitigating any increase in runoff peak flows or volumes.

Timing Pre-construction.

Improving water quality by treating run off will be difficult to achieve without major construction e.g. diversions, dams, etc. especially in high intensity rain. More planning detail will be required.

The "Pre-construction" timing does not seem logical.

Proponent's response

The proponent acknowledges the pre-construction reference to improving water quality as an error. The timing of the proposed mitigation measure should in fact occur during construction and operation.

5.3.45 DPIP 45

Issue raised

SW5

Minimisation of impacts from the Henbury Access Road at the Finke River crossing.

Limit the engineering required to cross the river.

Tellus must undertake engineering as required (including bridges etc.) to create the least impact on the river at the crossing.

Proponent's response

Please refer to NT EPA 9.

5.3.46 DPIP 46

Issue raised

SW 16 Additional monitoring. Catchment drainage

SW17 & 18 Additional investigations during detailed design. Develop two-dimensional modelling of flow paths and inundation in the mine lease area,



SW19 Model flood risk and scour protection at the crossing of the Finke River.

SW20 Model flood risk¹ of haul crossings (bridges, culverts, causeways) of drainage lines.

SW21 Develop site specific water quality guidelines.

SW23 Preventing erosion and sedimentation

The monitoring and investigation is mostly pre-construction and should be in progress or planned before any major works commence.

Please confirm these measures are in progress or provide timelines for these studies to commence.

Proponent's response

Please refer to NT EPA 69.

5.3.47 DPIR 47

Issue raised

SW25 No offsite release of salt laden sediment

A clay lined drainage swale would be constructed around the perimeter of the run of mine salt stock pile to prevent offsite release of salt laden sediment.

The nature and source of the clay and the thickness of the liner as well as the sizing will need to be determined prior to approval.

Also the provision of detail such as overflow drainage and storage, etc.

Proponent's response

The proponent unequivocally recognises the need and the requirement to undertake further detailed engineering and analysis of future flood modelling across the mine infrastructure area to inform:

- The nature and source of clay.
- The thickness of lining (if required).
- Overflow drainage.
- Drainage storage areas.

The proponent believes the above discreet work elements should form conditions of consent under which the proponent would be licenced and regulated. In addition, the results of the proponent's committed Stage II drilling and surface water program will greatly assist in providing answers to DPIR 47 submission.



5.3.48 DPIP 48

Issue raised

SW29 Prevent sediment runoff

Provision of a sediment trap, such as a mulch bank or a sediment fence, on the downslope boundaries of the Apirnta Facility, Chandler Facility and haulage roads is recommended. The mulch banks and sediment fencing should be positioned on the contour where possible.

Installing mulch bank or a sediment fence, on the downslope boundaries is a significant commitment that requires maintenance. Regular scheduled inspections and maintenance is required.

Proponent's response

The proponent recognises that the proposed surface water management measure is labour intensive and will require regular scheduled inspection and maintenance. Following the completion of detailed design, the proponent will finalise the inspection and maintenance schedule and, will rank areas of inspection and maintenance against the results of the erosion and sediment modelling completed in Section 9.4 of the draft EIS. The assessment ranked areas along haul routes and access roads as having the potential for high, medium or low risk of erosion.

To assess erosion potential for the entire Study Area, a bespoke Erosion Hotspot Model of the Study Area was created (adapted from Evans *et al.* 2006). More details on how this model were generated can be found in Appendix R (Erosion and Sedimentation Assessment) of the draft EIS. A raster layer map was produced in GIS platform to display these erosion risk classifications visually with different colours representing different erosion potentials within the Study Area (refer to Figure 9-21 of the draft EIS).

The mapping shows that in general the east of the Study Area incorporating the Chandler Facility to the west of Maryvale Hills, Halfway Creek catchment, Chambers Pillar Road Creek have negligible, slight or low erosion potential.

The west segment of the study area incorporating Apirnta Creek, Charlotte Creek and the rail line have low or intermediate erosion potential. Areas of high erosion potential are generally grouped along creek / river lines reflecting hydrological connectivity and increased risk of sedimentation issues.

Very high erosion potential cells were in the upper catchments of these drainage lines, demonstrating the influence of lower ground cover and steeper slopes as well as hydrological connectivity. An outline schedule for inspection and maintenance of proposed preventative erosional management measures is provided in Table 5-37.



Table 5-37 Outline inspection and maintenance schedule for erosion management measures

Activity	Trigger	Timing
Monitor AWS data	Proponent policy and procedure	Daily
Inspection	Decreasing barometric pressure	Prior to rainfall event
Maintenance	Condition assessment	Prior to rainfall event
Inspection	Rainfall event	Within 24 hours of rainfall event
Maintenance	Outcome of inspection and condition assessment	Within 48 hours of rainfall event

The above measures have been included into the proponent's revised WMP (see Attachment E).

5.3.49 DPIP 49

Issue raised

The following sections of the risk assessment require a detailed explanation of how the risk is being, or will be, mitigated and managed.

1. *Salt dissolution and transport off-site*
2. *Altered hydrology surrounding Maryvale Hills*
3. *Contamination of Finke River through loss of containment*

Proponent's response

The proponent's response to NT EPA 65 deals with salt dissolution and transport off-site. The issue of altered hydrology surrounding Maryvale Hills has also been discussed (refer to NT EPA 67). The potential contamination of the Finke River as a result of surface water flows has been assessed as part of the proponent's risk assessment (refer to Table 6-1 of the draft EIS).

Risks to the Finke River have been quantified and qualified in the surface water assessment undertaken by BECA (2017). The conclusion is that a likelihood of contamination to the Finke River is low.

5.3.50 DPIP 50

Issue raised

The workforce in the local region comprises of around 20,500 people of which nearly 19,300 are located in Alice Springs Local Government Area and the remaining 225 in the Sandover Plenty SA2 area.

The figures of 19,300 + 225 does not equate to 20,500 people.

Proponent's response

The proponent notes that the figure 225 presented in the sentence above was incorrect and should have read 1,200. The sentence should, therefore, read:



‘The workforce in the local region comprises of around 20,500 people of which nearly 19,300 are located in Alice Springs Local Government Area and the remaining 1,200 in the Sandover Plenty SA2 area.’

5.3.51 DPIR 51

Issue raised

What aspects of the mine would be progressively rehabilitated over the minelife?

Proponent’s response

It is probable that where spoil stockpiles are used to line drainage swales, pad construction or road maintenance, these areas could be rehabilitated during operations of the proposal. In summary, the proponent is committed to finding ways to ensure progressive rehabilitation of disturbed areas occurs. The opportunities for this commitment will become more apparent in the development of the Mine Management Plan which will run in parallel with detailed design of the proposal.

5.3.52 DPIR 52

Issue raised

Table 13-1 Guiding rehabilitation principals

These principles cover landforms, contaminated soils, voids and hazards.

They should also include surface water and ground water - e.g. surface water courses returned to original, no connection of poor quality water into groundwater, no mixing of aquifers, etc.

Proponent’s response

The proponent has updated Table 13-1 of the draft EIS with surface water and ground water closure and rehabilitation techniques in line with DPIR guidelines (refer to Table 5-38).

Table 5-38 Rehabilitation principals covering surface water and groundwater

Objective	Guiding principal
No mixing of aquifers	Follow conceptual groundwater model and management measures provided in the proposal’s WMP.
No groundwater contamination	<ul style="list-style-type: none">Follow guidelines provided by DPIR under their Advisory note titled <i>Water Management Plan</i>.Follow appropriate steps outlined in <i>NT Water Regulations</i> (2008)Log all drilling materials during the Stage II groundwater drilling program.
No long term impacts on site hydrology	Determine baseline conditions and assess hydrology against final detailed design.



5.3.53 DPIR 53

Issue raised

The assessment indicated that the overburden materials, consisting of sandstones, siltstones, dolomitic siltstone and minor gypsum could be classified as Non-Acid Forming-Barren (NAF-Barren).

Examination of rock chip samples and core sample collected from the project site confirmed this assessment. The overburden materials have significant excess buffering capacity and considered to be a non-acid forming rock types with excess acid neutralising capacity. The waste rock is chemically inactive and has no foreseeable detrimental impact to the environment (Atkins 2017).

The above statement will need verification.

Proponent's response

Based on the information contained within the Stage I exploration phase, the proponent's assessment indicated that a low risk of acid forming rock types within the geological strata. During the Stage II groundwater drilling and BFS geological investigations, the proponent commits to undertake a detailed acid forming rock sampling and analytical program to verify the statement made in the draft EIS. This will be completed by undertaking representative samples from each rock types (sandstone, siltstone, dolomitic siltstone etc) as they are extracted during the mine decline and shaft construction.

5.3.54 DPIR 54

Issue raised

The proponent would provide appropriate financial assurance for the expected closure and rehabilitation costs of the Proposal. The proponent intends on this financial assurance being via appropriate contributions to a security bond that is administered by the DPIR.

Partial security releases may be possible if progressive rehabilitation is undertaken during the mine life.

Proponent's response

The proponent has modelled, in detail, appropriate financial assurance for the expected closure and rehabilitation. These have been modelled against DPIR's security bond calculator. Opportunities for progressive mine rehabilitation may be possible where spoil stockpiles are used for internal road maintenance or lining of run-off ponds and eventually cleared over the life of mine.

5.3.55 DPIR 55

Issue raised

Should unexpected closure occur, what will be the fate of the waste in the Apirnta Facility assuming it is at capacity (i.e. 400,000 tonnes)? As an example, if the company were to go into voluntary



administration, where would the money be sourced to continue the waste disposal or would the waste be returned to the customer?

Proponent's response

As part of the Sandy Ridge proposal in Western Australia, the proponent has modelled its assurance and insurance against the very scenario raised by DPIR. The proponent is currently working through its proposed assurance and insurance model for the proposed Chandler Facility with the NT Project Control Group.

The key points are that the proponent will have adequate suite of measures that include the following main categories:

- Assurances (bonds).
- Insurances
- Alternative facility to take the materials to.

5.3.56 DPIR 56

Issue raised

Rehabilitation would also be supported through a financial security established under the Mining Management Act 2001.

The proponent should be aware that the security bond will not be released until closure activities are complete, rehabilitation has been successfully demonstrated and closure criteria met.

Proponent's response

Noted.

5.3.57 DPIR 57

Issue raised

To create the final landform, the techniques described in...

This section appears to be incomplete.

What is the final landform i.e. waste rock dump? Has backfilling the waste rock material into the underground mine been investigated as a potential option for closure to return the land to pre-mining conditions?

Proponent's response

The create the final landform, the techniques described in Appendix J (of the draft EIS) will be implemented during the closure and rehabilitation phase.



As stated in section 6.2.1 and 6.2.2 of the Draft Rehabilitation and Closure Plan (Appendix J of draft EIS), No salt will be left on surface at closure with all surface stocks either processed and sold or returned underground to backfill underground development. Other stockpiles (spoil from the mine development) will be utilised in the shaft and decline backfilling activities at closure. All stockpiles will therefore be fully drawn down by closure.

5.3.58 DPIR 58

Issue raised

Re-vegetation during closure and rehabilitation of the Proposal would be best achieved by conserving top soil in protected locations (low windrows) at the beginning of the project... Even 20 yr old topsoil is better for re-vegetating sites than using subsoil, fertiliser and seed...

In the DPIR's experience, topsoil is rarely managed appropriately for use in final closure of the site, often becoming a source of weeds or erosion. How will topsoil stockpiles be managed to prevent weed invasion and ensure the long term viability of native seed and retention of root stock to assist in the natural regeneration of vegetation in rehabilitation? Is there a possibility of the topsoil turning saline due to long-term exposure to rainfall and wind-blown salt deposition on the topsoil? It is unclear where the topsoil stockpiles will be stored in relation to the product stockpiles.

Proponent's response

The construction project schedule, which will be developed and agreed at the completion of the BFS, will determine the staging and sequencing of topsoil and subsoil management. Topsoil will be managed by an overarching project topsoil management plan, that will be underpinned by site specific topsoil management plans (i.e. Accommodation Village; Mine Infrastructure Area; Apirnta Facility and all supporting road infrastructure akin to these pieces of infrastructure [refer to Figure 5-80]).

The proponent proposes the following table of contents for the site-specific management plans:

- Introduction.
- Existing topsoil resources.
- Topsoil stripping.
 - Topsoil stripping planning.
 - Disturbance areas.
 - Topsoil stripping depth and volumes.
 - Topsoil stripping supervision.
 - Topsoil stripping procedure.
- Topsoil stockpiling.
 - Topsoil location (please refer to Figure 5-10 for current location at the mine infrastructure area).



- Topsoil / stockpile design.
 - Topsoil / stockpile management.
- Erosion potential control
 - Erosion hazard (the proponent will update its existing Erosion and Sedimentation Plan).
 - Types of soil erosion.
 - Erosion control.
- Topsoil application procedure
 - Post mining land use
 - Mine rehabilitation.
 - Topsoil application procedure.
 - Post mine land form.
- Review and improvement process
 - Review and improvement
- Reference
- Appendix – Standard work procedure topsoil management

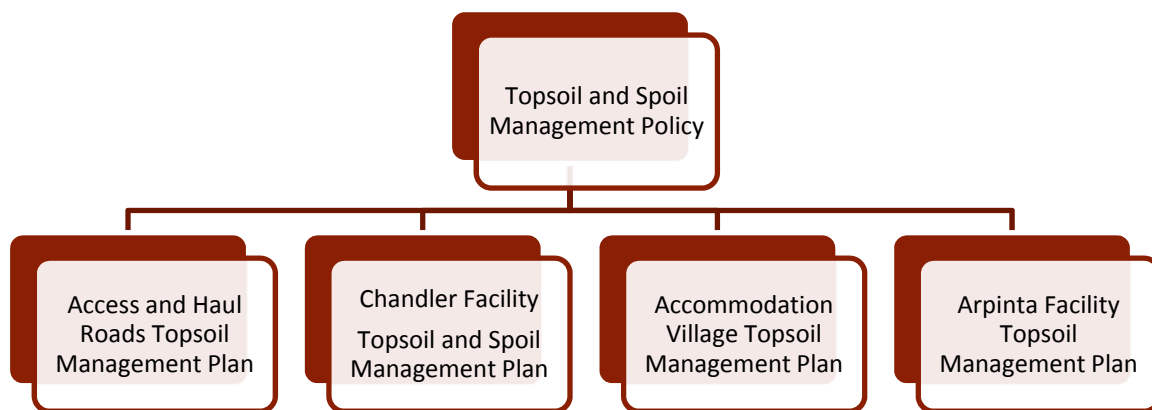


Figure 5-80 Topsoil management

In line with the topsoil management policy, all topsoil stockpiles will be managed to prevent weed invasion and to ensure the long term viability of native seed and retention of root stock. This will be performed to assist in the natural regeneration of vegetation in rehabilitation



The possibility of windblown salt has been assessed as a risk in Chapter 6 of the draft EIS. Salt stockpiles are known to form crusts when stockpiled (the proponent has toured United Kingdom and German salt stockpiles to prove this to be the case). Therefore, the risks of topsoils becoming saline over time is considered low.

The location of topsoil stockpiles in relation to the product stockpiles are shown in Figure 5-10.

5.3.59 DPIP 59

Issue raised

Planting of root stock nursery plants is not normally appropriate for these conditions, but may have occasional specialised need... Sentence appears incomplete.

Proponent's response

Noted. The sentence should read:

'Planting of root stock nursery plants is not normally appropriate for these conditions, but may have occasional specialised need in circumstances where seeds from topsoil are not viable.'

5.3.60 DPIP 60

Issue raised

The prevailing wind directions should be shown on Figure 15-1.

Proponent's response

A complete discussion of the prevailing meteorology experienced across the Proposal site is presented in Appendix X of the draft EIS. Section 4.4, Section 4.5 and Appendix A-1 of Part A in Appendix X discuss the various meteorological data sources, regional meteorology.

The meteorological processing for the Chandler Facility is discussed in detail in Appendix B-1 and Part B of Appendix X of the draft EIS. The windroses extracted for the Chandler Facility are presented in Figure B1, Appendix B-1, Part B of Appendix X of the draft EIS. These are displayed as the annual average and as the seasonal windroses for the meteorological period 01/01/2015 to 31/12/2015.

The meteorological processing for the Apirnta Facility is discussed in detail in Appendix C-1 and Part C of Appendix X of the draft EIS. The windroses extracted for the Apirnta Facility are presented in Figure C1, Appendix C-1, Part C of Appendix X of the draft EIS. These are displayed as the annual average and as the seasonal windroses for the meteorological period 01/01/2015 to 31/12/2015.

Since the submission of the draft EIS, further baseline climate and wind direction data has been collated. A summary of the site's wind and climate data collected by the proponent's Automatic Weather Station (on a continuous basis) between November 2015 and 30 June 2017 is provided below.



- Wind speed at 10 m above ground level (AGL).
- Wind direction at 10 m AGL.
- Relative humidity at 2 m AGL.
- Air temperature at 2 m AGL.
- Precipitation.

Hourly average data collected between 5 November 2015 and 30 June 2017 have been reviewed with a discussion provided in the following sections.

A total of 14,279 hours of valid data were collected between 5 November 2015 and 30 June 2017 (81.4% data completeness when compared to two full calendar years). Data completeness for each season is presented in Table 5-39. All collected data has been used to derive descriptions of meteorological conditions at the Proposal site although where descriptions are provided for the winter season and annual periods during which limited data have been collected, these are suffixed with [*partial*] for clarity.

Table 5-39 Meteorological data collection rates at Chandler – 5 November 2015 to 30 June 2017

Season	Data collection	
	Number of valid hours	% data collection
Annual [<i>Partial</i>]	14,279	81.4
Spring	2,640	60.4
Summer	4,299	99.0
Autumn	4,415	100
Winter [<i>Partial</i>]	2,925	66.2

Wind speed and direction

Annual and seasonal wind roses for the Proposal site are presented in Figure 5-81. The distribution of wind speed in a number of categories, including calm winds are presented in Figure 5-82

The wind roses indicate that over the course of the years [*Partial*], winds are predominantly observed from east northeast to south-south easterly directions. The majority of wind speeds experienced at the Proposal site are generally in the range 1.5 metres per second ($\text{m}\cdot\text{s}^{-1}$) to $5.5 \text{ m}\cdot\text{s}^{-1}$ (frequency of 84.3% combined). High wind speeds ($>8 \text{ m}\cdot\text{s}^{-1}$) are rare and occur for less than 0.2% of hours across the years (<22 hours). Calm winds ($<0.5 \text{ m}\cdot\text{s}^{-1}$) occur during 1.7% of the observed hours during the year.

The seasonal wind roses show a seasonality in wind speeds and direction and are described further below:

- In spring, winds are predominantly experienced from the north east to southerly directions with some observed winds originating from a northerly direction. Wind speeds are mainly in the range $3.0 \text{ m}\cdot\text{s}^{-1}$ to $5.5 \text{ m}\cdot\text{s}^{-1}$ (frequency of 51%) and $1.5 \text{ m}\cdot\text{s}^{-1}$ to $3.0 \text{ m}\cdot\text{s}^{-1}$ categories (frequency of 36.8%). Calm winds are experienced for 0.9% of observed hours during the



spring months. Wind speeds higher than $8.0 \text{ m}\cdot\text{s}^{-1}$ are shown to occur at a frequency of 0.6% in the record collected to date.

- During the summer months a higher frequency of winds originating from the south south-east is apparent. Wind speeds during summer months are again shown to be predominantly in the range $1.5 \text{ m}\cdot\text{s}^{-1}$ to $5.5 \text{ m}\cdot\text{s}^{-1}$ (combined frequency of 84.1%). Calm wind speeds are experienced for 0.4% of the season.
- Autumn months show a predominance of winds originating from the south to north east. Wind speeds are predominantly in the $1.5 \text{ m}\cdot\text{s}^{-1}$ to $5.5 \text{ m}\cdot\text{s}^{-1}$ categories (combined frequency of 85.5%). Calm winds are shown to occur for 1.7% of the time during autumn months. Wind speeds higher than $8.0 \text{ m}\cdot\text{s}^{-1}$ are shown to not occur in the record collected to date.
- Wind directions during winter months [Partial] show a slight increase from south westerly directions although the direction from which winds predominantly originate is the east south-east. Winds of $1.5 \text{ m}\cdot\text{s}^{-1}$ to $5.5 \text{ m}\cdot\text{s}^{-1}$ predominate at the Proposal site with a combined frequency of 79.8%. Lighter winds ($1.5 \text{ m}\cdot\text{s}^{-1}$ to $3.0 \text{ m}\cdot\text{s}^{-1}$) predominate at the Proposal site in winter (41.2%). Calm winds are shown to occur for 3.5% of the time during winter months. Wind speeds higher than $8.0 \text{ m}\cdot\text{s}^{-1}$ are shown to not occur in the record collected to date.

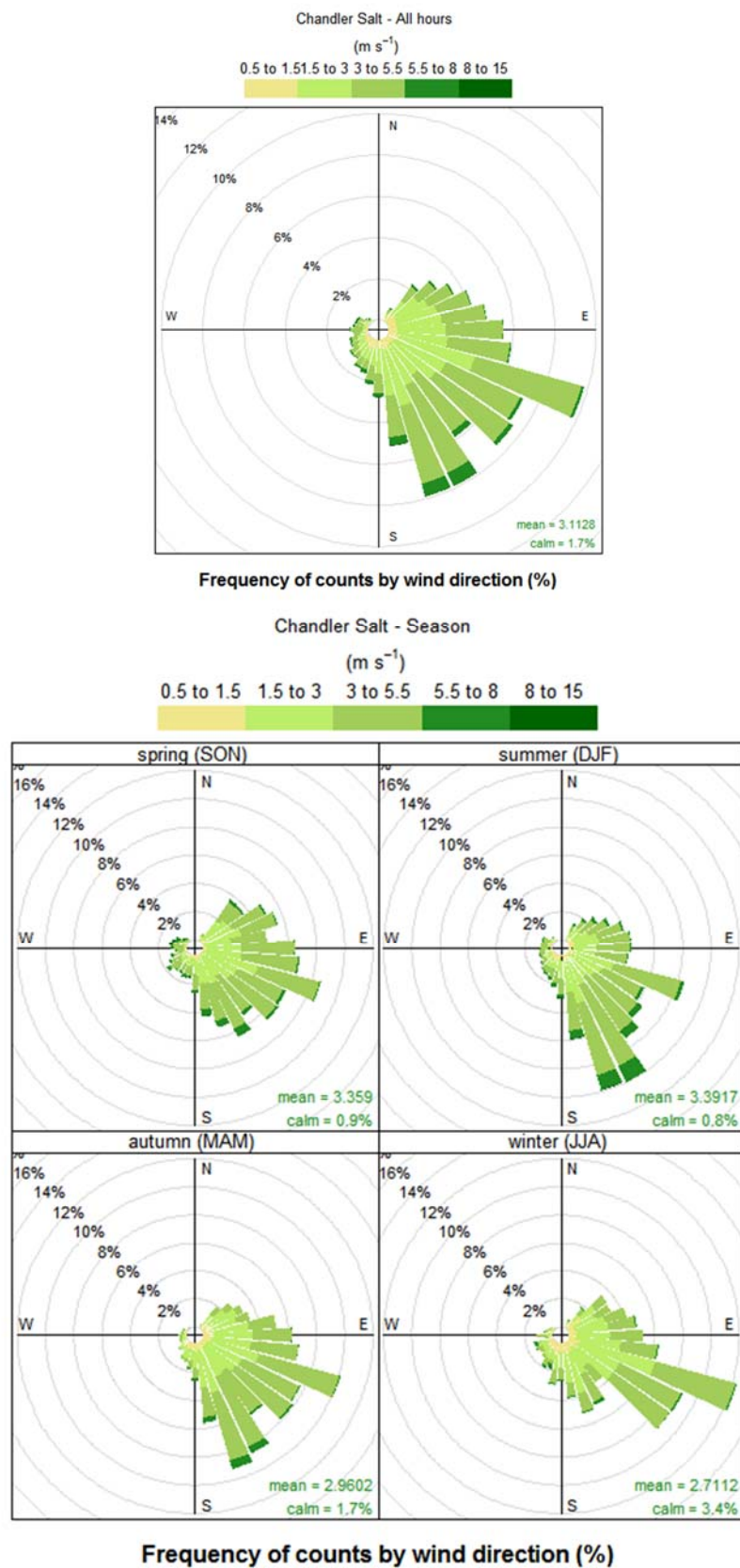


Figure 5-81 Annual and seasonal wind roses at Chandler – 5 November 2015 to 30 June 2017

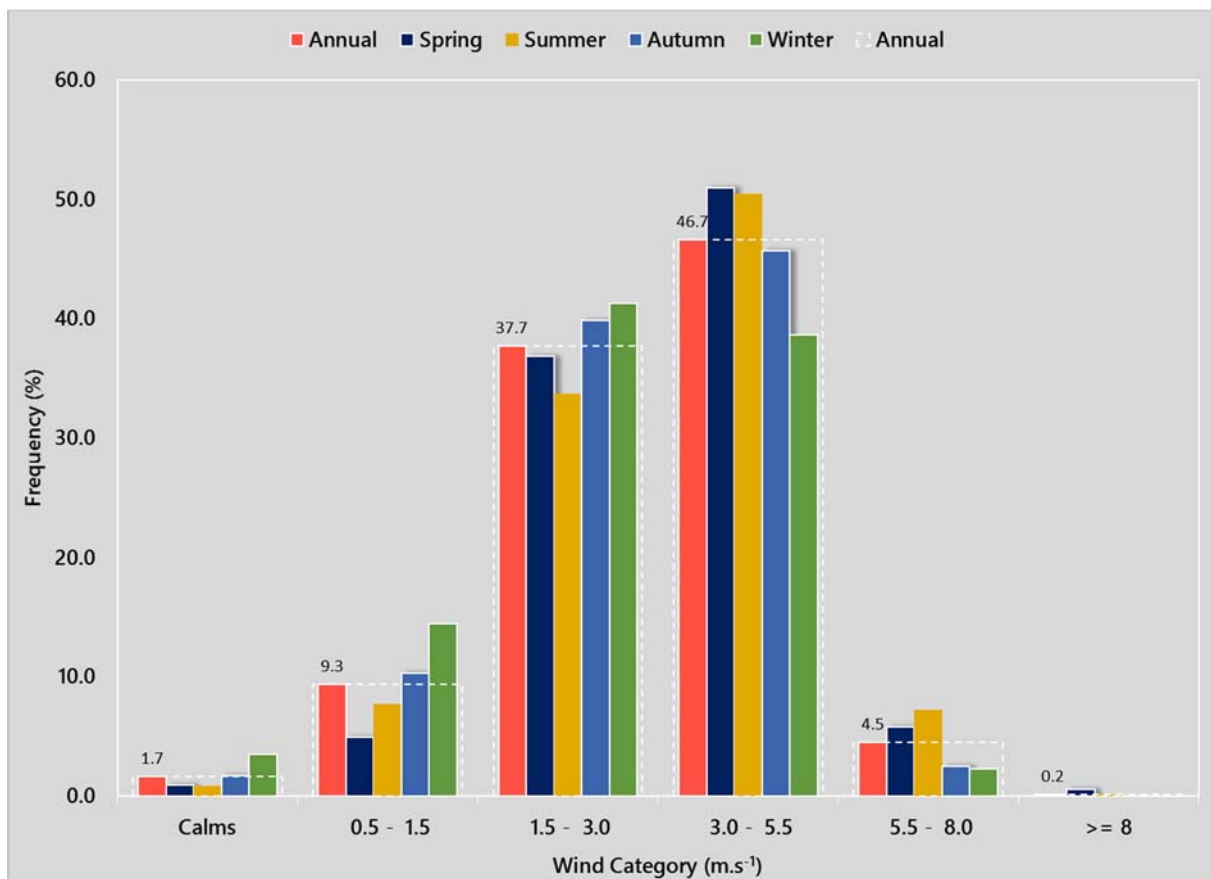


Figure 5-82 Annual and seasonal wind speed distribution at Chandler – 5 November 2015 to 30 June 2017

Temperature

Air temperatures measured at the Proposal site between 5 November 2015 to 30 June 2017 varied between -2.0°C and 43.1 °C. The average temperature measured over the two years was 23.9°C [Partial]. Average, maximum and minimum hourly temperatures measured during each season at the Proposal site are presented in Table 5-40.

Table 5-40 Observed temperatures at Chandler – 5 November 2015 to 30 June 2017

Season	Temperature (°C)		
	Maximum	Average	Minimum
Annual [Partial]	43.1	23.9	-2.0
Spring	41.8	24.3	3.1
Summer	43.1	30.2	14.4
Autumn	40.9	23.8	3.1
Winter [Partial]	29.6	14.3	-2.0

The daily average temperature calculated between 5 November 2015 to 30 June 2017 is presented in Figure 5-83 along with the observed range in daily temperature. As expected, maximum daily



average and maximum temperatures occur during the summer months with a daily average temperature of 30.2°C observed.

Air temperatures during the winter months [Partial] are, on average, 14.3 °C but during the day have reached the high 20s during the year of measurement. The coldest temperature observed was -2.0 °C in winter 2016.

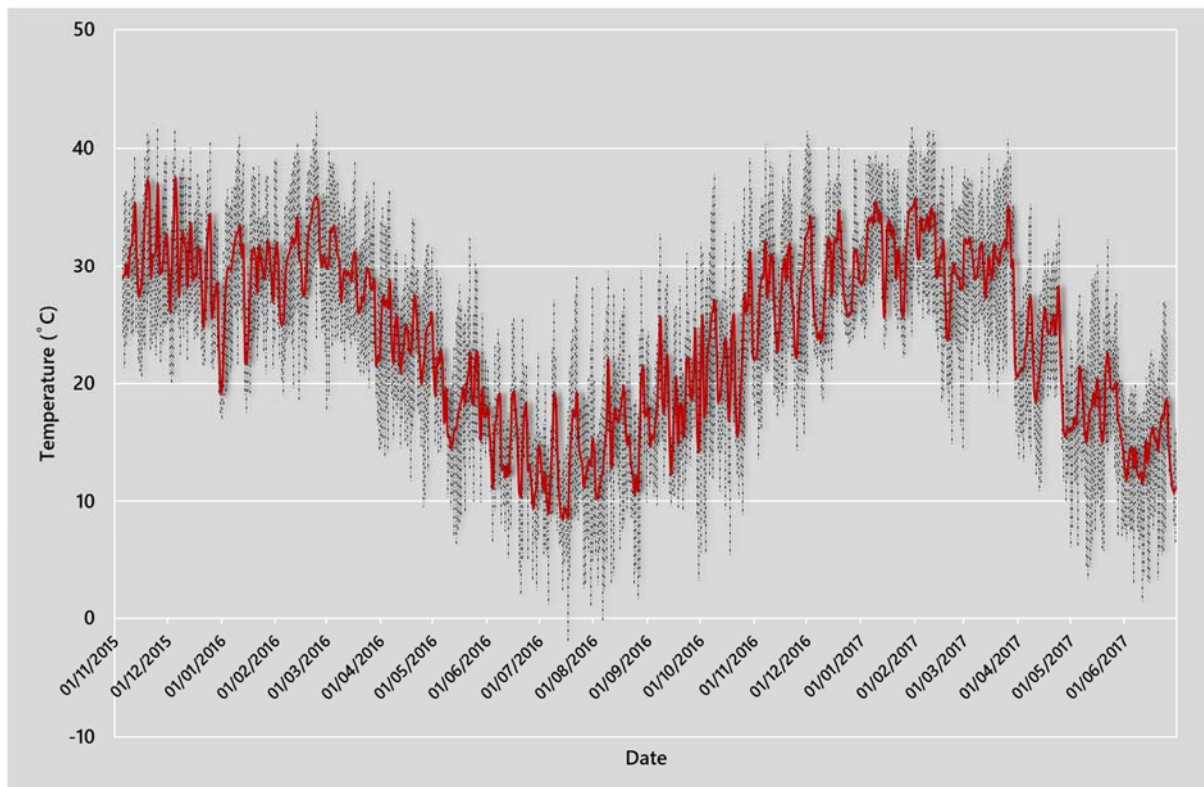


Figure 5-83 Daily average air temperature at Chandler – 5 November to 30 June 2017

Precipitation

The Proposal site received a total of 1,127 mm of rainfall between 5 November 2015 and 30 June 2017. The distribution of rainfall is presented in Table 5-41 and Figure 5-84. Distribution of rainfall by season is presented in Table 5-42. Maximum daily rainfall of 136 mm was observed during December 2015, with the average rainfall during the summer months being the highest of all seasons. Lowest maximum and daily average rainfall was observed during the winter months at the Proposal site.



Table 5-41 Observed rainfall at Chandler 5 November 2015 to 30 June 2017

Season	Daily rainfall (mm)		
	Maximum	Average	Minimum
Annual [<i>Partial</i>]	136.4	1.9	0.0
Spring	43.6	1.3	0.0
Summer	136.4	4.6	0.0
Autumn	34.8	0.4	0.0
Winter [<i>Partial</i>]	19.4	0.5	0.0

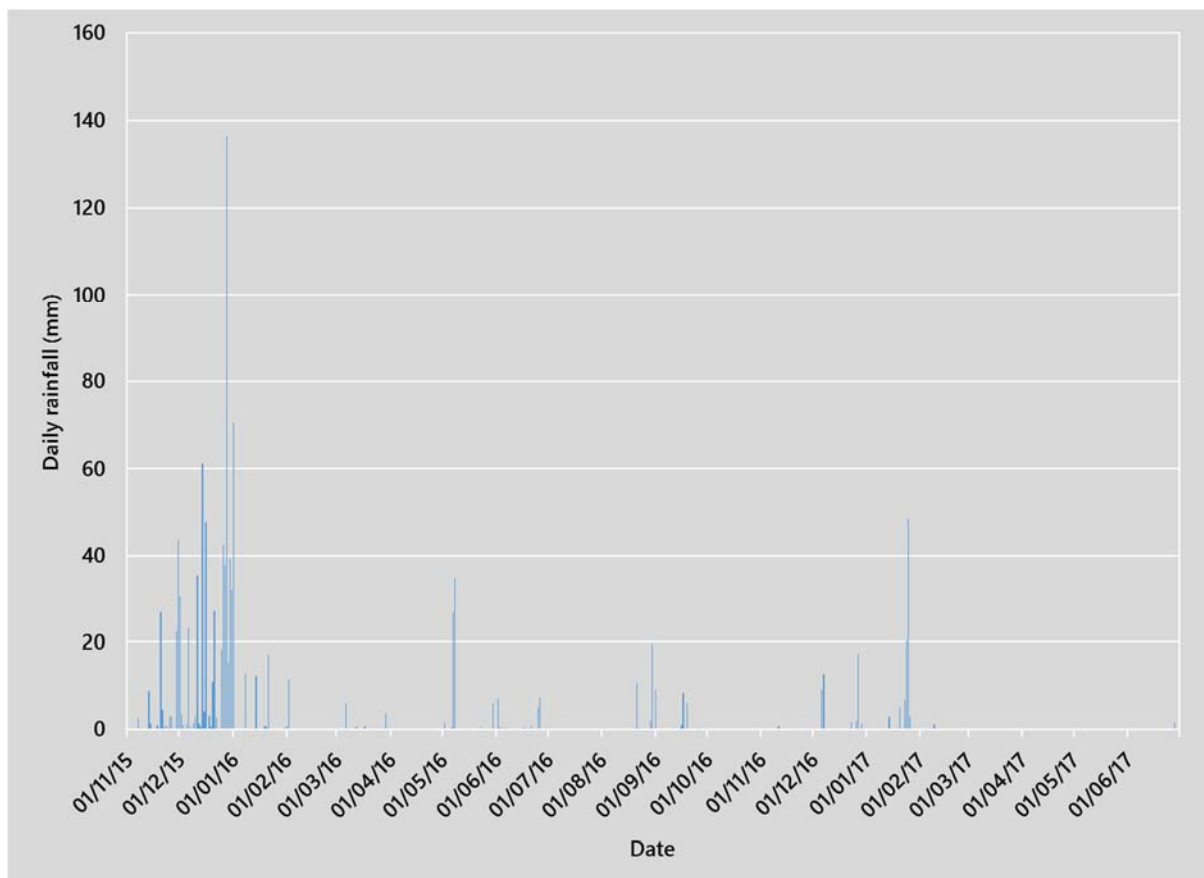


Figure 5-84 Daily average rainfall at Chandler – 5 November 2015 to 30 June 2017



Table 5-42 Distribution of rainfall by season at Chandler – 5 November 2015 to 30 June 2017

Month	Air Temperature (°C)			Wind Speed (m·s ⁻¹)	Relative Humidity (%)	Precipitation (mm)
	Average	Maximum	Minimum	Average	Average	Total
January	30.5	42.0	17.0	3.3	40.1	201.4
February	30.9	43.1	14.4	3.4	25.1	13.6
March	29.5	40.9	14.2	3.3	30.7	11.4
April	23.3	36.4	9.5	3.2	31.1	0.2
May	18.4	32.4	3.1	2.5	44.2	70.4
June	14.3	27.1	1.4	2.8	56.6	24.2
July	13.1	29.3	-2.0	2.4	54.4	0.4
August	15.4	29.6	-0.3	2.9	44.3	32.6
September	18.3	32.9	3.1	3.4	48.7	25.8
October	22.6	39.4	5.3	3.3	24.4	0.2
November	29.1	41.8	13.5	3.4	20.6	121.4
December	29.3	41.5	17.5	3.5	41.5	625.6

5.3.61 DPIP 61

Issue raised

It is concerning that baseline air quality data is being derived from monitoring locations in Darwin. Not only is there a significant geographical distance between Darwin and the proposed project area, but the data is not representative of the site at all. Baseline studies should be conducted within the proposed project area for a more representative data set.

Proponent's response

Appendix X, Part A, Section 4.2 of the draft EIS provides detail on the identification of available and suitable baseline air quality monitoring data for use in the Air Quality Risk Assessment. As stated in that section:

'The nearest air quality monitoring performed by the NT EPA to the Proposal site is in Darwin, which is located approximately 1,300 km to the north of the Proposal site. Given the large distances between the Proposal site and the closest air quality monitoring station, caution must be used when using these data. It is of note that air quality criteria for all monitored pollutants, other than particulates (PM₁₀ and PM_{2.5}), are achieved within Darwin, and for SO₂, NO₂ and CO concentrations represent between 4% and 42% of the relevant criteria.'

Although the populations of Alice Springs and Darwin vary significantly (approximately 28,080 and 140,400 respectively) it may be reasonably assumed that combustion/traffic related pollutants such as SO₂, NO₂ and CO would be lower than those measured in Darwin, and the air quality pollutant concentrations at the Proposal site would be lower than those that would be measured in Alice Springs. Correspondingly, whilst the air quality monitoring data measured in Darwin may be generally unrepresentative of the Proposal site, it should be regarded as being highly conservative when compared to the conditions expected at the Proposal site.'



It is acknowledged that the monitoring data measured in Darwin is likely to be generally unrepresentative of both Alice Springs and the Proposal site, however despite the differences between the locations, Darwin is still the closest EPA monitoring site.

The air quality monitoring data collected in Darwin will be influenced by a significantly larger residential population than Alice Springs (28,080 and 140,400 persons respectively for Alice Springs and Darwin), a significantly more developed industrial base, significantly larger traffic flows, port operations etcetera. Whilst these differences are acknowledged it is reasonable to assume that the baseline air quality conditions assumed in the Air Quality Risk Assessment are likely to represent a highly conservative representation of the baseline conditions at the Proposal site.

5.3.62 DPIR 62

Issue raised

Although risk from noise is low, the risk from vibration to the cultural heritage item is of concern, especially near the Chandler facility. The worst case estimation at shows that cosmetic damage might still occur at 200m with a mass charge of 30kg. Therefore, there must be a mitigation method to keep vibration at reasonable levels for any activity undertaken at the 200m vicinity of the heritage site.

Proponent's response

Please refer to Section 16.4.1. This section states:

'At the nearest point, the decline tunnel would be located approximately 200 metres from the northern-most cultural heritage exclusion zone. At this point, the decline tunnel would also be located at depth of approximately 400 metres below the ground surface (refer to Figure 16-1).' As can be seen from the worst case ground vibration predictions, compliance with the most conservative BS7385.2 vibration limits for cosmetic damage is achieved for a charge mass of 100 kilograms. It is expected that much smaller charge masses would be used by the blast contractor (such as five kilograms). If a charge mass in excess of 100 kilograms were required, additional assessment would be undertaken to determine the potential impacts on cultural heritage exclusion zones within the area of the proposed Chandler Facility.'

As stated above, the decline would be located approximately 200 metres from the northern-most cultural heritage exclusion zone and the decline tunnel would also be located approximately 400 metres below the ground surface. The figure of 400 metres should, therefore, be used when comparing vibration impacts versus distance presented in Figure 16-2 and Figure 16-3 of the draft EIS. At 400 metres, compliance with the most conservative BS7385.2 vibration limits for cosmetic damage is achieved for a charge mass of 100 kilograms (based on worst case ground vibration predictions).



5.3.63 DPIR 63

Issue raised

The cultural heritage site is deteriorating along the lifetime with or without the development project. How will the proponent handle the public perception in the case of an aesthetic change of the heritage site during the construction of operation phases? Is there a compensation mechanism in place?

Proponent's response

A detailed cultural heritage assessment was completed for the draft EIS (see Chapter 10 and Appendix S). The assessment concludes that the proposal site does not contain any listed heritage sites. The proponent has undertaken detailed consultations with Traditional Owners and the CLC regarding the likely aesthetic changes that occur as a result of the proposal. The proponent is currently progressing towards an Indigenous Land Use Agreement with the CLC and Traditional Owners.

The agreement, and management measures included in the Cultural Heritage Management Plan and forthcoming Landscape Management Plan (which will be completed once detailed design has been completed) will outline measures to avoid and minimise potential landscape and visual amenity impacts.

5.3.64 DPIR 64

Issue raised

For best-practice advice on erosion and sediment control, it is recommended that you contact the Department of Environment and Natural Resources (DENR) for advice.

Sediment traps, basins or dams can be useful in the Top End, but are generally not used in the Arid Zone. They are effective, but temporary forms of sediment control, especially in close proximity to surface water aquatic ecosystems.

As Central Australia has few surface water aquatic ecosystems, they are generally not used. Greater emphasis should be placed on erosion control rather than focussing on sediment (the result of erosion).

Suitable alternatives include the removal of all impediments to natural water flows (e.g. windrows, any roads or structures above or below natural ground level), appropriate batter slopes (minimum of 1V:4H), surface roughening, or ripping (to promote water infiltration) and vegetation (the best form of protection against the impacts of raindrop, water and wind erosion).

Proponent's response

The proponent has consulted with the Department of Environment and Natural Resources regarding the appropriate and effective measures for sediment control. The proponent is committed to



working with DENR and DPIR during the development of its Mine Management Plan (MMP) and updating the current draft Sediment and Erosion Control Plan (ESCP).

The proponent notes the valid comment from DPIR '*greater emphasis should be placed on erosion control rather than focussing on sediment (the result of erosion)*'. In addition, the proponent wishes to thank DPIR for the guidance provided on the following matters which will be incorporated into the above referenced documents:

- The removal of all impediments to natural water flows (e.g. windrows, any roads or structures above or below natural ground level),
- Appropriate batter slopes (minimum of 1V:4H),
- Surface roughening, or ripping (to promote water infiltration)
- Vegetation retention (the best form of protection against the impacts of raindrop, water and wind erosion).

In addition, the proponent will use and reference (where appropriate) when developing the MMP and ESCP, the following Technical Notes and Fact Sheets issued by the NT and Commonwealth Governments:

- Water Movement and Drainage (Fact Sheet).
- Road Drainage (Fact Sheet).
- Rehabilitation Overview (Fact Sheet).
- Gully Rehabilitation and Stabilisation (Fact Sheet).
- Groundcover Management – Erosion and Sediment Control Guidelines (Technical Note No.19).
- Clearing Methodology - Erosion and Sediment Control Guidelines (Technical Note No.18.).
- Graded Banks - Erosion and Sediment Control Guidelines (Technical Note No.17).
- Dissipaters and Stone Pitching - Erosion and Sediment Control Guidelines (Technical Note No.15).
- Native Grasses and Plants - Erosion and Sediment Control Guidelines (Technical Note No.13).
- Vegetation Retention - Erosion and Sediment Control Guidelines (Technical Note No.12).
- Water Ponding - Erosion and Sediment Control Guidelines (Technical Note No.11).
- Open Drains - Erosion and Sediment Control Guidelines (Technical Note No.10).
- Diversion Banks - Erosion and Sediment Control Guidelines (Technical Note No.8).
- Mine Closure and Completion (Commonwealth).
- Mine Rehabilitation (Commonwealth).



5.3.65 DPIR 65

Issue raised

The design and placement of erosion and sediment control structures and controls should be provided in the Mining Management Plan (MMP) for approval by DPIR.

Proponent's response

Noted. Details regarding the design and placement of erosion and sediment control structures and controls in and around the proposed development footprint would be provided in the Mining Management Plan (MMP) for approval by DPIR prior to construction of the Proposal.

5.3.66 DPIR 66

Issue raised

Figure 9-1 (Sediment Erosion Plan)

This map should illustrate the locations of the proposed infrastructure and roads to show their locations in relation to high, intermediate and low risk erosion areas.

Proponent's response

The proponent will overlay the existing erosion hazard map (see Figure 9-21 in the draft EIS) to the ESCP and update the draft ESCP accordingly. This information will also be included within the forthcoming MMP.

5.3.67 DPIR 67

Issue raised

Table 1 List of potential wastes (Hydraulic Backfill Report)

CSG Wastes

Coal Seam Gas (CSG) Wastes (dirty salt and brine)

35,000 tonnes pa (the largest waste category) annually as a liquid.

The waste will arrive in portable tanks. What is the risk of CSG production waste contaminating local groundwater?

More detail is required, including:

- the nature of the waste, (hazardous, spillage risks)
- any on site treatment required
- tank size, weight, number,



- storage (dams?) and disposal.
- haul road suitability (size, number and weight of tanks).

Proponent's response

The proponent acknowledges the questions and request for further information relating to matters associated with hydraulic backfill. As indicated in other sections of the Supplement, the proponent must undertake further engineering research and cost benefit analysis as to what form of hydraulic backfill (flushing or viscous) will be used. This will be performed during the BFS.

The findings of the BFS will then provide the proponent the opportunity to provide DPIR with more detail with respect to

- The nature of the waste, (hazardous, spillage risks).
- Any on site treatment required.
- Tank size, weight, number.
- Requirement for storage (dams) and disposal.
- The suitability of the haul road (size, number and weight of tanks).

Regarding CSG wastes, they must first pass the proponent's WAC. Should they pass the WAC, they will be managed in accordance with the WAP and WZG. Like all hazardous chemical wastes, a full risk assessment of these wastes having the potential to contaminate local or regional groundwater has been quantified and qualified in the following documents within the draft EIS:

- Chapter 8.
- Appendix H.
- Appendix P.

Risks of groundwater contamination are considered low.

5.3.68 DPIR 68

Issue raised

K-UTEC was assigned by Tellus to prepare a general assessment study to evaluate the possibilities of flushing or viscous slurry backfilling in their Chandler project.

The application of hydraulic backfilling is a good option to dispose suitable wastes in excavated rooms of salt mines. Suitable wastes can be liquid or solid with a grain size small enough to achieve appropriate hydraulic properties.

A big factor in the assumptions made is the suitability of the CSG (Coal Seam Gas) wastes for providing the fluid for the hydraulic backfill mixture. If it turns out that the CSG wastes cannot be used, water would have to be mixed with rock salt to obtain saturated solutions. The facilities and



materials needed for this would bring up capex and apex considerably ... With the information presented to us we conclude that hydraulic backfilling might be feasible in the Chandler project.

It appears the proponent may be relying on CSG waste disposal as part revenue. There is a risk of liquid CSG waste contaminating local groundwater.

Please provide detail and risk assessment of Coal Seam Gas (CSG) production waste contaminating local groundwater.

Proponent's response

Please refer to DPIR 67.

5.3.69 DPIR 69

Issue raised

How will borrow pits be rehabilitated; i.e. backfilling, battering? What is the timing for rehabilitation?

Proponent's response

Section 3.5.6 'Internal roads' in the draft EIS states that construction materials would be sourced from excavations associated with the mine access decline and vertical shafts or from existing or proposed borrow pits located along Maryvale Road. This refers to material required for internal road development. The location of the borrow pits would be subject to the final alignment of the roads and geotechnical assessment and, thereafter, a site selection protocol to avoid environmental impacts.

Section 3.5.6 'construction materials' in the draft EIS describes that the proponent would aim to source fill material for construction of the proposed Chandler Haul Road and Henbury Access Road from a series of borrow pits along the alignments of Chandler Haul Road and Henbury Access Road.

The location of the borrow pits would be subject to the final alignment of the roads and geotechnical assessment and, thereafter, a site selection protocol to avoid environmental impacts. The construction methodology would be agreed with the proponent's contractors during detailed design but would be conventional and in line with industry best practice.

Vehicle movements would not be significant given that the proponent is aiming to source the majority of fill material from on-site. Additionally, TMP will be developed should the Proposal be approved. The TMP would be continually reviewed and revised as required during feasibility and final design of the Project and into construction.



5.3.70 DPIP 70

Issue raised

The proponent would construct multiple engineering barriers to prevent groundwater inflow during the construction of subsurface works to limit the extent of dewatering. Details of mitigating/control measures, notably including shotcreting of any significant inflow areas along the decline and/or mine path, are provided in Section 11...

The following is an extract from Shotcreting: Recommended Practice, 2nd Edition.

"2.4.2 Design for Serviceability Ground water flows

Excessive ground water flows can affect the shotcrete bond to the substrate and the ultimate performance due to excessive water pressure build up behind the shotcrete. Refer to Clause 5.7.2.2 for suggested techniques to mitigate the risks associated with ground water."

Please discuss the proposed techniques with regard to clause 5.7.2.2.

Proponent's response

The proponent would like to reserve further discussion on this topic until the findings of the BFS and Detailed Design has been completed. The proponent commits to investigating Clause 5.7.2.2 from Shotcreting: Recommended Practice, 2nd Edition during the BFS.

5.3.71 DPIP 71

Issue raised

In addition, if water pollution comes from a mining operation onto land that is not part of the mining title, this would be regulated under the Water Act and a waste discharge licence, with set water quality requirements, would be required. Please note, the Proposal will not be discharging waste water and therefore will not require a waste discharge licence. All waste water is expected to be re-used in other site operations such as hydraulic backfill processing or dust suppression.

The impact on soil structure and the flow on impacts to dust generation on site need to be addressed before any water with high electrical conductivity or elevated metal concentrations are used for dust suppression. Alternative management strategies need to be discussed unless it can be shown that high EC water will not affect soil structure and dust generation.

In addition, the use of waste water for dust suppression can potentially result in contaminated runoff occurring, as salts build up over time and are washed into adjacent streams during the first flush rains.

It should be noted that the *Mining Management Act* contains a mechanism to address off-site environmental impacts from a mine site.



Proponent's response

The proponent acknowledges the potential risks on soil structure as a result of using saline water for the purpose of dust suppression over a sustained period of time. Therefore, the proponent's proposed 12 month BFS program (January to December 2018) would need to account for this risk (quantitatively and qualitatively).

The proponent commits to undertaking these studies and including any necessary recommendations into its existing draft WMP and proposed topsoil/spoil management plan.

5.3.72 DPIR 72

Issue raised

It is recommended that flow monitoring sites are established on at least five representative creeks surrounding the Proposal area in order to redress the knowledge gap identified in Section 5.7 and determine hydrological behaviour of lower order drainage lines. In particular, flow monitoring on the following sites would be advantageous for stormwater management design for the Proposal area: Apirnta Creek tributary at rail crossing, Chambers Pillar Road Creek; Charlotte Range Creek; Halfway Creek draining west past Halfway Dam; and Mary's Gully.

These recommendations should be incorporated and monitoring should commence as soon as practicable to gain as much as data as possible for predicting creek flows, flood levels, etc.

Proponent's response

Please refer to DPIR 71.

5.3.73 DPIR 73

Issue raised

Peak flows and time-series hydrographs have been derived for each of the catchments (Fig 3.3) crossed by the access road and haul road between the mine site and the Stuart Highway. In total, the access and haul roads cross a significant watercourse or flow line 20 times over a total distance of 90 km. At each of these locations, there is the potential for the haul road to be flooded or to pond water (if the road is carried on an embankment across the floodway).

Risks include (but are not limited to):

- Environmental impact - downstream sediment and erosion, waterways, floodplain, vegetation,
- excessive road closure time,
- excessive repair cost.



These risks should be factored in construction and operation costs and environmental impact assessments. Note: significant flooding of roadways can be anticipated, on average, once every three years (Section 5.3. Flow characteristics).

Proponent's response

The risk assessment undertaken for the draft EIS was a quantitative assessment that has provided the proponent with a conceptual understanding of the risks that may be encountered during construction and operation of the Proposal. The BFS is the period in which these risks will need to be accurately accounted for and costed.

5.3.74 DPIP 74

Issue raised

The crossing of the Finke River (between Apirnta and the Stuart Highway) could require a bridge, if the intention is to keep that section of road open at all times.

Please provide detail on the type of crossing planned for construction across the major rivers (Finke) and the possible impacts on the river and other watercourses downstream from the crossing during and post construction. The construction proposed must be adequate not to restrict water flow during flood events.

Provide more detail on the vehicle usage of the roadway (numbers and type of vehicle - peak usage times etc.)

The long term benefits from the bridge construction such as uninterrupted access to the site and reduced Erosion and Sediment controls and maintenance may justify the cost.

Proponent's response

Please refer to NT EPA 9.

5.3.75 DPIP 75

Issue raised

There are 'intermediate', 'high' and 'very high' erosion risk cells along the Apirnta Creek corridor. This highlights the benefit of establishing vegetated buffer zones along the watercourse to protect from excessive erosion (Section 4.2) and establishing stringent protocols for working near watercourses ... It should be particularly noted that a long corridor of 'intermediate' erosion risk land crosses the Proposal footprint along Mary's Creek.

Establishing vegetated buffer zones along the watercourse to protect from excessive erosion (Section 4.2) and establishing stringent protocols for working near watercourses are recommended here (Sections 5.2.2 and 6.1.2). Due to the high level of scrutiny afforded to the Chandler Facility, additional erosion control safeguards may be considered here and there would be an opportunity



for added project value in the form of establishing a no-go habitat corridor in this area with wider buffers than the guidelines suggest. (Sections 5.2.2 and 6.1.2).

The proponent must include the vegetated buffer zones along the watercourse and stringent protocols for working near watercourses in planning and action of works.

Proponent's response

Noted – the proponent acknowledges the request from DPIR to include vegetated buffer zones along the watercourse and stringent protocols for working near watercourses in planning and action of works. Should the Proposal be approved, this management measure should form a condition of consent. The proponent recognises the important role vegetated buffer zones play on large construction sites.

5.3.76 DPIR 76

Issue raised

Gully erosion is present on the lee-side of Maryvale Hills, due to concentration of runoff water, steep gradient and lack of vegetative cover. These gullies will likely transmit large sediment loads down-gradient into the Chandler facility drainage structures leading to lower capacity, possible flooding and increased maintenance requirements. The channels are also likely to migrate over time, possibly undermining critical infrastructure.

Tellus should investigate whether stabilisation, such as control of water flow, gully fill, gully formalisation and subsequent monitoring, would be beneficial during detailed design as recommended in DLRM, 2013b.

Proponent's response

The proponent will investigate, in detail, the engineering and scientific management requirements and controls necessary for the gullies that exist on the Maryvale Hills. This is a colluvial zone capable of transporting small to medium sized rocks and sediment loads under flashy rainfall events. Furthermore, it will be necessary to ensure surface water flowing off the Maryvale Hills is separated from the Mine Infrastructure Area.

Once management measures are in place, monitoring and maintenance (where appropriate) of gully stabilisation techniques will be undertaken in line with the draft erosion and sedimentation management plan.

5.3.77 DPIR 77

Issue raised

Provision of a sediment trap, such as a mulch bank or a sediment fence, on the downslope boundaries of the Apirnta Facility, Chandler Facility and haulage roads is recommended...



Buffer strips and vegetation filters should be employed, where practical, along the haulage road instead of sediment trapping structures (DLRM, 2013b). The Apirnta Facility and Chandler Facility sites may require additional sediment control measures, such as excavated sediment traps, especially if works are planned to be undertaken during months when rainfall within the area is traditionally higher. Works should be planned to intercept and retain sediment to prevent it spreading into Apirnta, Chambers, Charlotte, Halfway and Mary's Creeks.

Please ensure that all the recommendations in Section 6.2.2 (Mitigation measures) are included in the construction and operation controls in the mine operation and are installed as per recommendations.

Proponent's response

Noted – the proponent acknowledges that all the recommendations in Section 6.2.2 of the draft EIS (mitigation measures) are included in the construction and operation controls in the mine operation and are installed.

5.3.78 DPIR 78

Issue raised

Provision of a sediment trap, such as a mulch bank or a sediment fence, on the downslope boundaries of the Apirnta Facility, Chandler Facility and haulage roads is recommended.

These structures require regular inspection and maintenance. A maintenance schedule must be included.

Proponent's response

The proponent acknowledges that a defined and regular inspection and maintenance program must be agreed prior to construction commencing. Section 9.5 of the draft Erosion and Sedimentation Control Plan commits the proponent to monthly inspections of all sediment and erosion control measures. Actions to inspect all structures following a rainfall event are also included in Section 9.5 of the draft management plan.

The proponent also commits to updating the draft management plan following the completion of detailed design.

5.3.79 DPIR 79

Issue raised

Under current design plans, the existing Halfway Dam will need to be decommissioned and a new dam constructed in an alternative location... Extensive planning should be undertaken and protective measures implemented when decommissioning a dam to reduce the environmental impacts.



When (if) dam works commence provide evidence of ESCP planning and action during construction and decommissioning.

Proponent's response

Noted – the proponent must show detailed drawings of final dam design accompanied by ESCP measures.

5.3.80 DPIR 80

Issue raised

Tellus must incorporate all the recommendations outlined in the Surface Water Assessment, BECA January 2017.

A more detailed study of effects of site construction, road construction, etc. on waterways, floodplains and vegetation is required.

During detailed design and following completion of detailed design, additional work requirements for the outline ESCP are recommended. These include:

- *Detailed survey of the sites plotted to inform ESCP's;*
- *Dam evaluation as detailed in Section 7;*
- *Investigate whether a gully rehabilitation program on the Maryvale Hills up-gradient from the Chandler Facility is warranted, based upon ongoing monitoring (Section 9) and proximity of planned infrastructure;*
- *Roof water drainage volume estimation;*
- *Sinkhole inspections on the construction sites to verify buffer zones;*
- *Soil pits dug once excavation depths and known. Dispersion and soil characterisation testing should be performed for surficial and suitable depth increment samples for the Apirnta Facility, Chandler Facility and Haulage Road;*
- *Water monitoring plan for construction and operation;*
- *Wildlife corridor design for the newly created Halfway Dam*

The plan should be accompanied by Landscape Mgmt Plan for operation and legacy of the site (Section 7).

Proponent's response

Noted – the existing draft ESCP will include the above measures required by DPIR.



5.3.81 DPIR 81

Issue raised

The water quality results obtained for the Chandler project area contain substantial concentrations of metals. The highest value for copper observed is 70 times the recommended ANZECC 95% species protection trigger value. The values presented are not clearly labelled as filtered or total components; this should be included in the results for better interpretation.

Presumably, no filtered metal data has been presented. All conclusions and interpretations are therefore unreliable for aquatic ecosystem protection. Further sample collection and data interpretation is required.

Proponent's response

No filtered metal data was originally taken as part of the draft EIS, only totals. The proponent has undertaken further technical assessment of its existing surface water database and has been shown in the Supplement. Attachment E also provides the results of this work.

The proponent has committed to a wider surface water sampling and monitoring program. Details of which are included in Table 4-1.



5.4 Central Land Council

Issues identified by the Central Land Council are provided in Table 5-43. A response to each issue is provided in Section 5.4.1 through Section 0.

Table 5-43 Issues identified by the Central Land Council

Issue reference	Issue raised
CLC 1	<p>Sacred site protection - The CLC's functions include protecting the interests of native title claimants and traditional Aboriginal owners including sacred sites. Cultural information needs to be treated with sensitivity and is subject to confidentiality. The CLC requested that the Aboriginal cultural material be handled carefully in the EIS. There is always concern about showing exclusion zones advised to the company by the CLC on maps (in this case in the archaeology section) when this is confidential information. Including this information highlights culturally sensitive areas in a public document that may have the opposite affect to what is intended and encourage visitation rather than protection.</p> <p>The CLC has undertaken sacred site clearance work across the Chandler Facility Project for Tellus since 2012. Sacred Site Clearance Certificates were issued for exploration activities on EL29018 and a number of sacred sites protected. Further Sacred site clearance work is required across the entire final project footprint for the Mineral Lease and associated access authorities</p> <p>Relevant Commonwealth Acts are presented in the EIS as important for protecting Aboriginal cultural interests, but the CLC notes that Chapter 4 discussing the NT Approvals Pathway does not include the <i>Northern Territory Aboriginal Sacred Sites Act 1989</i>. The Act is key legislation for protecting sacred sites in the NT and the Project will need an Authority Certificate under that Act to proceed. The CLC notes that sacred site clearances are required for the mining project and that the CLC will work in collaboration with AAPA to ensure the necessary protections are in place should the Project proceed.</p> <p>The unique and current nature of Aboriginal connection to country is not dealt with in the EIS. The cultural context in chapter 10.3.2 is framed in a way that suggests Aboriginal connection is historic rather than acknowledging the fact that Aboriginal culture, language and ceremony in the region is still active.</p>
CLC 2	<p>Archaeological material - The archaeological work in the EIS is defined as preliminary and provisional, as some elements of the Project were not defined at the time the Archaeological Report was published. Further archaeological work needs to be undertaken prior to any on ground disturbance. The CLC notes that the findings of the Archaeological Report discussed with native title claimants, including management of sites and material.</p>
CLC 3	<p>Social Impact Assessment - The social impact management plan (SIMP) (Appendix U) identifies a number of impacts and opportunities for native title claimants and community residents in Titjikala and other local communities in relation to the Project. Key findings are identified in section 4, as well as possible management and mitigation strategies. The CLC notes that many of the issues will be addressed in the future mining agreement with the CLC but it will be crucial for Tellus, the CLC, community and government to work together if the Project proceeds.</p> <p>Section 4.1 refers the reader to view a matrix at Appendix 3 of the Social Impact Assessment for initial ratings and more detail. However, this reference could not be located and is probably incorrect. The reference is probably to the Risk Matrix in Appendix N (discussed later in this submission). The point made is that 'the significance of negative impacts may seem high' and is related to the scale of change and disturbance arising from such a project.</p>



Issue reference	Issue raised
	<p>The rating reflects the likelihood of significant impacts on the local community and native title claimants.</p> <p>Table 10.6 sets out risk assessment in relation to socio-economics (page 6-270). The CLC would like clarification around why the case for 'not mining salt' is only considered when the economics of the Project depend on the waste repository proposal, which is the more controversial aspect of the Project.</p> <p>The CLC notes that there has been strong interest expressed by some Aboriginal people regarding possible income (royalties) from the project and opportunities such as employment and contracting. Such comments are in response to meetings with the company and media reports optimistically suggesting project start-up is soon, resulting in a need for the CLC to manage expectations.</p> <p>The EIS refers to Indigenous employment opportunities with a target of 10% suggested. Given the location of the Project near Alice Springs and around 20 kilometres from Titjikala it would be appropriate to strive toward a higher percentage.</p> <p>Section 5, Stakeholder Engagement, table 5.2 has a category "Traditional owners" and names The Kenny Family. It is not appropriate for Tellus to attempt to identify traditional owners in the EIS, which is the role of the CLC.</p>
CLC 4	<p>Titjikala Road - During the construction phase of the Project the company intends using the Maryvale Road for access to the Project area. The road is the main access to Titjikala and Finke. The road is not in a suitable condition to support heavy traffic for a large-scale construction project and would be dangerous for residents of the community and wider region as well as tourists. The road is highly corrugated, dusty and narrow in places with numerous rises and blind bends. The long-standing request to upgrade the road to bitumen by local road users would be the only safe way for supporting the use of the road for the Project.</p>
CLC 5	<p>Surface water - Careful consideration needs to be given around mine site planning with respect to surface water flows and Halfway Creek. The creek diversion around rock salt stockpiles risks contamination in rare flood events and high sheet flow from the Maryvale Hills. The spread of saline water could contaminate soil and affect vegetation in the surrounding area.</p>
CLC 6	<p>Groundwater - Community residents of Titjikala, native title claimants and other Aboriginal people in the area have expressed concern about any threat to their potable water supplies resulting from the Project, including impacts from drawdown and contamination. The EIS provides statements based on scientific knowledge and modelling about the lack of connectivity of the Project area groundwater and the community water supply at Titjikala. The risk matrix (Appendix N) indicates that the risk of drawdown and contamination is 'eliminated' and there is no pathway to enable such affects.</p> <p>Even though scientific modelling may suggest impact is unlikely, community residents require certainty, and concern will remain given the proximity of the project to the community and because potable water supplies in the desert environment are a rare and finite resources.</p> <p>Chapter 8.34-6 refers to a 0.2 metre drawdown within a 1 kilometre radius. In fact, the figure used in the Groundwater Assessment and the Water Management Plan is 0.4 m drawdown (Appendix P, p79. No timeline is given and it is not clear if this is for the life of the Project. The time-line should be addressed by Tellus.</p> <p>The report does not identify any connectivity between groundwater and surface water in</p>



Issue reference	Issue raised
	<p>areas along the Finke River and springs to the south and southeast of the Chandler facility. Further work is needed to give more certainty.</p> <p>There is confusion in the report in relation to cross sections discussing groundwater systems. Cross section transect labelled F-F¹ in Figure 8.13 in Report Part II is labelled as D-D¹ in the diagram on the following page (p8-388). The same figure presented as 8.2 in appendices P-Q shows the cross sections labelled with section E in a different orientation and the second cross section labelled D-D¹</p>
CLC 7	<p>Groundwater assessment - All monitoring bores appear to be inside the tenement within a 2km radius. It might be desirable to have purpose built monitoring bores built downstream (both east and southeast) at 5-10km distance from extraction points to pick up any potential longer term drawdown impacts. It is unclear if the proposed water extraction will be continuous and over a longer period for dust suppression purposes, whereby it may be desirable for RN10082 and RN14584 to be monitored to confirm or otherwise, if there are any impacts on these nearby bores.</p>
CLC 8	<p>Water Management Plan - The Plan in Appendix Q is a high-level document that provides no practical insight into the specifics of proposed borefield management or water use during the construction or operational phases of the project.</p> <p>Section 7.4.1 calls for surface water monitoring after rainfall events of 72 hours. In fact, the Flood and Hydrology component of the Surface Water Assessment notes that a 100 year surface water events could be triggered by intense storms of 6-12 hours duration and that rainfall can precede peak flows by 2-3 days. The trigger for surface water monitoring in the Water Management Plan should be adjusted accordingly.</p>
CLC 9	<p>Hazardous Waste Management - Project plans for a geological hazardous waste management and storage facility on the surface and underground are new and challenging concepts to comprehend. The proposal will not only house NT generated waste but will become a national repository for waste from across Australian land and waters. Further, Section 3.2.6 states 'Approval to import international wastes under the Basel Convention forms part of the Proposal' (page 88).</p> <p>There needs to be clearer understanding about how much waste could potentially be stored from international sources.</p> <p>The EIS notes that Australian legislation does not explicitly deal with the unique characteristics of deep geological disposal facilities for hazardous waste as there are currently no such facilities within Australia. There are questions around the legislative framework for the project and the capacity of the NT government to regulate a waste repository.</p> <p>On-going concern exists with some native title claimants and residents in nearby communities about radioactive waste at the repository, and criteria to accept NORMs in the waste acceptance policy leaves the situation murky. Given the history of search for a national nuclear waste repository in the NT with several sites nominated over the years including most recently, the Aridgold date Farm some 30 km north of Titjikala, suspicion exists about the hazardous waste disposal aspect of the Project. There are concerns that a review of the waste acceptance policy, could result in low level radioactive or nuclear waste that meets the acceptance criteria but is not a NORM, being accepted. There is also the risk that once a geological hazardous waste repository is in operation there could be significant political pressure to broaden the acceptance criteria policy. The EIS points out that the waste acceptance policy will be in operation at the Project facility so is there risk that waste could be sent to the facility, but not accepted?</p>



Issue reference	Issue raised
	<p>The way in which information is presented in 12.2 (Waste Acceptance Policy) about radiological acceptance criteria and exempt levels is not easy to understand and requires the reader to search other documents referenced (Radiation Protection Series Publication No. 6) to better understand the proposal.</p> <p>The EIS refers to the development of a NORM Management Plan consisting of a Radiation Management Plan (RMP) and Radioactive Waste Management Plan (RWMP), and other project specific management arrangements as agreed with the Authority.' A plan should have been included in the EIS for clarity.</p> <p>The Waste Management Plan section of the EIS discusses issues and guidelines but is at a high level and is not an operational plan which will provide clarity on how waste will be managed at the Facility.</p> <p>The EIS states that 'using the baseline information collected, the safety concept and the several different assessments performed, in particular the geo-mechanical/geo-technical assessment, proof of long-term safety can be established'(page 3-149). After reviewing the information in the EIS the basis for this statement is not clear. More detail is needed to support this statement or better referencing around where to locate the assessments and evaluation to support the assertion.</p> <p>The CLC is concerned that the scope of this EIS in relation to the geological waste repository is limited only to the Chandler and Apirnta facilities. The scope should in fact be set much broader to enable systems and process assessment across jurisdictional boundaries to capture movement of hazardous materials and to assess the capacity of emergency response. For example there is no detail in the EIS about NT border waste receipts processes, jurisdictional tracking mechanisms, and local emergency management capabilities. This is crucial in light of the report findings that contamination of groundwater has the greatest potential during road and rail transportation of hazardous waste to the Project facilities.</p>
CLC 10	<p>Closure - The section on Closure and Rehabilitation discusses the Chandler Halite formation in terms of its properties as a geological barrier in relation to room, shaft or decline seal failure and notes that the assessment of the geo-mechanical conditions of the Facility is preliminary at this stage and needs further consideration to ensure more certainty around long-term stability. It is proposed that some of this work be carried out when operations commence which results in uncertainty during construction. Reference is made to base the long-term stability solutions on learnings from sealing evaporate mines in other parts of the world (page 621) which highlights that much more work is required around planning for decommissioning and closure</p>
CLC 11	<p>Risk matrix - The risk matrix presented in Appendix N is difficult to understand. It needed to be viewed as a spreadsheet. The table in the top right hand side of the first page of the matrix is cut- off, as is the text in the box labelled likelihood/ description (red arrows point to these examples). The rest of the table appears several pages later in the matrix, as does the text. It is time consuming to move back and forth through the pages to understand the information in the table.</p>



5.4.1 CLC 1

Issue raised

Sacred site protection - The CLC's functions include protecting the interests of native title claimants and traditional Aboriginal owners including sacred sites. Cultural information needs to be treated with sensitivity and is subject to confidentiality. The CLC requested that the Aboriginal cultural material be handled carefully in the EIS. There is always concern about showing exclusion zones advised to the company by the CLC on maps (in this case in the archaeology section) when this is confidential information. Including this information highlights culturally sensitive areas in a public document that may have the opposite affect to what is intended and encourage visitation rather than protection.

Proponent's response

Noted. The proponent has redacted Figures 10-1 through 10-9 in Chapter 10 (Historic and cultural heritage) and also Figure 16-1 in Chapter 16 (Noise and vibration) of the draft EIS. In addition, Appendix S (Historic and cultural heritage) of the draft EIS has been redacted.

Issue raised

Sacred site protection - The CLC has undertaken sacred site clearance work across the Chandler Facility Project for Tellus since 2012. Sacred Site Clearance Certificates were issued for exploration activities on EL29018 and a number of sacred sites protected. Further Sacred site clearance work is required across the entire final project footprint for the Mineral Lease and associated access authorities.

Proponent's response

Noted. Section 10.1 of the draft EIS notes that the historic and cultural heritage chapter does not address sacred sites protected under the NT *Aboriginal Sacred Sites Act*. A number of sacred sites have been identified within the proposed development footprint by the Central Land Council and the Aboriginal Areas Protection Authority. These sites would be managed in accordance with the conditions of an Aboriginal Areas Protection Authority Certificate.

Issue raised

Sacred site protection - Relevant Commonwealth Acts are presented in the EIS as important for protecting Aboriginal cultural interests, but the CLC notes that Chapter 4 discussing the NT Approvals Pathway does not include the *Northern Territory Aboriginal Sacred Sites Act 1989*. The Act is key legislation for protecting sacred sites in the NT and the Project will need an Authority Certificate under that Act to proceed. The CLC notes that sacred site clearances are required for the mining project and that the CLC will work in collaboration with AAPA to ensure the necessary protections are in place should the Project proceed.



Proponent's response

Please refer to Table 4-7 in Chapter 4 of the draft EIS. The *Northern Territory Aboriginal Sacred Sites Act 1989* was referenced in Table 4-7 of the draft EIS as '*NT Sacred Sites Act*'. It was noted that compliance with this legislation would be required, including the need for an Aboriginal Areas Protection Authority Certificate.

Issue raised

Sacred site protection - The unique and current nature of Aboriginal connection to country is not dealt with in the EIS. The cultural context in chapter 10.3.2 is framed in a way that suggests Aboriginal connection is historic rather than acknowledging the fact that Aboriginal culture, language and ceremony in the region is still active.

Proponent's response

Noted. The proponent acknowledges that Aboriginal culture, language and ceremony is active within the region surrounding the Proposal.

5.4.2 CLC 2

Issue raised

Archaeological material - The archaeological work in the EIS is defined as preliminary and provisional, as some elements of the Project were not defined at the time the Archaeological Report was published. Further archaeological work needs to be undertaken prior to any on ground disturbance. The CLC notes that the findings of the Archaeological Report discussed with native title claimants, including management of sites and material.

Proponent's response

Noted. As discussed in Section 10.7 of the draft EIS, additional surveys of areas that would be impacted but have not yet been surveyed and which have a moderate to high probability of containing archaeological material (e.g. sections of the proposed Chandler Haul Road and eastern end of the proposed Henbury Access Road) would be undertaken prior to construction of the Proposal.

5.4.3 CLC 3

Issue raised

Social Impact Assessment - The social impact management plan (SIMP) (Appendix U) identifies a number of impacts and opportunities for native title claimants and community residents in Titjikala and other local communities in relation to the Project. Key findings are identified in section 4, as well as possible management and mitigation strategies. The CLC notes that many of the issues will be addressed in the future mining agreement with the CLC but it will be crucial for Tellus, the CLC, community and government to work together if the Project proceeds.



Proponent's response

Noted.

Issue raised

Social Impact Assessment - Section 4.1 refers the reader to view a matrix at Appendix 3 of the Social Impact Assessment for initial ratings and more detail. However, this reference could not be located and is probably incorrect. The reference is probably to the Risk Matrix in Appendix N (discussed later in this submission). The point made is that 'the significance of negative impacts may seem high' and is related to the scale of change and disturbance arising from such a project. The rating reflects the likelihood of significant impacts on the local community and native title claimants.

Proponent's response

The proponent acknowledges the original reference in the draft EIS was incorrect. It was indeed meant to reference the risk matrix included in Appendix N of the draft EIS.

Issue raised

Social Impact Assessment - Table 10.6 sets out risk assessment in relation to socio-economics (page 6-270). The CLC would like clarification around why the case for 'not mining salt' is only considered when the economics of the Project depend on the waste repository proposal, which is the more controversial aspect of the Project.

Proponent's response

The draft EIS has been prepared to address the requirements set out in the *Terms of Reference for the Preparation of an Environmental Impact Statement – Chandler Salt Mine* (the 'Terms of Reference') issued by the NT Environment Protection Authority (NT EPA) on 23 September, 2016, under the NT *Environmental Assessment Act* (EA Act). As required under the EA Act, the draft EIS is required to consider and document alternatives to the Proposal. The considered alternatives are identified and discussed in detail in Section 2.3 of the draft EIS, and summarised in Table 2-6. One of the alternatives identified and discussed is 'not mining salt' which has been carried into Table 10.6 as identified. Reference should be made to Section 2.3 of the draft EIS for a full discussion.

Issue raised

Social Impact Assessment - The CLC notes that there has been strong interest expressed by some Aboriginal people regarding possible income (royalties) from the project and opportunities such as employment and contracting. Such comments are in response to meetings with the company and media reports optimistically suggesting project start-up is soon, resulting in a need for the CLC to manage expectations.

Proponent's response

Noted.



Issue raised

Social Impact Assessment - The EIS refers to Indigenous employment opportunities with a target of 10% suggested. Given the location of the Project near Alice Springs and around 20 kilometres from Titjikala it would be appropriate to strive toward a higher percentage.

Proponent's response

Noted. The proponent has set a target of 10% indigenous employment sourced from the local region during construction and operation of the Proposal. The proponent would strive for a higher percentage of indigenous employment, but achieving this higher percentage would be dependent on the number of indigenous people from the local region with the appropriate skills/training/qualifications required for the specialised positions available during construction and operation of the Proposal. The proponent has committed to the sponsorship of academic programs in the nearby community of Titjikala. This would assist local people in gaining education and employment opportunities.

Issue raised

Social Impact Assessment - Section 5, Stakeholder Engagement, table 5.2 has a category "Traditional owners" and names The Kenny Family. It is not appropriate for Tellus to attempt to identify traditional owners in the EIS, which is the role of the CLC.

Proponent's response

Noted. The proponent has redacted the name from Table 5-2 in Section 5.5.2 of the draft EIS.

5.4.4 CLC 4

Issue raised

Titjikala Road - During the construction phase of the Project the company intends using the Maryvale Road for access to the Project area. The road is the main access to Titjikala and Finke. The road is not in a suitable condition to support heavy traffic for a large-scale construction project and would be dangerous for residents of the community and wider region as well as tourists. The road is highly corrugated, dusty and narrow in places with numerous rises and blind bends. The long-standing request to upgrade the road to bitumen by local road users would be the only safe way for supporting the use of the road for the Project.

Proponent's response

The existing Maryvale Road experiences heavy vehicle traffic. This is confirmed in the proponents traffic count data research for Maryvale Road



5.4.5 CLC 5

Issue raised

Surface water - Careful consideration needs to be given around mine site planning with respect to surface water flows and Halfway Creek. The creek diversion around rock salt stockpiles risks contamination in rare flood events and high sheet flow from the Maryvale Hills. The spread of saline water could contaminate soil and affect vegetation in the surrounding area.

Proponent's response

The proponent acknowledges the concerns of the CLC. Additional surface water field work has already begun to determine the geomorphology and flood risks associated with Halfway Creek and the proposed run of mine salt stockpile. This is a commitment of the proponent in the BFS. The appropriate management measures will be included in the Mining Management Plan, Water Management Plan and Topsoil/ Spoil Management Plan.

5.4.6 CLC 6

Issue raised

Groundwater - Chapter 8.34-6 refers to a 0.2 metre drawdown within a 1 kilometre radius. In fact, the figure used in the Groundwater Assessment and the Water Management Plan is 0.4 m drawdown (Appendix P, p79. No timeline is given and it is not clear if this is for the life of the Project. The time-line should be addressed by Tellus.

Proponent's response

The drawdown coefficients have been modelled over the proposed life of mine (i.e. 25 years). Should the mine be operational for a longer period of time, further modelling of potential drawdown would be expected.

Issue raised

Groundwater - Community residents of Titjikala, native title claimants and other Aboriginal people in the area have expressed concern about any threat to their potable water supplies resulting from the Project, including impacts from drawdown and contamination. The EIS provides statements based on scientific knowledge and modelling about the lack of connectivity of the Project area groundwater and the community water supply at Titjikala. The risk matrix (Appendix N) indicates that the risk of drawdown and contamination is 'eliminated' and there is no pathway to enable such affects.

Even though scientific modelling may suggest impact is unlikely, community residents require certainty, and concern will remain given the proximity of the project to the community and because potable water supplies in the desert environment are a rare and finite resources.



Proponent's response

In addition to the evidence presented in the draft EIS to conclude there are no short, medium or long term risks of contaminating groundwaters at a local or regional scale, the proponent will install additional groundwater bores between the proposed mine site and Titjikala. Monitoring will occur on a 4 monthly basis. The results of the monitoring will be provided to the DPIR and NT EPA for transparency.

Issue raised

Groundwater - The report does not identify any connectivity between groundwater and surface water in areas along the Finke River and springs to the south and southeast of the Chandler facility. Further work is needed to give more certainty.

Proponent's response

The proponent acknowledges that additional research on the potential connectivity between groundwater and surface water in areas along the Finke River and springs to the south and southeast of the Chandler facility is required. The proponent has already begun field work in this area and has identified locations for future surface water sampling and groundwater bore drilling. Both aspects of research will form a commitment to a regional surface water and groundwater monitoring program.

Issue raised

Groundwater - There is confusion in the report in relation to cross sections discussing groundwater systems. Cross section transect labelled F-F¹ in Figure 8.13 in Report Part II is labelled as D-D¹ in the diagram on the following page (p8-388). The same figure presented as 8.2 in appendices P-Q shows the cross sections labelled with section E in a different orientation and the second cross section labelled D-D¹.

Proponent's response

Figure 8.2 in Appendix P of the draft EIS is the correct figure.

5.4.7 CLC 7

Issue raised

Groundwater assessment - All monitoring bores appear to be inside the tenement within a 2km radius. It might be desirable to have purpose built monitoring bores built downstream (both east and southeast) at 5-10km distance from extraction points to pick up any potential longer term drawdown impacts. It is unclear if the proposed water extraction will be continuous and over a longer period for dust suppression purposes, whereby it may be desirable for RN10082 and RN14584 to be monitored to confirm or otherwise, if there are any impacts on these nearby bores.



Proponent's response

Detailed calculations of potential water drawdown have been undertaken by EMM Consulting. The calculations were undertaken for sustained abstractions over the life of the mine. As indicated in Figure 5-75, the proposed abstraction rates are shown to not have any adverse or detrimental impacts on local or regional bores.

5.4.8 CLC 8

Issue raised

Water Management Plan - The Plan in Appendix Q is a high-level document that provides no practical insight into the specifics of proposed borefield management or water use during the construction or operational phases of the project.

Proponent's response

The location of the borefield is yet to be determined. This forms part of the Stage II groundwater program that is detailed in Table 5-30. Furthermore, it was not the intention of the Draft WMP to provide detailed information on borefield development when this work was not yet completed. The BFS program and detailed design, and Stage II program is the period in which this detail is captured. Therefore, the Draft WMP will be updated to become a Final WMP and, details will also be included into the forthcoming Mining Management Plan.

Issue raised

Water Management Plan - Section 7.4.1 calls for surface water monitoring after rainfall events of 72 hours. In fact, the Flood and Hydrology component of the Surface Water Assessment notes that a 100 year surface water events could be triggered by intense storms of 6-12 hours duration and that rainfall can precede peak flows by 2-3 days. The trigger for surface water monitoring in the Water Management Plan should be adjusted accordingly.

Proponent's response

Noted – and further assessment / modelling of flooding is proposed to be undertaken by the proponent during the BFS.



5.4.9 CLC 9

Issue raised

Hazardous Waste Management - Project plans for a geological hazardous waste management and storage facility on the surface and underground are new and challenging concepts to comprehend. The proposal will not only house NT generated waste but will become a national repository for waste from across Australian land and waters. Further, Section 3.2.6 states 'Approval to import international wastes under the Basel Convention forms part of the Proposal' (page 88).

There needs to be clearer understanding about how much waste could potentially be stored from international sources.

Proponent's response

Approval to import international wastes under the Basel Convention (Regulation of Transboundary Movements) and Waigani Convention (Regulation of Exports and Imports) also forms part of the Proposal. The Proposal would help Australia to meet our international obligations as signatories to the Basel Convention and Waigani Convention 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.

International waste from man-made or natural disasters would form a small percentage of the waste accepted for storage and/or permanent isolation at the proposed Chandler Facility.

Issue raised

Hazardous Waste Management - The EIS notes that Australian legislation does not explicitly deal with the unique characteristics of deep geological disposal facilities for hazardous waste as there are currently no such facilities within Australia. There are questions around the legislative framework for the project and the capacity of the NT government to regulate a waste repository.

Proponent's response

Noted. If approved, the salt mining operations would be regulated under the MM Act and MM Regulations administered by the NT Department of Primary Industry and Resources (DPIR). The storage, recovery and permanent isolation of waste within the salt mining voids would be regulated under the WMPC Act and WMPC Regulations administered by the NT Environment Protection Authority (NT EPA). The Proposal would, therefore, be regulated jointly between DPIR and the NT EPA.



Issue raised

Hazardous Waste Management - On-going concern exists with some native title claimants and residents in nearby communities about radioactive waste at the repository, and criteria to accept NORMs in the waste acceptance policy leaves the situation murky. Given the history of search for a national nuclear waste repository in the NT with several sites nominated over the years including most recently, the Aridgold date Farm some 30 km north of Titjikala, suspicion exists about the hazardous waste disposal aspect of the Project. There are concerns that a review of the waste acceptance policy, could result in low level radioactive or nuclear waste that meets the acceptance criteria but is not a NORM, being accepted.

Proponent's response

Radioactive waste (e.g. nuclear and uranium mining waste) would not meet the strict Waste Acceptance Criteria (WAC) established for the Proposal. Radioactive waste would not be stored at either the proposed Chandler Facility or at the Apirnta Facility. The proponent is, however, planning to accept Naturally Occurring Radioactive Material (NORM) up to Exemption Level⁹ (EW) activity content, which is the lowest activity level on the waste classification scheme (refer to Section 3.2.6 and Table 3-6 of the draft EIS). Storing radioactive waste at the proposed Chandler Facility or Apirnta Facility would be in breach of the conditions of approval or consent for the Proposal.

Any future changes to the WAC would be undertaken via an environmental impact assessment process in consultation with key stakeholders (including the community) and with both the NT Government and the Australian Government. There is no intention, however, to change any aspect of the WAC for the Proposal.

Issue raised

Hazardous Waste Management - There is also the risk that once a geological hazardous waste repository is in operation there could be significant political pressure to broaden the acceptance criteria policy.

Proponent's response

As discussed above, any future changes to the Waste Acceptance Criteria (WAC) would be undertaken via an environmental impact assessment process in consultation with key stakeholders (including the community) and with both the NT Government and the Australian Government. There is no intention, however, to change any aspect of the WAC for the Proposal.

⁹ 2 Classification of Radioactive Waste – RPS20, Schedule 4 of the NDRP (ARPANSA 2010)



Issue raised

Hazardous Waste Management - The EIS points out that the waste acceptance policy will be in operation at the Project facility so is there risk that waste could be sent to the facility, but not accepted?

Proponent's response

Yes. Waste accepted and not accepted at the proposed Apirnta Facility and Chandler Facility is specified in the WAC presented in Section 3.2.6 and Appendix C of the draft EIS. Waste received at the proposed Apirnta Facility and Chandler Facility would be in line with those listed under the NT *Waste Management Pollution Control Act* (WMPC Act) and the Waste Management Pollution Control (Administration) Regulations (WMPC Regulations). As discussed in Section 3.6.5 of the draft EIS, received waste that does not meet the WAC, is inappropriately packaged, or is otherwise deemed unacceptable, would be quarantined and returned to the waste generator.

Issue raised

Hazardous Waste Management - The way in which information is presented in 12.2 (Waste Acceptance Policy) about radiological acceptance criteria and exempt levels is not easy to understand and requires the reader to search other documents referenced (Radiation Protection Series Publication No. 6) to better understand the proposal.

Proponent's response

The proponent assumes that the issue raised above is in reference to Gate 12.2 'Radiological acceptance criteria' in Section 4 of the Waste Acceptance Procedure (refer to Appendix C of the draft EIS).

Every attempt was made by the proponent to present technical information so that it could be easily read and understood by the public in the draft EIS. References were used to support the information presented and to provide the reader with additional sources of information regarding the subject matter.

A number of references were used to prepare the Waste Acceptance Procedure. These references are cited throughout the text and are listed in Section 7 'Bibliography' of the Waste Acceptance Procedure. It would be cumbersome to append each document referenced throughout the Waste Acceptance Procedure. Rather, a link to each document referenced (where available online) was provided in Section 7 'Bibliography'. Providing these links to the documents online allows the reader to quickly track down the references used throughout the Waste Acceptance Procedure.

Issue raised

Hazardous Waste Management - The EIS refers to the development of a NORM Management Plan consisting of a Radiation Management Plan (RMP) and Radioactive Waste Management Plan



(RWMP), and other project specific management arrangements as agreed with the Authority.’ A plan should have been included in the EIS for clarity.

Proponent’s response

As discussed in Gate 12.2 ‘Radiological acceptance criteria’ in Section 4 of the Waste Acceptance Procedure, a NORM Management Plan would be prepared for the Proposal (refer to Appendix C of the draft EIS). The NORM Management Plan would consist of a Radiation Management Plan (RMP) and a Radioactive Waste Management Plan (RWMP) and would be prepared in accordance with the requirements of the *Code of Practice and Safety Guide on Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing* (ARPANSA 2005, also referred to as the *Mining Code*).

The RMP and RWMP would be developed when further details regarding construction and operation of the Proposal is available, primarily through the development of a BFS. The NORM Management Plan would be developed prior to construction and operation of the Proposal and in consultation with the relevant NT Government Department.

The NORM management plan would include:

- A description of the operation/process including a description of where in the process doses may arise.
- A demonstration of compliance with relevant radiation protection standards.
- The relevant elements of an RMP (refer below).
- The relevant elements of a RWMP (also refer below).

The requirements for the information to be supplied in an RMP are specified in Section 2.7 of the *Mining Code*. These are as follows:

- Description of operations, and of measures for control.
- Demonstrated access to expertise.
- Monitoring plan and method for dose assessment.
- Provision of appropriate and adequate equipment, staff, facilities and operational procedures.
- Details of induction and training.
- Details of record keeping and reporting.
- Plan for dealing with incidents accidents and emergencies.
- System of periodic assessment and review to achieve continual improvement.

The requirements of the information to be supplied in an RWMP are specified in Section 2.8 of the *Mining Code*. These are as follows:



- Outline of the process(es) generating the waste(s).
- Description of the environment including baseline radiological characteristics.
- Description of the proposed system for waste management.
- Predictions of environmental concentrations and doses.
- Program for monitoring.
- Contingency plans for dealing with accidental releases.
- Schedule for reporting.
- Plan for decommissioning.
- Commitment to periodic assessment and review.

Issue raised

Hazardous Waste Management -

The Waste Management Plan section of the EIS discusses issues and guidelines but is at a high level and is not an operational plan which will provide clarity on how waste will be managed at the Facility.

Proponent's response

A draft Waste Management Plan has been prepared for the Proposal (refer to Appendix G of the draft EIS). The Waste Management Plan would be finalised when further details regarding construction and operation of the Proposal is available, primarily through the development of a Bankable Feasibility Study. The Waste Management Plan would be finalised prior to construction and operation of the Proposal and in consultation with the NT EPA.

Issue raised

Hazardous Waste Management - The EIS states that 'using the baseline information collected, the safety concept and the several different assessments performed, in particular the geo-mechanical/geo-technical assessment, proof of long-term safety can be established'(page 3-149). After reviewing the information in the EIS the basis for this statement is not clear. More detail is needed to support this statement or better referencing around where to locate the assessments and evaluation to support the assertion.

Proponent's response

As discussed in Section 3.6.5, please refer to the following:

- Geological assessment (local, regional) (refer to Section 3.2.1 of the draft EIS).
- Geo-technical/geo-mechanical assessments (testing/analytical/numerical/validation) (refer to Appendix K of the draft EIS).



- Hydrological assessment (numerical/validation/monitoring for groundwater and porefluids) (refer to Chapter 8 and Appendix R of the draft EIS).
- Geochemical assessment (groundwater quality, waste – host rock interaction) (refer to Chapter 8 and Appendix P of the draft EIS).
- Biosphere impact assessment (identification and evaluation of receptors) (refer to baseline assessment in Chapters 7 to 18 and Appendix O, Appendix P, Appendix R, Appendix S, Appendix U and Appendix X within the draft EIS).
- Assessment of risks related to or present during the operational phase (refer to Chapter 6 and Chapters 7 to 18 of the draft EIS).
- Assessment of long-term risks (refer to Chapters 7 to 18 of the draft EIS).
- Assessment of risks related to the surface facilities at the planned site (refer to Chapter 6 and Chapters 7 to 18 of the draft EIS).
- Assessment of other risks (mining/waste emplacement and their strict separation) (refer to Appendix C of the draft EIS).

Issue raised

Hazardous Waste Management - The CLC is concerned that the scope of this EIS in relation to the geological waste repository is limited only to the Chandler and Apirnta facilities. The scope should in fact be set much broader to enable systems and process assessment across jurisdictional boundaries to capture movement of hazardous materials and to assess the capacity of emergency response. For example there is no detail in the EIS about NT border waste receipts processes, jurisdictional tracking mechanisms, and local emergency management capabilities. This is crucial in light of the report findings that contamination of groundwater has the greatest potential during road and rail transportation of hazardous waste to the Project facilities.

Proponent's response

Waste would be transported via reputable companies licenced to transport dangerous goods (the proponent has recently partnered with Toll). Toll has provided the proponent with information relevant to the border waste receipts process, tracking mechanisms, and emergency response in the event of an accident. This information is presented below. Additional information is also provided in NT EPA response 74.

Border waste receipts process

An EPA licence, compliance with all licence conditions and the completion of a Waste Transport Certificate would be required for the transport of waste to the proposed Chandler Facility. Under the National Environment Protection (Movement of Controlled Waste between states and territories) Measure (NEPM), a Waste Transport Certificate must accompany all transport of controlled waste between states and territories.



Toll would work with waste producers to ensure all applications and certificates are completed in a thorough and timely manner, as no waste would be picked up without the appropriate paperwork. However, ultimately it would be the responsibility of the waste producer to obtain the Waste Transport Certificate and applicable EPA license.

The Waste Transport Certificate is made up of an original (white) docket and four identical, colour-coded carbon copies (yellow, blue, pink and green). Each docket, except for the pink one, also has a tear-off section at the bottom. The certificate is divided into various parts. One part must be completed by the custodian of the waste consignment at each stage of its movement, from the waste producer, through the waste transporter, to the waste facility. Toll would send the blue tear-off section of the Waste Transport Certificate docket to the regulatory authority in any transit state or territory through which the waste consignment would pass through on its way to the proposed Chandler Facility. Copies of the blue Waste Transport Certificate docket would be filed for at least 12 months in line with regulations.

There are certain requirements that each vehicle would need to meet which can differ by state/territory, but broadly speaking the requirements would be:

- Insurance. The transporter must hold a third-party property insurance policy, which effectively covers environmental damage or clean-up resulting from an accident, for the sum of not less than \$1,000,000.
- Fire extinguisher. If a vehicle is used solely for the transport of PIW that is not considered a dangerous good as per the ADG Code, the vehicle cabin must be equipped with a 10B dry powder type fire extinguisher.
- Driver safety kit. The vehicle must have a driver safety kit, being equipment available to provide protection to the driver of the vehicle (e.g., safety goggles, chemical-resistant gloves, chemical resistant overalls, chemical-resistant boots, eyewash, respirator, electric torch), as required by Chapter 12 of the ADG Code. Provision must be made in the cabin of the vehicle for the storage of driver safety kits (personal protective equipment and safety equipment).
- Emergency information and holder. The vehicle must have an emergency procedure guide. In relation to PIW that is not considered a dangerous good in the ADG Code, the emergency procedure guide must outline the actions to be taken in the event of an emergency involving the waste
- Placement of the emergency information holder. An emergency information holder must be securely placed in a vehicle:
 - on the inside of a door of the cabin; or
 - if the construction of the vehicle does not allow the holder to be attached to the door, in a visible position next to the door.



- Front/rear mount(s) marking and placarding for class diamonds. There should be fitted frames to accommodate class labels at the front and rear of the vehicle. Where labels are required to be placarded on a combination vehicle, there should be fitted frames to accommodate class labels at the front and rear of the combination; and on both sides of each vehicle that forms part of the combination.
- Load security. The tray of the vehicle must be properly maintained, with no holes or gaps through which waste can escape. All bulk loads and high-hazard packages need to be protected from adverse weather conditions (waste would be in closed 20-foot shipping containers with multibarrier containment shipped to the proposed Chandler Facility).
- Spill kit. The vehicle must have a spill kit that includes a container or stock of material that would enable a small spill, leak or escape of the PIW being transported, to be safely and effectively cleaned up (e.g. broom, shovel, sealable bucket, absorbent material). The spill kit carried on a vehicle must be stowed in an accessible position.

Jurisdictional tracking mechanisms

Toll's transport management system would ensure all waste movements are tracked at item level and maintain segregation during transit.

Toll uses an item-level freight tracking system across their network that has the ability to track consignments from start to finish at item level. The system uses a GS1-SSCC as the unique freight item identifier (for all freight through their system) or alternatively can use customer-generated GS1-SSCC (refer to Figure 5-85). Toll would also provide visibility to the SSCC freight items through E-Business Solutions.



This label is produced from TollConnect and TollOnline.

Figure 5-85 Item-level freight tracking system tracks consignments from start to finish (example of label)

The system uses wireless mobility devices and solutions that record, validate and instruct on freight movement events. The events recorded start at the point of pick up at the customer site, continue through into the depots and then at delivery process points. All events are recorded and available



through Toll's online E-Business Solutions. Freight would be tracked and reconciled in 'real time' at all key handling points (pick-up, load linehaul, unload linehaul, load PUD and delivery).

The system provides alerts and warnings to operations staff to minimise the potential for misdirects or lost freight. The system also provides directions to operations staff for the staging and locating of freight within the depot reducing the amount of effort to check and reconcile freight at key handling points.

This technology would be used to track all waste movements on the Toll network.

Emergency response

In addition to the policies and guidelines detailed the Toll Group Health and Safety Management Standards, Toll has well defined and established Emergency Response Procedures in each Toll Operating Division involved in the Proposal covering Tellus' National Transport and Distribution requirements. Each clearly outlines the processes and responsibilities for each party involved.

Toll Roadside Depot Assistance

Toll's Fleet Management Business Unit operates a 24-hour, 7-day a week national emergency assistance/response service to assist all Toll businesses in dealing with incidents both major and minor involving vehicles and property which include:

- Vehicle breakdowns.
- Vehicle accidents.
- Incidents involving dangerous goods, hazardous substances or other products which may pose a risk to the environment.
- General emergency response.
- Reporting and investigating incidents.

Services are coordinated through a central base and link into their national network of maintenance centres for breakdowns and their trained emergency response teams for emergency assistance, which are strategically situated throughout Australia.

1800 emergency response number

Drivers call Toll's 1800 emergency number in case of emergency (1800 639 621 for general emergency, 1800 039 008 for dangerous goods/hazardous substances emergency).

The Depot Assistance Central Base utilises the drivers name, business unit, location of vehicle and registration number to help activate the response. A Response Coordinator ensures the appropriate services are despatched and relevant information provided and liaises with the relevant Toll Business Unit in regards to delays/situation.



Toll would ensure that the customers affected are informed as soon as possible and contingency plans initiated to minimise the effect on customer operations.

Emergency Response Guide

Toll's 'Emergency Response Guide' details the relevant procedures and policies necessary to provide assistance and direction to any person required to respond to an emergency situation, particularly incidents involving linehaul operations and dangerous goods incidents. It includes:

- Dangerous goods customers 24-hour contact details (list of phone numbers by customer).
- Incident management guidelines.
- Contact details by state and location for towing, clean up assistance, trucks or other transport operators (to assist with recovery), environment protection agency, Toll 1800 emergency response number.
- Forms including: Emergency Response Form, Motor Vehicle Accident Response Form.

Emergency Response Plan

Toll is in the process of developing site-specific Emergency Response Plans which dictate roles and responsibilities in the event of an emergency, including specific response to emergencies involving a particular waste. It is critical these are in place for storage and transport prior to commencement of training and implementation. As per the draft Emergency Response Plan, all subcontractors to Toll would be required to maintain their own emergency response plan's to the standard of Toll, or comply with Toll's emergency response plan.

5.4.10 CLC 10

Issue raised

Closure - The section on Closure and Rehabilitation discusses the Chandler Halite formation in terms of its properties as a geological barrier in relation to room, shaft or decline seal failure and notes that the assessment of the geo-mechanical conditions of the Facility is preliminary at this stage and needs further consideration to ensure more certainty around long-term stability. It is proposed that some of this work be carried out when operations commence which results in uncertainty during construction. Reference is made to base the long-term stability solutions on learnings from sealing evaporate mines in other parts of the world (page 621) which highlights that much more work is required around planning for decommissioning and closure

Proponent's response

The proponent will complete a BFS and, part of the initial study phase will include collection of additional geotechnical information, specifically:

- Deep diamond drilling and core collection.
- Geotechnical logging and analysis of the core.



- Downhole wireline geophysical survey.
- Salt creep testing of the core.

This information is required to provide the mine design parameters, including mine room and mine pillar widths. Stability of the rooms is related to the pillar width between the rooms and is a function of the strength of the pillars.

Salt creep testing and geotechnical analysis of the core will provide the parameters for calculation of the room pillar widths, room dimensions and if additional support such as rock bolts are required to provide stability for rooms. Studies completed by registered engineers with experience in salt mining, have indicated that based on information available stable rooms can be designed, and that the design will be refined during the BFS and detailed design.

It is normal practice in any mining operation to monitor stability and make improvements as required during operations, on the basis of continuous improvement.

The draft Rehabilitation and Closure plan provided in Appendix J of the draft EIS states:

Underground storage and disposal rooms will have been progressively sealed during operations at the point when materials have been deemed not to have any further potential use. At the point of closure engineered seals will be placed in the shafts and decline to control any potential pathway into the underground working.

The precise position and design of these seals will be determined during future work stages. The PFS assumes major seals towards the bottom of the shafts and decline above the salt horizon as well as secondary seals adjacent to any aquifers encountered in the shafts and decline.

Figure 5-39 presents decline and shaft sealing concept during construction and post closure.

Figure 5-73 (reproduced from Figure 9-1 of Appendix J of the draft EIS) depicts the sealing strategy developed during the current phase of engineering. The sealing strategy will be continually reviewed, refined and improved up to the point of mine closure, international case studies and best practice will be part of ongoing research and lessons learnt integrated into the final closure plan.

5.4.11 CLC 11

Issue raised

Risk matrix - The risk matrix presented in Appendix N is difficult to understand. It needed to be viewed as a spreadsheet. The table in the top right hand side of the first page of the matrix is cut-off, as is the text in the box labelled likelihood/ description (red arrows point to these examples). The rest of the table appears several pages later in the matrix, as does the text. It is time consuming to move back and forth through the pages to understand the information in the table.

Proponent's response

Noted.



5.5 Chamber of Commerce Northern Territory

Issues identified by the Chamber of Commerce Northern Territory are provided in Table 5-44. A response to the issue raised is provided in Section 5.5.1.

Table 5-44 Issues identified by the Chamber of Commerce Northern Territory

Issue reference	Issue raised
CoC 1	Economic and social – We believe the Chandler Facility would deliver many potential social and economic benefits for Alice Springs and other regional areas including Titjikala. This project will provide business opportunities, Indigenous employment as well as Indigenous commercial opportunities.

5.5.1 CoC 1

Issue raised

We believe the Chandler Facility would deliver many potential social and economic benefits for Alice Springs and other regional areas including Titjikala. This project will provide business opportunities, Indigenous employment as well as Indigenous commercial opportunities.

Proponent's response

Noted.



5.6 Department of Environment and Natural Resources (Rangelands)

Issues identified by the Department of Environment and Natural Resources (Rangelands) are provided in Table 5-45. A response to each issue is provided in Section 5.6.1 through Section 5.6.20.

Table 5-45 Issues identified by the Department of Environment and Natural Resources (Rangelands)

Issue reference	Issue raised
DENR 1	Surface water – Minimal detail is provided on the nature of wastes to be stored and safeguards in place to prevent spillage/contamination in the event of a transportation accident or local flooding of storage sites at the railhead and mine site (noting that some hazardous wastes are already excluded from the proposal, such as industrial nuclear waste).
DENR 2	Surface water – The draft EIS includes considerable detail on rain intensity and the landforms of the catchment around the mine site and some similar calculations for the railhead site, however it is unclear whether the risks of extreme rainfall events have been adequately explored. Any subsequent mine planning would presumably have the necessary hydrological engineering and stockpile, tailings and pond engineering to ensure that local flood waters could not disperse hazardous material off-site, both at the mine and the railhead. One apparent error in the calculations was that the proponent assumes that the catchment is dry when an extreme rainfall event occurs. This is not always the case in central Australia. Periods of sustained, above average rainfall can occur that result in high levels of soil moisture for days and sometimes weeks continuously. Therefore it is possible that the draft EIS underestimates the run-off that could occur in an extreme rain event.
DENR 3	Surface water – The Hugh River does contain waterholes, contrary to a statement in the document (page 9-451). Many are shown on topographic maps and others have been identified through surveys undertaken by this department (data available shortly).
DENR 4	Surface water – The reference to high mineral turbidity (suspended clay) in some inland rivers (page 9-461) is not relevant to the Finke River catchment in which such conditions are rare. Lake Eyre Basin Rivers Assessment (LEBRA) monitoring (published and unpublished data) for the Finke River catchment, provides background values on natural turbidity in still conditions at multiple sites on the Finke and at one site on the Hugh River and likewise provides much more comprehensive data on salinity (Electrical Conductivity) than presented in the draft EIS. LEBRA water quality data will be available through this department's water database (Hydstra) in the next few months.
DENR 5	Surface water – Some inaccurate statements are made about the perennially and permanence/longevity of waterholes in the Finke River. This department has partially published work undertaken from 2011-2016, documenting waterhole longevity. The list of semi-permanent waterholes of the Finke River in the region of the proposal is out of date and inaccurate (page 9-451). Main Camp Waterhole is now known to be permanent. None of the other waterholes listed are permanent and most are unlikely to be semi-permanent. It is now clear that most/all waterholes in the area are linked to and therefore somewhat sustained by groundwater in the river valley alluvium. There is evidence that in some cases there is a connection between the alluvial aquifer and rocky aquifers (presumably fractured rock type). However, the information in the draft EIS presents a reasonable case that groundwater use proposed for the development will not adversely influence the alluvial aquifer and associated aquatic and riparian ecosystems.
DENR 6	Surface water – The draft EIS includes hydrographic analysis of flow patterns in the Finke River. However, these omit the known phenomenon of prolonged flow events (6-18 months) in the



Issue reference	Issue raised
	Finke River in the project area (Duguid et al. 2005) and which have been described as intermittent base flows (Duguid, 2013). The hydrographs do not adequately document low flow events which are/were below the gauging level for much of the period of record at the relevant gauges (Stuart Highway gauge and railway gauge). This is relevant to the risk of spread of contaminants in the event of a spill and also to the use of the proposed access road from the Stuart Highway, which would cross the Finke River on the boundary between Henbury Station and Idracowra Station. If a substantial bridge is not built then that access route may be unavailable for trucking for much longer periods than is indicated in the draft EIS, so that staff, supplies and wastes for storage in the salt vaults might have to be transported via the Maryvale public road and or the Hugh River Stock Route for periods of weeks or months.
DENR 7	Surface water – Various sections of the draft EIS refer to creek names that are not on the 1:250,000 topographic maps and are therefore not official place names. These features should be named and include maps and a table for those names and provide the source of the name (e.g. name created by proponents and their consultants, name from railway documents, name provided by Traditional Owners, name used by pastoralists). Geographic names in the draft EIS that are not on the published topographic maps include: Apirnte Creek, Charlotte Range Creek, Cockatoo Creek, Halfway Creek, Marys Creek, Horseshoe Bend Spring and Black Hill Spring.
DENR 8	Soils – No reference has been made to the risk of increased soil salinity in the region arising from windblown salt coming off stockpiles and evaporation pans over a period of several decades. An increase in soil salinity could change the vegetation of the area.
DENR 9	Surface water – Reference to one publication has been misspelled (Duid 2011, should be Duguid 2011) on page 9-451.
DENR 10	Groundwater – There are no large reserves of potable groundwater within the Amadeus Basin at the site. Water quality is poor with salinities > 8000 mg/L Total Dissolved Solids in all aquifers intersected by up to 1km deep drill holes. Water requirements are modest with only 3.6 Us (113 ML/year) being required for the life of the mine. This modest extraction and distance from potable reserves mean no obvious regional impacts are expected from the extraction of groundwater for the operation of this mine/waste storage.
DENR 11	Groundwater – All movement of dangerous goods north through Alice Springs will cross the Alice Springs public drinking supply aquifers at Roe Creek. Movement of waste will add to the cumulative risk of pollution to a major drinking water supply.
DENR 12	Groundwater – The cross section of regional geology shown in Appendix P (page 43) is incorrect as it shows the crystalline basement rocks of the Arunta complex to separate the Orange Creek and Chandler synclines and cut the Amadeus Basin in half.
DENR 13	Surface water – Beca Pty Ltd (Beca) carried out a detailed study to assess the potential surface water impacts from the construction and operation of the proposed facility. Beca has proposed some mitigation activities to reduce the flooding effects. However, during the construction or operation periods, precaution needs to be taken for not disturbing natural flow regimes of the drainage paths.
DENR 14	<p>Surface water (erosion and sediment control) – The "Proposed Chandler Facility Draft Erosion and Sediment Control Plan - October 2016" is provided at Appendix L of the draft EIS. This Draft Erosion and Sediment Control Plan (ESCP) "provides an overview of the site specific conditions relevant to ESC planning and outlines the framework that will be applied in selection and design of measures and suggested timeline for implementation" (s1.1). The generic information provided in the document is proposed to be updated following completion of detailed design (s9.2 and s9.3) and as such assessment is necessarily limited. With regard to the information available, this department provides the following recommendations:</p> <p>This department does not support the use of V-drains; all flow diversion drains should be either flat-bottomed or parabolic in design, with appropriate protection.</p>



Issue reference	Issue raised
	<p>Careful consideration will need to be given to the specific location and design of all diversion structure outlets to ensure diversion and concentration of water does not cause erosion.</p> <p>Section 6.1.3 states that "stockpiles <i>may</i> be bunded around the perimeter to minimise sediment runoff". All stockpiles <i>should</i> be bunded, of appropriate design (minimal height and batter gradient), and have appropriate surface protection.</p> <p>Section 6.2 states that "Embankments, <i>windrows</i> and surface water diversions, if required will be constructed in accordance to department guidelines and best practice". Although construction of designed diversion banks is acceptable, this department does not support the retention of windrows. All windrows should be removed and/or levelled to prevent unintended concentration of water and subsequent erosion.</p> <p>Section 9.3 states that sediment basins will be installed where required. Sediment basins have largely proven not to be effective in the NT and as such this department does not recommend their use. Alternative measures will be required.</p> <p>Section 9.3 also states that sediment fencing may be used along the northern boundary of the Chandler haul road. Due to the intensive maintenance requirements of sediment fencing, a more effective alternative might be the use of geofabric-wrapped rock check dams with spill-through weirs, as appropriate.</p> <p>The following previous advice remains relevant:</p> <p>The ESCP should include details of permanent and temporary erosion and sediment control methods and treatments to be implemented during both mine construction and operation. The ESCP should address factors such as timing and duration of works including vegetation clearance; management of storm water flows including external catchment contributions, site drainage and the separation of run off and mine/process waters; erosion control including channel and surface protection/stabilisation; sediment control including traps and filters; and earthworks and revegetation required for mine closure and rehabilitation.</p> <p>In addition to land disturbing activities within the site (Chandler Facility), an ESCP should also be prepared, in conjunction with other parties as required, to cover associated developments outside the site such as construction of roads, load-out facilities, airstrips, accommodation camps, etc.</p> <p>ESCP preparation should be undertaken by a suitably qualified and experienced professional in erosion and sediment control planning (i.e. Certified Professional in Erosion and Sediment Control; CPESC), and be approved by the Consent Authority prior to the commencement of works. Subsequent ESCP implementation should be to the satisfaction of the Consent Authority to ensure the Proponent takes sufficient measures to avoid or minimise sediment runoff during both the construction and operational phases, to prevent environmental harm or nuisance</p> <p>The International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control booklets (2008) or higher standard should be referenced as a guide to the type of information and detail required in an ESCP. Further information can be found at: www.austieca.com.au, and on the DENR website at: www.nt.gov/soil/management.</p>



Issue reference	Issue raised
	<p>Additionally the Soils and Construction Volume 2E Mines and Quarries document also has useful information that will assist in plan development.</p> <p>Information regarding best practice mine site management can be obtained from the Leading Practice Sustainable Development Program for the Mining Industry website: http://www.industry.gov.au/resource/Programs/LPSD/Pages/LPSDhandbooks.aspx, in particular the Mine Rehabilitation Handbook</p>
DENR 15	<p>Biodiversity – The risks to biodiversity from this project have been adequately assessed in the draft EIS, including specific impacts to threatened species recorded, or likely to occur, in or adjacent to the project area.</p> <p>Threatened species recorded (by tracks or burrow sign) close to the proposed main access road are 'Mulgara', that is either Crest-tailed Mulgara <i>Dasycercus cristicauda</i> (Vulnerable, Environment Protection and Biodiversity Conservation (EPBC) Act and Territory Parks and Wildlife Conservation (TPWC) Act) and/or Brush-tailed Mulgara <i>Dasycercus blythi</i> (Vulnerable, TPWC Act) , as well as the Southern Marsupial Mole <i>Notoryctes typhlops</i> (Vulnerable, TPWC Act) . This department agrees that the development poses a low risk to these species as the impact footprint is very small compared to the species' known occurrence within and outside of the region.</p>
DENR 16	<p>Biodiversity – Additional threatened species with a low to moderate likelihood of occurrence within the proposed road access corridor are Slater's Skink <i>Liopholis slateri</i> (Endangered, EPBC Act and Vulnerable , TPWC Act) and Thick-billed Grasswren <i>Amytornis modestus</i> (Critically Endangered , TPWC Act and Vulnerable , EPBC Act). The potential for significant impacts has been appropriately identified should these species occur within the project area as they have highly restricted home ranges and habitat requirements. Accordingly, the draft Biodiversity Management Plan commits to further targeted surveys, using appropriate methods and in likely habitat, prior to construction for these two species.</p>
DENR 17	<p>Biodiversity – Appropriate methods to mitigate potential impacts to biodiversity, including threatened species, have been outlined in the Biodiversity Assessment. Mitigation measures include realignment of the proposed main access road if threatened species are located, minimising vehicle use during peak fauna activity periods, and pest fauna control as per a Pest Fauna Management Plan. The draft Biodiversity Management Plan outlines appropriate monitoring methods (conducted bi-annually) to detect any major changes in threatened species populations.</p>
DENR 18	<p>Biodiversity – Overall, the draft EIS has adequately met the Terms of Reference. Given the uncertainty about whether Thick-billed Grasswren persists in the NT, this department should be immediately notified if this species is detected during pre-clearance surveys or at any time throughout the life of the project.</p>
DENR 19	<p>Biodiversity – The <i>Weeds Management Act</i> (the Act) enables the following weed declarations: Class A (to be eradicated); Class B (growth and spread to be controlled); Class C (not to be introduced into the NT). All Class A and B weeds are also Class C.</p> <p>All land in the Northern Territory is subject to the Act. Section 9 of the Act states that the owner and occupier of land must - (a) take all reasonable measures to prevent the land being infested with a declared weed; (b) take all reasonable measures to prevent a declared weed or potential weed on the land spreading to other land.</p> <p>Athel pine (<i>Tamarix aphylla</i>) is subject to a Statutory Weed Management Plan. Management obligations outlined in the plan must be adhered to by all land holders.</p>



Issue reference	Issue raised
	The applicant addresses preventing weed spread in the draft EIS. The proponent has shown awareness of their responsibilities for weed spread during the proposed works
DENR 20	<p>Biodiversity – Disturbance to soils and vegetation associated with clearing and infrastructure development create ideal conditions for weeds to proliferate unless carefully managed.</p> <p>As part of the Environmental Management Plan, the proponent should develop a weed management plan (Environmental sub-plan) that addresses the following:</p> <p>Vehicle and machinery hygiene procedures - ensure that all vehicles, machinery and equipment are free of weeds, weed seeds, soil and vegetative material containing weeds and weed seeds prior to entering or exiting the site. Vehicles, machinery and equipment exhibiting such material will need to be thoroughly washed down before entering/leaving; Induction processes and responsibilities of contractors to weed identification; Management of weed spread and incursions; and Rehabilitation weed control.</p> <p>Guidelines for the prevention of weed spread are outlined in Preventing Weed Spread is Everybody's Business: https://denr.nt.gov.au/data/assets/pdf_file/0011/257987/preventing-weed-spread.pdf. Further information as to management requirements and copies of the Weed Management Plan for athel pine (<i>Tamarix aphylla</i>) are available at: https://nt.gov.au/environment/weeds/weed-management-planning. Alternatively contact this department's Weed Management Branch for further advice on (08) 8999 4567.</p>

5.6.1 DENR 1

Issue raised

Minimal detail is provided on the nature of wastes to be stored and safeguards in place to prevent spillage/contamination in the event of a transportation accident or local flooding of storage sites at the railhead and mine site (noting that some hazardous wastes are already excluded from the proposal, such a industrial nuclear waste).

Proponent's response

The proponent has provided detailed information on the waste to be accepted in the draft EIS, which includes a complete list of wastes under Schedule 2 of the Waste Management Pollution Control Regulations (refer to Appendix F) it intends to accept under licence.

Chapter 3 of the draft EIS (Project Description) points out what wastes the proponent intends to take and not take.

The draft EIS Waste Acceptance Criteria details what waste types and the conditions under which those wastes would be accepted. With respect to safeguards on spillage and contamination at storage sites, the proponent has provided additional information in response to the submission raised by the NT EPA (refer to NT EPA 30).



5.6.2 DENR 2

Issue raised

The draft EIS includes considerable detail on rain intensity and the landforms of the catchment around the mine site and some similar calculations for the railhead site, however it is unclear whether the risks of extreme rainfall events have been adequately explored. Any subsequent mine planning would presumably have the necessary hydrological engineering and stockpile, tailings and pond engineering to ensure that local flood waters could not disperse hazardous material off-site, both at the mine and the railhead. One apparent error in the calculations was that the proponent assumes that the catchment is dry when an extreme rainfall event occurs. This is not always the case in central Australia. Periods of sustained, above average rainfall can occur that result in high levels of soil moisture for days and sometimes weeks continuously. Therefore it is possible that the draft EIS underestimates the run-off that could occur in an extreme rain event.

Proponent's response

The proponent does not consider that it has under estimated the potential run-off that could occur in an extreme event. However, the proponent has committed to undertaking additional site monitoring (including the installation of automatic samplers) and flood modelling to confirm the conclusions reached in the draft EIS.

5.6.3 DENR 3

Issue raised

The Hugh River does contain waterholes, contrary to a statement in the document (page 9-451). Many are shown on topographic maps and others have been identified through surveys undertaken by this department (data available shortly).

Proponent's response

Noted. The proponent acknowledges comments on additional waterholes and commits to updating its baseline data during the BFS and detailed design. The proponent would incorporate the findings of this additional baseline work in its future catchment flood modelling work that will be carried out during the detailed design and BFS. Further consultation with the DENR on this topic would be appreciated.

5.6.4 DENR 4

Issue raised

The reference to high mineral turbidity (suspended clay) in some inland rivers (page 9-461) is not relevant to the Finke River catchment in which such conditions are rare. Lake Eyre Basin Rivers Assessment (LEBRA) monitoring (published and unpublished data) for the Finke River catchment, provides background values on natural turbidity in still conditions at multiple sites on the Finke and



at one site on the Hugh River and likewise provides much more comprehensive data on salinity (Electrical Conductivity) than presented in the draft EIS. LEBRA water quality data will be available through this department's water database (Hydstra) in the next few months.

Proponent's response

Noted. The proponent has outlined a detailed Stage II surface water monitoring and research program (refer to Table 5-30). The proponent commits to updating its baseline data during the BFS and detailed design after assessing the LEBRA water quality database (Hydstra).

5.6.5 DENR 5

Issue raised

Some inaccurate statements are made about the perennially and permanence/longevity of waterholes in the Finke River. This department has partially published work undertaken from 2011-2016, documenting waterhole longevity. The list of semi-permanent waterholes of the Finke River in the region of the proposal is out of date and inaccurate (page 9-451). Main Camp Waterhole is now known to be permanent. None of the other waterholes listed are permanent and most are unlikely to be semi-permanent. It is now clear that most/all waterholes in the area are linked to and therefore somewhat sustained by groundwater in the river valley alluvium. There is evidence that in some cases there is a connection between the alluvial aquifer and rocky aquifers (presumably fractured rock type). However, the information in the draft EIS presents a reasonable case that groundwater use proposed for the development will not adversely influence the alluvial aquifer and associated aquatic and riparian ecosystems.

Proponent's response

Detailed assessment of potential impacts of the alluvium and drawdown is illustrated in Figure 2.4 of Attachment E to this Supplement.

5.6.6 DENR 6

Issue raised

The draft EIS includes hydrographic analysis of flow patterns in the Finke River. However, these omit the known phenomenon of prolonged flow events (6-18 months) in the Finke River in the project area (Duguid et al. 2005) and which have been described as intermittent base flows (Duguid, 2013). The hydrographs do not adequately document low flow events which are/were below the gauging level for much of the period of record at the relevant gauges (Stuart Highway gauge and railway gauge). This is relevant to the risk of spread of contaminants in the event of a spill and also to the use of the proposed access road from the Stuart Highway, which would cross the Finke River on the boundary between Henbury Station and Idracowra Station. If a substantial bridge is not built then that access route may be unavailable for trucking for much longer periods than is indicated in the draft EIS, so that staff, supplies and wastes for storage in the salt vaults might have to be



transported via the Maryvale public road and or the Hugh River Stock Route for periods of weeks or months.

Proponent's response

The proponent acknowledges its hydrographs do not adequately document low flow events which are/were below the gauging level for much of the period of record at the relevant gauges (Stuart Highway gauge and railway gauge). To ensure the potential risk of spread of contaminants is assessed, this modelling will be undertaken in the BFS.

5.6.7 DENR 7

Issue raised

Various sections of the draft EIS refer to creek names that are not on the 1:250,000 topographic maps and are therefore not official place names. These features should be named and include maps and a table for those names and provide the source of the name (e.g. name created by proponents and their consultants, name from railway documents, name provided by Traditional Owners, name used by pastoralists). Geographic names in the draft EIS that are not on the published topographic maps include: Arpinta Creek, Charlotte Range Creek, Cockatoo Creek, Halfway Creek, Marys Creek, Horseshoe Bend Spring and Black Hill Spring.

Proponent's response

For the purposes of the draft EIS field work and assessment, the proponent drafted a naming system for the above referenced drainage lines / courses.

5.6.8 DENR 8

Issue raised

No reference has been made to the risk of increased soil salinity in the region arising from windblown salt coming off stockpiles and evaporation pans over a period of several decades. An increase in soil salinity could change the vegetation of the area.

Proponent's response

The proponent acknowledges the issue of potential windblown salt. The proponent has discussed the potential impacts of the run of mine salt stockpile in DEE 8 (Table 5-6) (refer to 5.1.8) and in NT EPA 67 (refer to Section 5.2.67). The proponent also commits to installing dust / salt monitoring locations to monitor the potential release of salt from the run of mine salt stockpile.

5.6.9 DENR 9

Issue raised

Reference to one publication has been misspelled (Duid 2011, should be Duguid 2011) on page 9-451.



Proponent's response

Noted. References to Duid 2011 should be read as Duguid 2011 in the draft EIS.

5.6.10 DENR 10

Issue raised

There are no large reserves of potable groundwater within the Amadeus Basin at the site. Water quality is poor with salinities > 8000 mg/L Total Dissolved Solids in all aquifers intersected by up to 1km deep drill holes. Water requirements are modest with only 3.6 Us (113 ML/year) being required for the life of the mine. This modest extraction and distance from potable reserves mean no obvious regional impacts are expected from the extraction of groundwater for the operation of this mine/waste storage.

Proponent's response

Correct – further assessment of potential drawdown has been provided in Attachment E.

5.6.11 DENR 11

Issue raised

All movement of dangerous goods north through Alice Springs will cross the Alice Springs public drinking supply aquifers at Roe Creek. Movement of waste will add to the cumulative risk of pollution to a major drinking water supply.

Proponent's response

Please refer to NT EPA 74.

5.6.12 DENR 12




Issue raised

The cross section of regional geology shown in Appendix P (page 43) is incorrect as it shows the crystalline basement rocks of the Arunta complex to separate the Orange Creek and Chandler synclines and cut the Amadeus Basin in half.

Proponent's response

An updated regional cross section is provided in Figure 5-86.



-  Fault
-  Anticline
-  Unconformity

A
north-west

A'
south-east

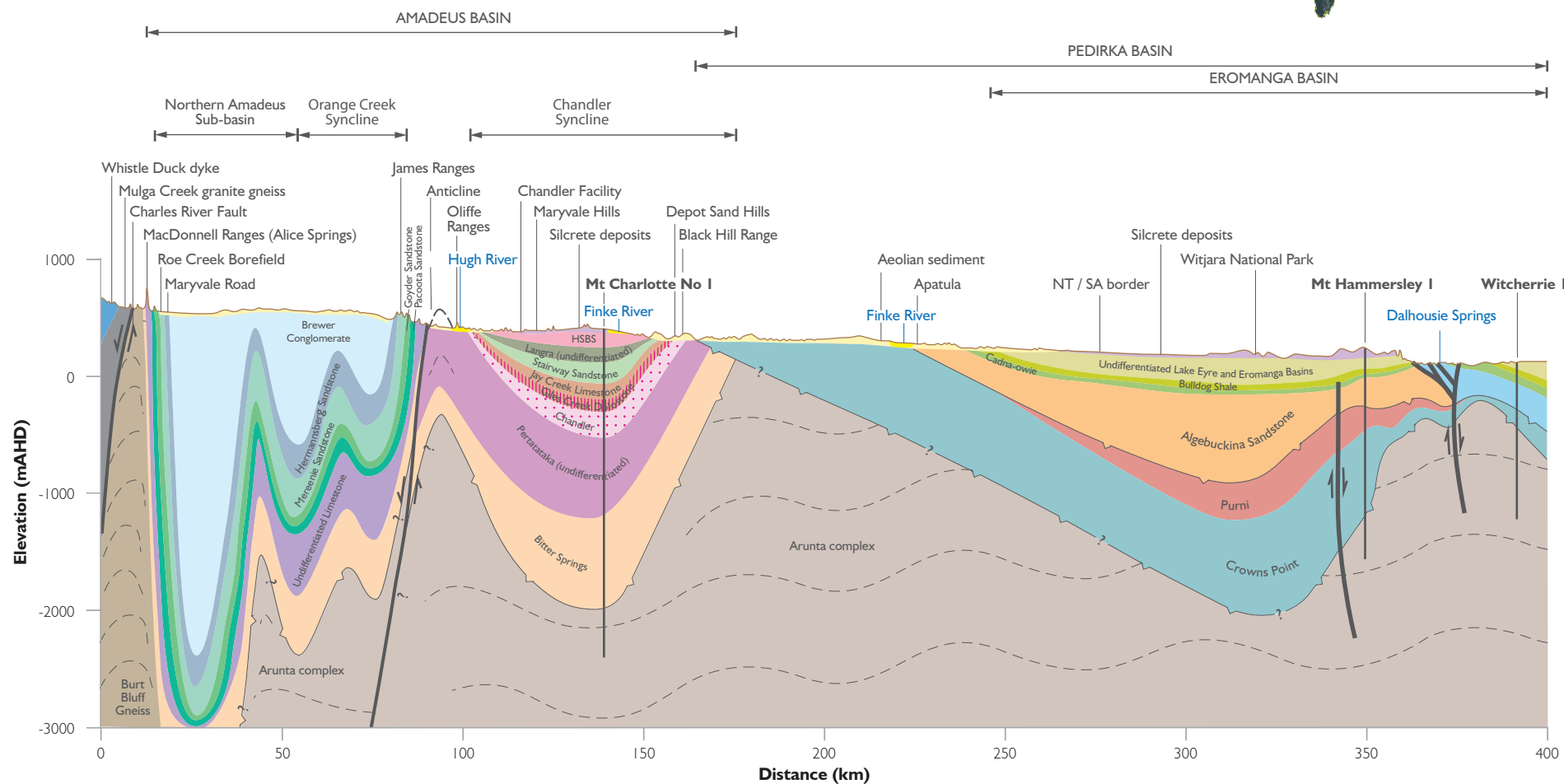


Figure 5-86



5.6.13 DENR 13

Issue raised

Beca Pty Ltd (Beca) carried out a detailed study to assess the potential surface water impacts from the construction and operation of the proposed facility. Beca has proposed some mitigation activities to reduce the flooding effects. However, during the construction or operation periods, precaution needs to be taken for not disturbing natural flow regimes of the drainage paths.

Proponent's response

In some instances, it will be necessary to alter existing flow paths surrounding the proposed mine infrastructure area to ensure clean water is separated from potentially dirty water (refer to Figure 9-31 in the draft EIS). As described in the draft EIS (Section 9.3.7), the existing hydrology has already been altered by the construction of Halfway Dam and the Access Road to Halfway Dam.

The proponent does acknowledge that all necessary precautions will be assessed and, where appropriate, undertaken to ensure riparian vegetation (where it exists) will be retained for buffer zones and the natural flow regimes of existing drainage paths will be maintained.

5.6.14 DENR 14

Issue raised

The "Proposed Chandler Facility Draft Erosion and Sediment Control Plan - October 2016" is provided at Appendix L of the draft EIS. This Draft Erosion and Sediment Control Plan (ESCP) "provides an overview of the site specific conditions relevant to ESC planning and outlines the framework that will be applied in selection and design of measures and suggested timeline for implementation" (s1.1). The generic information provided in the document is proposed to be updated following completion of detailed design (s9.2 and s9.3) and as such assessment is necessarily limited. With regard to the information available, this department provides the following recommendations:

This department does not support the use of V-drains; all flow diversion drains should be either flat-bottomed or parabolic in design, with appropriate protection.

Careful consideration will need to be given to the specific location and design of all diversion structure outlets to ensure diversion and concentration of water does not cause erosion.

Section 6.1.3 states that "stockpiles *may* be bunded around the perimeter to minimise sediment runoff". All stockpiles *should* be bunded, of appropriate design (minimal height and batter gradient), and have appropriate surface protection.

Section 6.2 states that "Embankments, *windrows* and surface water diversions, if required will be constructed in accordance to department guidelines and best practice". Although construction of



designed diversion banks is acceptable, this department does not support the retention of windrows. All windrows should be removed and/or levelled to prevent unintended concentration of water and subsequent erosion.

Section 9.3 states that sediment basins will be installed where required. Sediment basins have largely proven not to be effective in the NT and as such this department does not recommend their use. Alternative measures will be required.

Section 9.3 also states that sediment fencing may be used along the northern boundary of the Chandler haul road. Due to the intensive maintenance requirements of sediment fencing, a more effective alternative might be the use of geofabric-wrapped rock check dams with spill-through weirs, as appropriate.

The following previous advice remains relevant:

The ESCP should include details of permanent and temporary erosion and sediment control methods and treatments to be implemented during both mine construction and operation. The ESCP should address factors such as timing and duration of works including vegetation clearance; management of storm water flows including external catchment contributions, site drainage and the separation of run off and mine/process waters; erosion control including channel and surface protection/stabilisation; sediment control including traps and filters; and earthworks and revegetation required for mine closure and rehabilitation.

In addition to land disturbing activities within the site (Chandler Facility), an ESCP should also be prepared, in conjunction with other parties as required, to cover associated developments outside the site such as construction of roads, load-out facilities, airstrips, accommodation camps, etc.

ESCP preparation should be undertaken by a suitably qualified and experienced professional in erosion and sediment control planning (i.e. Certified Professional in Erosion and Sediment Control; CPESC), and be approved by the Consent Authority prior to the commencement of works. Subsequent ESCP implementation should be to the satisfaction of the Consent Authority to ensure the Proponent takes sufficient measures to avoid or minimise sediment runoff during both the construction and operational phases, to prevent environmental harm or nuisance

The International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control booklets (2008) or higher standard should be referenced as a guide to the type of information and detail required in an ESCP. Further information can be found at: www.austieca.com.au, and on the DENR website at: www.nt.gov/soil/management. Additionally the Soils and Construction Volume 2E Mines and Quarries document also has useful information that will assist in plan development.

Information regarding best practice mine site management can be obtained from the Leading Practice Sustainable Development Program for the Mining Industry website: <http://www.industry.gov.au/resource/Programs/LPSD/Pages/LPSDhandbooks.aspx>, in particular the Mine Rehabilitation Handbook.



Proponent's response

The proponent acknowledges and thanks DENR for the advice and recommendations provided in DENR 15. In addition, the draft ESCP will require refinement and finalisation once detailed design has been completed. Therefore, in line with the proponent's timeline for completing a draft BFS (December 2018), the updated ESCP can be made available to DENR for further review and comment.

To confirm, the proponent commits to showing DENR (and DPIR within the Mining Management Plan) the following detail:

- A pre-construction schedule that will include zones targeted for vegetation clearing and retention.
- A construction schedule, including the above.
- An operation schedule.
- Details of permanent and temporary erosion and sediment control methods and treatments to be implemented during both mine construction and operation.
- Figure 9-31 in the draft EIS will be updated.
- The ESCP will include management measures for all areas covered in the draft EIS (i.e. not just the mine infrastructure area).
- The preparation of the ESCP will be undertaken by a suitably qualified and experienced professional in erosion and sediment control planning (i.e. Certified Professional in Erosion and Sediment Control; CPESC), and be approved by the Consent Authority prior to the commencement of works.

5.6.15 DENR 15

Issue raised

The risks to biodiversity from this project have been adequately assessed in the draft EIS, including specific impacts to threatened species recorded, or likely to occur, in or adjacent to the project area.

Threatened species recorded (by tracks or burrow sign) close to the proposed main access road are 'Mulgara', that is either Crest-tailed Mulgara *Dasycercus cristicauda* (Vulnerable, *Environment Protection and Biodiversity Conservation (EPBC) Act* and *Territory Parks and Wildlife Conservation (TPWC) Act*) and/or Brush-tailed Mulgara *Dasycercus blythi* (Vulnerable, TPWC Act), as well as the Southern Marsupial Mole *Notoryctes typhlops* (Vulnerable, TPWC Act). This department agrees that the development poses a low risk to these species as the impact footprint is very small compared to the species' known occurrence within and outside of the region.



Proponent's response

Noted.

5.6.16 DENR 16

Issue raised

Additional threatened species with a low to moderate likelihood of occurrence within the proposed road access corridor are Slater's Skink *Liopholis slateri* (Endangered, EPBC Act and Vulnerable , TPWC Act) and Thick-billed Grasswren *Amytornis modestus* (Critically Endangered , TPWC Act and Vulnerable , EPBC Act). The potential for significant impacts has been appropriately identified should these species occur within the project area as they have highly restricted home ranges and habitat requirements. Accordingly, the draft Biodiversity Management Plan commits to further targeted surveys, using appropriate methods and in likely habitat, prior to construction for these two species.

Proponent's response

Noted. Additional presence/absence field surveys for Slater's skink and thick-billed grasswren were undertaken by Low Ecological Surveys post submission of the draft EIS in late April 2017. The additional surveys confirmed that these species are not present within the proposed development footprint or vicinity and would, therefore, not be impacted by the Proposal (refer to Attachment C).

5.6.17 DENR 17

Issue raised

Appropriate methods to mitigate potential impacts to biodiversity, including threatened species, have been outlined in the Biodiversity Assessment. Mitigation measures include realignment of the proposed main access road if threatened species are located, minimising vehicle use during peak fauna activity periods, and pest fauna control as per a Pest Fauna Management Plan. The draft Biodiversity Management Plan outlines appropriate monitoring methods (conducted bi-annually) to detect any major changes in threatened species populations.

Proponent's response

Noted.

5.6.18 DENR 18

Issue raised

Overall, the draft EIS has adequately met the Terms of Reference. Given the uncertainty about whether Thick-billed Grasswren persists in the NT, this department should be immediately notified if



this species is detected during pre-clearance surveys or at any time throughout the life of the project.

Proponent's response

Noted. Additional presence/absence field surveys for Slater's skink and thick-billed grasswren were undertaken by Low Ecological Surveys post submission of the draft EIS in late April 2017. The additional surveys confirmed that these species are not present within the proposed development footprint or vicinity and would, therefore, not be impacted by the Proposal (refer to Attachment C).

5.6.19 DENR 19

Issue raised

The *Weeds Management Act* (the Act) enables the following weed declarations: Class A (to be eradicated); Class B (growth and spread to be controlled); Class C (not to be introduced into the NT). All Class A and B weeds are also Class C.

All land in the Northern Territory is subject to the Act. Section 9 of the Act states that the owner and occupier of land must - (a) take all reasonable measures to prevent the land being infested with a declared weed; (b) take all reasonable measures to prevent a declared weed or potential weed on the land spreading to other land.

Athel pine (*Tamarix aphylla*) is subject to a Statutory Weed Management Plan. Management obligations outlined in the plan must be adhered to by all land holders.

The applicant addresses preventing weed spread in the draft EIS. The proponent has shown awareness of their responsibilities for weed spread during the proposed works.

Proponent's response

Noted. Please also refer to the proponent's response to DENR 20 (Section 5.6.20).

5.6.20 DENR 20

Issue raised

Disturbance to soils and vegetation associated with clearing and infrastructure development create ideal conditions for weeds to proliferate unless carefully managed.

As part of the Environmental Management Plan, the proponent should develop a weed management plan (Environmental sub-plan) that addresses the following:

Vehicle and machinery hygiene procedures - ensure that all vehicles, machinery and equipment are free of weeds, weed seeds, soil and vegetative material containing weeds and weed seeds prior to entering or exiting the site. Vehicles, machinery and equipment exhibiting such material will need to be thoroughly washed down before entering/leaving; Induction processes and



responsibilities of contractors to weed identification; Management of weed spread and incursions; and Rehabilitation weed control.

Guidelines for the prevention of weed spread are outlined in Preventing Weed Spread is Everybody's Business: https://denr.nt.gov.au/data/assets/pdf_file/0011/257987/preventing-weed-spread.pdf. Further information as to management requirements and copies of the Weed Management Plan for athel pine (*Tamarix aphylla*) are available at: <https://nt.gov.au/environment/weeds/weed-management-planning>. Alternatively contact this department's Weed Management Branch for further advice on (08) 8999 4567.

Proponent's response

As discussed in Section 7.4.2 of the draft EIS, there is a potential to introduce or spread weeds and other invasive species within the proposed development footprint or vicinity via vehicle movements, imported material and through vegetation removal (disturbance) during construction, operation and/or closure and rehabilitation of the Proposal. Mitigation and management measures to prevent the introduction and spread of weeds and invasive species were summarised in Table 7-11 of the draft EIS. An extract of Table 7-11 (with regards to weeds and invasive species) has been reproduced below as Table 5-46.

Mitigation and management measures were also detailed in Table 12-1 in Appendix 6 (Draft Biodiversity Management Plan) contained within Appendix O (Risks to Biodiversity Report) of the draft EIS. Table 12-1 committed to the preparation of a Weed Management Plan that would be implemented during construction, operation and closure and rehabilitation of the Proposal. Note, though, that Table 12-1 has been revised so that the mitigation measures are 'SMART' (refer to the proponent's response to DEE 14, specifically Table 5-12 in Section 5.1.14).

The Weed Management Plan would be prepared with reference to the guidelines outlined in DENR's *Preventing Weed Spread is Everybody's Business* and the *Weed Management Plan for Athel Pine (Tamarix aphylla)*. The Weed Management Plan would also be submitted to the DENR Weed Management Branch for review and approval prior to construction, operation, and decommissioning and rehabilitation of the Proposal. The locations (including pictures) of declared weeds within the proposed development footprint and vicinity would be included within the Weed Management Plan.



Table 5-46 Biodiversity mitigation and management measures (weeds and invasive species)

ID	Outcome	Mitigation/management measure	Timing
B.41	Prevention of the introduction and spread of weeds and invasive species	Vehicle/machinery wash-down prior to leaving Alice Springs or entering an area uncontaminated by weeds.	Construction, operation, closure and rehabilitation
B.42	Prevention of the introduction and spread of weeds and invasive species	Avoid contact with weed or invasive species seed, plant matter or soil potentially contaminated with weed seeds.	Construction, operation, closure and rehabilitation
B.43	Prevention of the introduction and spread of weeds and invasive species	Avoid clearing or removal of any weed or invasive species during seeding, or put plastic bag over seed heads before removing plant.	Construction, operation, closure and rehabilitation
B.44	Prevention of the introduction and spread of weeds and invasive species	Remove seed and mud from vehicle tyres and front grill daily.	Construction, operation, closure and rehabilitation
B.45	Prevention of the introduction and spread of weeds and invasive species	Undertake annual weed mapping in the vicinity of the proposed development footprint.	Construction, operation, closure and rehabilitation
B.46	Prevention of the introduction and spread of weeds and invasive species	Remove weeds following specialist advice from qualified ecologist or Weeds Branch, NT Government.	Construction, operation, closure and rehabilitation
B.47	Prevention of the introduction and spread of weeds and invasive species	Remove weed or invasive species before seeding times, where possible.	Construction, operation, closure and rehabilitation
B.48	Prevention of the introduction and spread of weeds and invasive species	Avoid driving in wet and muddy conditions, where possible.	Construction, operation, closure and rehabilitation



5.7 Department of Health

Issues identified by the Department of Health are provided in Table 5-47. A response to the issue raised is provided in Section 5.7.1.

Table 5-47 Issues identified by the Department of Health

Issue reference	Issue raised
DoH 1	Other risks (biting insects) – There are no Medical Entomology comments on the Draft Environmental Impact Statement for the Tellus Holdings Ltd - Chandler Facility . The section on biting insects is satisfactory.

5.7.1 DoH 1

Issue raised

There are no Medical Entomology comments on the Draft Environmental Impact Statement for the Tellus Holdings Ltd - Chandler Facility. The section on biting insects is satisfactory.

Proponent's response

Noted.

5.8 Department of Tourism and Culture (Parks and Wildlife Commission)

Issues identified by the Department of Tourism and Culture (Parks and Wildlife Commission) are provided in Table 5-48. A response to the issue raised is provided in Section 5.8.1.

Table 5-48 Issues identified by the Department of Tourism and Culture (Parks and Wildlife Commission)

Issue reference	Issue raised
DTC 1	Biodiversity – The EIS addresses any potential impacts on Chambers Pillar Historical Reserve to the satisfaction of the Commission. A minor correction – the proponent refers to Chambers Pillar Historical Reserve and Rainbow Valley Conservation Reserve as xxxx Nature Reserve at times throughout the document – please correct in the final version.

5.8.1 DTC 1

Issue raised

The EIS addresses any potential impacts on Chambers Pillar Historical Reserve to the satisfaction of the Commission.



A minor correction – the proponent refers to Chambers Pillar Historical Reserve and Rainbow Valley Conservation Reserve as xxxx Nature Reserve at times throughout the document – please correct in the final version.

Proponent's response

Noted. References to 'Chambers Pillar Nature Reserve' and 'Rainbow Valley Nature Reserve' within the draft EIS should be read as 'Chambers Pillar Historical Reserve' and 'Rainbow Valley Conservation Reserve', respectively.

5.9 Department of Trade, Business and Innovation

Issues identified by the Department of Trade, Business and Innovation are provided in Table 5-49. A response to the issues raised is provided in Section 5.9.1.

Table 5-49 Issues identified by the Department of Trade, Business and Innovation

Issue reference	Issue raised
DTBI 1	Economic and social – The Department of Trade, Business and Innovation (DTBI) has no issues with the draft EIS. The proposed project would provide economic benefits to businesses in the region including employment opportunities.

5.9.1 DTBI 1

Issue raised

The Department of Trade, Business and Innovation (DTBI) has no issues with the draft EIS. The proposed project would provide economic benefits to businesses in the region including employment opportunities.

Proponent's response

Noted.



5.10 Department of Infrastructure, Planning and Logistics (Planning)

Issues identified by the Department of Infrastructure, Planning and Logistics (Planning) are provided in Table 5-50. A response to the issues raised is provided in Section 5.10.1.

Table 5-50 Issues identified by the Department of Infrastructure, Planning and Logistics (Planning)

Issue reference	Issue raised
DIPL(P) 1	<p>Example – The actual mine site is well outside any zoned area (closest being Alice Springs 120km to the north). I understood that this aspect of the project is being undertaken under the Mining Act and as such does not require development approval under the Planning Act/Planning Scheme.</p> <p>However the proposal to ship “specialty salt” to Alice Springs to a “packaging plant” may require planning consent depending on where they put it. A packaging plant would be defined as “industry/light industry” under the Planning Scheme.</p> <p>On p9 the NOI talks about locating such a facility at Desert Knowledge Australia precinct (Lot 9398), which is predominately an education/research facility. This area is within Zone CP (Community Purpose) and “general/light industry” are prohibited uses in the zone. A rezoning or EDP would be required unless they can try and provided some justification for the use to be “ancillary” to DKA.</p> <p>Also a “long term lease” if over 12 years, would require planning consent as a subdivision.</p>

5.10.1 DIPL(P) 1

Issue raised

The actual mine site is well outside any zoned area (closest being Alice Springs 120km to the north). I understood that this aspect of the project is being undertaken under the Mining Act and as such does not require development approval under the Planning Act/Planning Scheme.

However the proposal to ship “specialty salt” to Alice Springs to a “packaging plant” may require planning consent depending on where they put it. A packaging plant would be defined as “industry/light industry” under the Planning Scheme.

On p9 the NOI talks about locating such a facility at Desert Knowledge Australia precinct (Lot 9398), which is predominately an education/research facility. This area is within Zone CP (Community Purpose) and “general/light industry” are prohibited uses in the zone. A rezoning or EDP would be required unless they can try and provided some justification for the use to be “ancillary” to DKA.

Also a “long term lease” if over 12 years, would require planning consent as a subdivision.

Proponent’s response

Noted.



5.11 Department of the Chief Minister

Issues identified by the Department of the Chief Minister are provided in Table 5-51. A response to the issues raised is provided in Section 5.11.1.

Table 5-51 Issues identified by the Department of the Chief Minister

Issue reference	Issue raised
DCM 1	<p>Economic and social – DCM is supportive of utilising a geological repository for the permanent isolation of difficult to manage waste materials above the historical and problematic practice of landfill. Potentially, the project may also provide significant benefits for the Northern Territory's economic and social development.</p> <p>The Social Impact Assessment and Social Impact Management Plan are comprehensive. DCM is particularly supportive of the Community reference group, which if enabled to meet regularly, as identified in the document, could prove useful for generating a strong social licence.</p>

5.11.1 DCM 1

Issue raised

DCM is supportive of utilising a geological repository for the permanent isolation of difficult to manage waste materials above the historical and problematic practice of landfill. Potentially, the project may also provide significant benefits for the Northern Territory's economic and social development.

The Social Impact Assessment and Social Impact Management Plan are comprehensive. DCM is particularly supportive of the Community reference group, which if enabled to meet regularly, as identified in the document, could prove useful for generating a strong social licence.

Proponent's response

Noted.



5.12 Department of Tourism and Culture (Heritage Branch)

Issues identified by the Department of Tourism and Culture (Heritage Branch) are provided Table 5-52. A response to the issue raised is provided in Section 5.12.1.

Table 5-52 Issues identified by the Department of Tourism and Culture (Heritage Branch)

Issue reference	Issue raised
DTC (HB) 1	<p>Historic and cultural heritage – The Heritage Branch has no concerns with the draft EIS for the proposed Tellus Holdings Ltd Chandler Facility. A thorough and detailed archaeological assessment, impact assessment and cultural heritage management plan has been prepared for the project, with the findings and recommendations incorporated into the proposed risk management and mitigation strategies contained in the EIS.</p> <p>It is noted that the archaeological impact assessment is provisional as various details of the development design have not yet been finalised. However, in Chapter 10 of draft EIS the proponent outlines commitments to complete the archaeological assessment (including additional surveys and impact assessment) and revised cultural heritage management plan once the design is finalised and prior to works commencing.</p>

5.12.1 DTC 1

Issue raised

It is noted that the archaeological impact assessment is provisional as various details of the development design have not yet been finalised. However, in Chapter 10 of draft EIS the proponent outlines commitments to complete the archaeological assessment (including additional surveys and impact assessment) and revised cultural heritage management plan once the design is finalised and prior to works commencing.

Proponent's response

Noted.



5.13 NT Worksafe

Issues identified by NT WorkSafe are provided in Table 5-53. A response to each issue is provided in Section 5.13.1 through Section 5.13.4.

Table 5-53 Issues identified by NT WorkSafe

Issue reference	Issue raised
NTWS 1	Major Hazard Facility – This project is very likely to be classified as a Major Hazard Facility for both the rail siding and the underground storage and as such will require a safety case to be developed prior to any significant volumes of Dangerous Goods being shipped to site or stored at any location
NTWS 2	Regulation - The transport of these goods is not very well described and even the correct legislation is not referenced. The proponent should be aware of the <i>Transport of Dangerous Goods By Road and Rail (National Uniform Legislation) Act</i> and its regulations. There still appears to be some confusion as evidenced by using the <i>Dangerous Goods Act</i> . There will be certain licensing requirements on the transport along with licensing for storage and use of explosives. While this is a safety related issue it is considered that the holding of licences demonstrates that they have the necessary competencies and thus an environmental (and Safety) risk reduction measure. These have not been described well.
NTWS 3	Risk assessment - While the proponent has utilised a recognised risk assessment technique there will be further demonstration of adequacy requirements needed (from a Safety standpoint) to satisfy NT WorkSafe requirements. This will be addressed during project discussions.
NTWS 4	<p>Whole-of-life project detail - One of our original comments dealt with the whole-of-life project which still appears to be lacking in detail with respect to</p> <p><i>“The project also involves the transport to/from the site along the rail line either from Darwin or Adelaide and potentially by road from similar directions. This is also a potentially high risk that should be considered (i.e. Edit River derailment in 2012). (refer to section 4.1 and maybe specific transport). It has been assumed that the majority of transport will be via rail. It is anticipated that waste will originate from overseas and interstate therefore the Port will be used as well as potential road transport interstate. Should there be some discussion on the port facilities and impacts?”</i></p> <p><i>It is recommended that the proponent also investigate the transport component from the port (or similar entry points) and recognise that this Hazardous material movement will be conducted under the Northern Territory Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Act and Regulations. The reference to whole-of-project on page 3 (section 2.2.1) should be described in more detail and does it include transport components intra-state? This DG transport legislation is not referenced in the TOR (section 2.3).</i></p> <p><i>Section 4.7 deals with Human Health and Safety which is already required under the NT Work Health and Safety (National Uniform Legislation) Act and Regulations. The Draft TOR should reflect this as a requirement that must be undertaken in accordance with the WHS legislation using the appropriate controls and hierarchy of controls (i.e. elimination first etc).</i></p> <p><i>The dot points on page 6 mention Mining Management Act etc. It is recommended that the relevant WHS legislation also be included as these are critical regulatory processes in relation to the operation of the facilities. It is envisaged that the storage mine, transfer facilities and potential storage sites will be Major Hazard Facilities under the WHS legislation (note: Tellus have been in contact with WorkSafe regarding this)”</i></p>



5.13.1 NTWS 1

Issue raised

This project is very likely to be classified as a Major Hazard Facility for both the rail siding and the underground storage and as such will require a safety case to be developed prior to any significant volumes of Dangerous Goods being shipped to site or stored at any location

Proponent's response

It is noted that classification as a Major Hazard Facility under the *Work Health and Safety (National Uniform Legislation) Regulations* is determined from the threshold quantities of waste materials, as specified in Schedule 15 of the Regulations. For a facility that ships or stores more than one hazardous chemical, the threshold quantity of all chemicals may be derived following the procedure outlines in Schedule 15, Clause 4(1) and 4(2).

As presented in Table 1-1 of the draft EIS, the proposed Chandler Facility would accept the following waste types. Table 1-1 has been reproduced below as Table 5-54.

Table 5-54 Hazardous waste accepted and not accepted for underground disposal and permanent isolation

Type of hazardous chemical wastes	Accepted on-site for surface storage	Accepted in underground voids
Chemical wastes listed under the National Environment Protection Measures (NEPM) (refer to Schedule A List 1: Waste Categories) and under Schedule 2 of the NT Waste Management and Pollution Control (Administration) Regulations	✓	✓
Liquid and sludges	✓	✓ ¹
Explosive wastes	✗	✗
Flammable liquids or solids	✗	✗
Self-combusting wastes or wastes that can generate a gas-air mixture which is toxic or explosive	✗	✗
Highly corrosive or oxidizing	✗	✗
Gases	✗	✗
Clinical waste (infectious hospital waste and body parts)	✗	✗
Municipal solid waste (putrescible household and commercial waste)	✗	✗
Putrescible waste (household rubbish that can rot)	✗	✗
Uncertified waste (which cannot be identified or has not undergone characterisation testing)	✗	✗



Reacts with the repository geology (such as dissolving it or producing a gas)	x	x
NORM ¹	✓	✓
Low level radioactive waste (e.g. smoke detectors, exit signs, industrial gauges and medical isotopes)	x	x
Intermediate level radioactive waste (e.g. reprocessed spent nuclear fuel and components with high levels of radioactivity)	x	x
High level radioactive waste (e.g. from power generation and defense use)	x	x

Note: ✓ = accepted, x = not accepted, ✓¹ = normally excluded but could be used in hydraulic backfill processing. 1. Exemption activity levels defined as per *The National Directory for Radiation Protection, February 2014 (RPS 6)*.

It is considered that a range of wastes that would be accepted at the Chandler Facility would be represented by the list of hazardous chemicals presented in Schedule 15 of the WHS Regulations. It is noted that the Chandler Facility would not accept explosive wastes, compressed or liquified gases, flammable liquids or solids, oxidising materials, peroxides or toxic solids and wastes.

In consultation with NT Worksafe, a draft safety case would be prepared in for the Proposal.

5.13.2 NTWS 2

Issue raised

The transport of these goods is not very well described and even the correct legislation is not referenced. The proponent should be aware of the *Transport of Dangerous Goods By Road and Rail (National Uniform Legislation) Act* and its regulations. There still appears to be some confusion as evidenced by using the *Dangerous Goods Act*. There will be certain licensing requirements on the transport along with licensing for storage and use of explosives. While this is a safety related issue it is considered that the holding of licences demonstrates that they have the necessary competencies and thus an environmental (and Safety) risk reduction measure. These have not been described well.

Proponent's response

Compliance with the *Transport of Dangerous Goods by Road and Rails (National Uniform Legislation) Act* and the associated Regulations is acknowledged.

Tellus Holdings further acknowledge the regulatory requirements relevant to the storage and use of explosives. The descriptions presented in the draft EIS will be amended in light of the above observation.

5.13.3 NTWS 3

Issue raised

While the proponent has utilised a recognised risk assessment technique there will be further demonstration of adequacy requirements needed (from a Safety standpoint) to satisfy NT WorkSafe requirements. This will be addressed during project discussions.



Proponent's response

Noted.

5.13.4 NTWS 4

Issue raised

One of our original comments dealt with the whole-of-life project which still appears to be lacking in detail with respect to

“The project also involves the transport to/from the site along the rail line either from Darwin or Adelaide and potentially by road from similar directions. This is also a potentially high risk that should be considered (i.e. Edit River derailment in 2012). (refer to section 4.1 and maybe specific transport). It has been assumed that the majority of transport will be via rail. It is anticipated that waste will originate from overseas and interstate therefore the Port will be used as well as potential road transport interstate.

Should there be some discussion on the port facilities and impacts?

Proponent's response

The draft EIS has been prepared to address the requirements set out in the *Terms of Reference for the Preparation of an Environmental Impact Statement – Chandler Salt Mine* (the ‘Terms of Reference’) issued by the NT Environment Protection Authority (NT EPA) on 23 September, 2016, under the NT *Environmental Assessment Act* (EA Act).

The Terms of Reference issued by the NT EPA are replicated as Appendix A of the draft EIS.

Also, provided in Appendix A is the Chandler EIS Terms of Reference Checklist, which provides a tabulated response to all requirements specified in the Terms of Reference, cross referenced to the relevant sections of the draft EIS.

It is respectfully noted that the transfer of materials at the ports is noted not to be a requirement specified in the Terms of Reference provided by the NT EPA.

In more general terms, the boundaries of an EIS is determined by the reach of control. The movement / transfer of materials at locations beyond the Apirnta Facility is beyond the capacity of Tellus Holdings to control or influence. It is acknowledged that there is a safety and environmental risk associated with the transfer of waste materials at locations outside of the boundaries of the Chandler Facility, however this is outside the proposed commercial boundaries of the Proposal. Similarly, the alternative to the Proposal is continued storage of the 900 Mt of legacy waste across Australia and the draft EIS does not address the risks with that component.

Nonetheless, Tellus Holdings is committed to establishing and operating a commercially and environmentally sustainable operation, and to facilitate this objective is in the process of formulating commercial frameworks for forming operational partnerships with key logistics and



transportation partners. Details of these relationships remain commercially sensitive, however it is acknowledged that Tellus Holdings would participate in the relevant safety and environmental performance of those partnerships.

Issue raised

It is recommended that the proponent also investigate the transport component from the port (or similar entry points) and recognise that this Hazardous material movement will be conducted under the Northern Territory Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Act and Regulations. The reference to whole-of-project on page 3 (section 2.2.1) should be described in more detail and does it include transport components intra-state? This DG transport legislation is not referenced in the TOR (section 2.3).

Proponent's response

The draft EIS has been prepared to address the requirements set out in the *Terms of Reference for the Preparation of an Environmental Impact Statement – Chandler Salt Mine* (the 'Terms of Reference') issued by the NT Environment Protection Authority (NT EPA) on 23 September, 2016, under the NT *Environmental Assessment Act* (EA Act).

The Terms of Reference issued by the NT EPA are replicated as Appendix A of the draft EIS.

Also, provided in Appendix A is the Chandler EIS Terms of Reference Checklist, which provides a tabulated response to all requirements specified in the Terms of Reference, cross referenced to the relevant sections of the draft EIS.

Similar to that noted above, it is respectfully noted that the transport of materials from transfer points (e.g. ports) to the Chandler Facility is noted not to be a requirement specified in the Terms of Reference provided by the NT EPA.

The geographical distribution of the 900 Mt of legacy waste is presented in Figure 2-8 of the draft EIS, and it may be determined that the potential interstate transportation routes are likely extend beyond the Central Australian railway line or transferred through the port facilities. Figure 2-8 has been reproduced below as Figure 5-87.

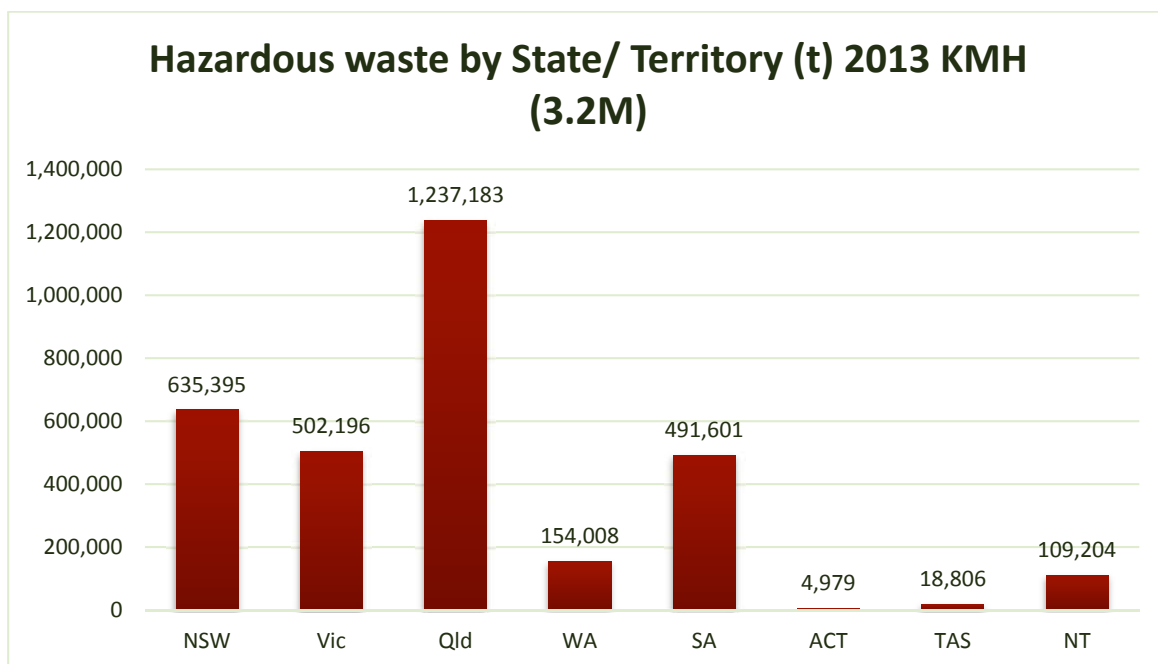


Figure 5-87 Hazardous waste volumes by State or Territory in Australia

With such a geographically distribution of waste materials, defining the boundaries of a risk assessment for waste material transport from point of storage to the Chandler facility is technically not feasible and beyond the commercial boundaries of the Proposal.

Nonetheless, as stated previously, Tellus Holdings is committed to establishing and operating a commercially and environmentally sustainable operation, and to facilitate this objective is in the process of formulating commercial frameworks for forming operational partnerships with key logistics and transportation partners. Details of these relationships remain commercially sensitive, however it is acknowledged that Tellus Holdings would participate in the relevant safety and environmental performance of those partnerships.

It is recognised and acknowledged that the transportation of materials would be performed under the *Northern Territory Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Act* and Regulations. The TOR will be amended to reflect this omission.

Issue raised

Section 4.7 deals with Human Health and Safety which is already required under the NT Work Health and Safety (National Uniform Legislation) Act and Regulations.

The Draft TOR should reflect this as a requirement that must be undertaken in accordance with the WHS legislation using the appropriate controls and hierarchy of controls (i.e. elimination first etc).

Proponent's response

It is recognised and acknowledged that the human health and safety risks should be performed in accordance with the transportation of materials would be performed under the *Northern Territory*



Work Health and Safety (National Uniform Legislation) Act and Regulations. The TOR will be amended to reflect this omission and Section 4.7 of the draft EIS updated where required.

Issue raised

The dot points on page 6 mention Mining Management Act etc. It is recommended that the relevant WHS legislation also be included as these are critical regulatory processes in relation to the operation of the facilities. It is envisaged that the storage mine, transfer facilities and potential storage sites will be Major Hazard Facilities under the WHS legislation (note: Tellus have been in contact with WorkSafe regarding this)"

Proponent's response

Noted. The section will be updated to include the relevant WHS legislation.



5.14 Traditional Owners and Residents of Titjikala

Issues identified by the Traditional Owners and Local Community of Titjikala are provided in Table 5-55. A response to each issue is provided in Section 5.14.1 and Section 5.15.

Table 5-55 Issues identified by the Traditional Owners and Local Community of Titjikala

Issue reference	Issue raised
TO/RT 1	Sealing of Maryvale Road – Petition from the Traditional Owners and local community from Titjikala and the surrounding outstations to support the proposed sealing of the Maryvale Road from Alice Springs to Titjikala in association with any development of the Chandler Facility. We also support eh sealing of a section of Chambers Pillar Road leading to the proposed Chandler Facility (signed by 53 individuals).
TO/RT 2	Support for the proposed Chandler Facility – Petition from the Traditional Owners and local community from Titjikala and the surrounding outstations to support the proposed Chandler Facility (signed by 56 individuals).

5.14.1 TO/RT 1

Issue raised

Petition from the Traditional Owners and local community from Titjikala and the surrounding outstations to support the proposed sealing of the Maryvale Road from Alice Springs to Titjikala in association with any development of the Chandler Facility. We also support eh sealing of a section of Chambers Pillar Road leading to the proposed Chandler Facility (signed by 53 individuals).

Proponent's response

Noted.

5.14.1 TO/RT 2

Issue raised

Petition from the Traditional Owners and local community from Titjikala and the surrounding outstations to support the proposed Chandler Facility (signed by 56 individuals).

Proponent's response

Noted.

5.15 Residents of Titjikala

Issues identified by Members of the Titjikala Community are provided in Table 5-56. A response to the issues raised is provided in Section 5.15.1.



Table 5-56 Issues identified by Members of the Titjikala Community

Issue reference	Issue raised
RT 1	<p>Opposition for the proposed Chandler Facility – Petition from residents of Titjikala opposing the proposed Chandler Facility (signed by 34 residents).</p> <p>This facility will impact badly on our lives, and will not give us the benefits originally offered by Tellus when they talked to us. The impacts include:</p> <ul style="list-style-type: none"> • Fencing off a large area of land which has traditionally been available to us for hunting and recreation. • Potential damage to our environment. From explanations of the proposal’s environmental impact study we understand that: <ul style="list-style-type: none"> - The type of waste that will be stored is far more toxic than the Tellus explained to us. They said that they would only be storing machines, papers and some salt that will be returned from overseas. Now they are talking about lots of toxic waste. - They can’t be sure that the toxic waste won’t leak out of the storage facility and poison the land and into the Finke River. - There will not be monitoring of all parts of the local environment to detect any contamination and to prevent its spread. - Our water supply is at risk of contamination. • The community benefits originally proposed, but no longer valid, included: <ul style="list-style-type: none"> - Many jobs for people of Titjikala; it was not explained that the jobs would involve the storage of poison in our land. Even so, Tellus has recently become vague about future job prospects for local people. Also they have become very vague about training for local people. - A relatively clean storage facility, storing mainly important documents, machines and salt returned from use overseas; now it has become apparent the facility will be a toxic waste store. • The construction of a road parallel to the Maryvale Road to take traffic to and from the mine/storage facility, thereby eliminating traffic hazards and noise and dust pollution to our community houses and the school. This would reduce the prospect of people being hit by trucks, and also degradation of the road. Tellus no longer intends to build this road.

5.15.1 RT 1

Issue raised

This facility will impact badly on our lives, and will not give us the benefits originally offered by Tellus when they talked to us. The impacts include:

- Fencing off a large area of land which has traditionally been available to us for hunting and recreation.
- Potential damage to our environment. From explanations of the proposal’s environmental impact study we understand that:
 - The type of waste that will be stored is far more toxic than the Tellus explained to us. They said that they would only be storing machines, papers and some salt that will be returned from overseas. Now they are talking about lots of toxic waste.
 - They can’t be sure that the toxic waste won’t leak out of the storage facility and poison the land and into the Finke River.



- There will not be monitoring of all parts of the local environment to detect any contamination and to prevent its spread.
- Our water supply is at risk of contamination.
- The community benefits originally proposed, but no longer valid, included:
 - Many jobs for people of Titjikala; it was not explained that the jobs would involve the storage of poison in our land. Even so, Tellus has recently become vague about future job prospects for local people. Also they have become very vague about training for local people.
 - A relatively clean storage facility, storing mainly important documents, machines and salt returned from use overseas; now it has become apparent the facility will be a toxic waste store.
- The construction of a road parallel to the Maryvale Road to take traffic to and from the mine/storage facility, thereby eliminating traffic hazards and noise and dust pollution to our community houses and the school. This would reduce the prospect of people being hit by trucks, and also degradation of the road. Tellus no longer intends to build this road.

Proponent's response – Indigenous Land Use Agreement

Tellus has developed an Indigenous Land Use Agreement (ILUA) which is supported by a Facilitation Participation Agreement (FPA). The two documents are currently under negotiation with the CLC. The contents of both documents remain confidential during ongoing negotiations with Traditional Owners. The details of the two documents will become publicly available once the Native Title process (under the *Native Title Act 1993*) and an agreement has been reached between the proponent, the CLC and the Traditional Owners.

Combined, the ILUA and FPA offer a comprehensive package of potential short, medium and long term socio-economic benefits to Traditional Owners, as well as local and regional community members. Training programs and a wide range of job opportunities would be created during construction and operation of the Proposal. The ILUA and FPA offer long term annuity for Traditional Owners and those community members who are willing to take advantage of the benefits the Proposal may bring. Benefits associated with the Proposal are listed in Section 2.4 of the draft EIS. In summary, the Proposal would:

- Provide an innovative unique dual revenue business in remote Central Australia.
- Diversify the economy.
- Result in major investment in regional Australia.
- Boost the economy over the 29-year project life.
- Royalties, taxes and levies.
- Create training and long term job opportunities.



- Provide local business support and new business opportunities.
- Fulfil the government's own environmental and waste policy obligations.
- Support the circular economy.

Proponent's response – History of consultation

The stakeholder consultation process began in March 2012 and continued through the public exhibition of the draft EIS in February and March 2017. This stakeholder consultation included the residents and Traditional Owners within the community of Titjikala.

Stakeholders were engaged using a range of consultation and communication tools and techniques including face-to-face meetings, workshops, interviews, community information sessions, telephone and email communications, as well as news releases and website updates. These were supported by stakeholder feedback mechanisms, including a company-specific email address and newsletters.

Chapter 5, Table 5-1 of the draft EIS provides a summary of the proponent's activities and the purpose of each activity up to the public exhibition of the draft EIS.

Consultation undertaken during the public exhibition of the draft EIS is summarised in Chapter 3. A copy of the posters and factsheets used during public consultation are provided in Attachment B.

Company news releases (dating from 2009 to 2017) and corporate and project presentations (dating from 2012 to 2017) are posted on the company website:

- Company news releases: http://www.tellusholdings.com/investor_news.php.
- Corporate and project presentations:
http://www.tellusholdings.com/investor_presentations.php

At no time during the stakeholder consultation process has there been a change in what materials are proposed to be stored at the proposed Chandler Facility.

Proponent's response – Multi-barrier concept

A geological repository is an underground storage or disposal facility of hazardous waste that relies on both a natural geological barrier (e.g. a salt bed) and man-made engineered barriers that both form part of a multi-barrier system as part of an overall safety case that is globally recognised for its permanent isolation capabilities. The natural geological barrier isolates waste from the biosphere safely and permanently. Once the repository is closed, it requires very little ongoing monitoring as the geological barrier is passively safe. The lifespan of containment is in the hundreds of thousands to millions of years. As a result, geological repositories that can permanently isolate materials are globally considered 'best practice' for hazardous waste.

The proposed Chandler Facility would be classified as a deep geological repository. A multi-barrier safety case approach during transport, storage and disposal operations would be adopted for the Proposal. The multi-barrier approach is summarised, as follows:



- Initially, waste would be placed into specified Dangerous Goods code rated containers, for example a double lined hazardous waste bulk bag, or a heavy duty PVC bag placed into a barrel.
- The smaller containers or waste packages would then be placed into shipping containers during transit operations. The shipping containers are assumed to be mostly transported by train from customers, waste managers or logistic company sites to the proposed Apirnta Facility (although some deliveries may also be made by road).
- The shipping container would be unloaded and taken to the surface storage and transfer station adjacent to the rail sidings at the proposed Apirnta Facility. The waste would undergo waste acceptance verification testing against strict WAC.
- Once the packages have been initially inspected, samples taken and accepted for storage/disposal they would be transferred by road train to the proposed Chandler Facility. Waste would be taken underground via the decline or via the hydraulic backfill system. During the construction phase, the waste packages would be temporarily stored at the Apirnta Facility.
- Waste transferred via the decline would be delivered by truck to designated storage/disposal rooms where it would be unpacked. The empty shipping containers and any pallets would be returned to the surface, cleaned as necessary and returned back into the supply chain.
- Once the waste is in place and confirmation has been received that it cannot be recovered, recycled or reused, any surrounding airspace in the disposal room would be backfilled with fine crushed salt to provide added stability within the room and as a further protective layer.
- Once a room is filled to capacity the entrances would be sealed with an engineered barrier appropriate for the wastes that have been emplaced.
- Ultimately at the end of operations, once the shafts are sealed and backfilled there would be permanent isolation of the material from the biosphere provided by a combination of the engineered barriers and the geological barrier itself (impermeable salt bed and the overburden above the salt bed).

The Proposal would operate in an environment that is not constrained by significant social or environmental sensitivities. It would be located in a very remote area - the nearest community is Titjikala, located approximately 25 kilometres by road from the proposed Chandler Facility and the closest regional centre would be Alice Springs located approximately 120 kilometres to the north of the proposed Chandler Facility. It is located in an area that is geologically stable (very low seismicity and no volcanic or tectonic activity). The climate is arid (low rainfall and high evaporation rates).

Groundwater in the area is not connected to groundwater used for domestic purposes (including drinking) by communities in the vicinity of the proposed Chandler Facility. There is also an absence of permanent surface water (indicating that groundwater and surface water systems are not



connected). There is a lack of commercial mineral deposits (other than salt) and there is no potential for medium to high agriculture in the vicinity of the Proposal.

Proponent's response –Groundwater and surface water impact assessment and monitoring

Extensive, quantitative groundwater and surface water assessments were undertaken as part of the draft EIS. These assessments were undertaken to illustrate the potential impacts to groundwater (including potential impacts to the water supply of Titjikala) and surface water (including potential impacts to the Finke River). The results of these assessments were presented in Chapter 9 and Appendix P (Groundwater) and Chapter 10 and Appendix R (Surface water) of the draft EIS.

Groundwater

The groundwater and aquifers at site of the proposed Chandler Facility lie within a separate system to Alice Springs' groundwater supply and to Titjikala's groundwater supply. The proponent has developed a conceptual groundwater model to demonstrate this (refer to Chapter 9 and Appendix P of the draft EIS).

There are four key reasons why the groundwater at the site of the proposed Chandler Facility is not connected to other sensitive systems:

1. The local geology of the site of the proposed Chandler Facility is different to the local geology of Alice Springs and to Titjikala.
2. It does not lie within a defined NT Water Control District. Alice Springs' water supply comes from the Mereenie Aquifer System.
3. The quality of water within aquifers at the site of the proposed Chandler Facility is, very salty. Water within the Mereenie Aquifer System is not as salty. Water from the Titjikala groundwater bore can be consumed by humans.
4. The groundwater flows in a direction away from sensitive receptors like Alice Springs and Titjikala.

Therefore, there is no risk of contamination to the water supply of Titjikala during construction, operation, or during closure and rehabilitation of the Proposal.

Surface water

There would be no perceptible change to hydrology (surface water) for the following reasons:

- **Chandler Facility.** Surface water flowing through the proposed facility would drain towards a flat washout area to the north, towards the Charlotte Range. The water would pond in this washout area where the majority of the water would be lost through evaporation and infiltration. Surface water runoff is not expected to reach the Hugh River. In addition, the proposed facility (including the accommodation village) and catchments upstream of the proposed facility only represent 10% of the catchment draining through the Charlotte Range towards the Hugh River and the community of Titjikala.



- **Chandler Haul Road and Apirnta Facility.** Surface water flowing across the proposed haul road and through the proposed storage and transfer facility would drain to the south-west, towards Charlotte Range. Though the haul road would be less impervious than the existing track, the area would be insignificant when compared to the areas of contributing catchments. In addition, runoff from the proposed Apirnta facility would be collected, treated, and reused on-site for various purposes (e.g. dust suppression, vehicle washdown, ablutions). It is, therefore, not anticipated that there would be any perceivable increase in flow or volume of water draining through the Charlotte Range towards the Finke River.

Therefore, there is would be no perceivable risk to the Hugh River or the Finke River during construction, operation, or during closure and rehabilitation of the Proposal.

Monitoring

The proponent commits to groundwater and surface water monitoring during construction, operation and closure and rehabilitation of the Proposal as outlined in the Water Management Plan (refer to Appendix Q of the draft EIS). Other aspects of the environment would also be monitored during construction, operation and closure and rehabilitation of the Proposal. These monitoring requirements would be included in various sub-plans within the CEMP, OEMP and/or RCP for the Proposal. These sub-plans would include (but would not be limited to):

- Mine Management Plan.
- Biodiversity Management Plan.
- Bushfire Management Plan.
- Water Management Plan.
- Sediment and Erosion Management Plan.
- Cultural Heritage Management Plan.
- Safety Case.
- Air Quality Management Plan.
- Noise and Vibration Management Plan.
- Social Impact Management Plan.
- Rehabilitation and Closure Plan.
- Biting Insect Management Plan.
- Traffic Management Plan.

The CEMP, OEMP and RCP would be reviewed and approved by the appropriate DMAs.



Proponent's response – Commitment to indigenous employment and training

Indigenous people would have a number of opportunities as a result of the Proposal. The proponent has set a target of 10% indigenous employment 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. Land use agreements are currently under negotiation with the government and with the Central Land Council.

It is anticipated that the land use agreements would generate a range of potential opportunities for businesses in the local region and in the NT in the areas of agribusiness, tourism and conservation including ranger services and cultural and traditional tourism ventures. There would also be financial commitments to local Aboriginal groups under the *Native Title Act 1993*.

Proponent's response – Road

It is currently proposed to build a private access road to the proposed Apirnta Facility from the Stewart Highway (the Henbury Access Road) and a private haul road from the Apirnta Facility to the proposed Chandler Facility (the Chandler Haul Road). During community consultation, stakeholders expressed a strong desire for the proponent to consider the benefits of upgrading and using the existing Maryvale Road instead of building the proposed Henbury Access Road and Chandler Haul Road. The proponent has committed to investigate this option further and will investigate the potential impacts and benefits of upgrading the existing Maryvale Road.

If it were feasible to upgrade and use Maryvale Road instead of the proposed Henbury Access Road and Chandler Haul Road, Maryvale Road would only be upgraded if there is regulatory approval for the Proposal.



5.16 Henbury Holdings Pty Ltd

Issues identified by Henbury Holdings Pty Ltd are provided in Table 5-57. A response to each issue is provided in Section 5.16.1 through Section 5.16.12.

Table 5-57 Issues identified by Henbury Holdings Pty Ltd

Issue reference	Issue raised
HH 1	Transportation and storage of waste — Rhe Project, particularly the transportation and storage of waste on Hanbury Station will have a significant impact on its cattle enterprise including its proposed organic certification for Hanbury Station.
HH 2	Apirnta Facility - We do not want the Apirnta Facility located on our property and do not want to dispose of any part of Hanbury Station (whether by way of surrender, sale or the grant of other interests over our property). We submit that this facility, which was not part of the original proposal, and the temporary storage of waste materials generally, should be located near to or as part of the Chandler Facility and not on Hanbury Station
HH 3	Project design and description - the Project design and description and the EIS do not adequately address the impact the Project will have on Henbury's cattle enterprise
HH 4	<p>Risks - the risks associated with providing services to the Apirnta Facility do not appear to have been addressed in the EIS. More information is required on the following items:</p> <ul style="list-style-type: none"> (a) requirements for electricity, water and communications links to existing infrastructure (if required). The EIS states that connections to existing infrastructure will be required, however does not provide any detail on the requirements or where this infrastructure is or is to be located; (b) management of wastewater generated from the facility to prevent any risk of contamination of surface or ground water. The EIS states that a septic tank will be required, but no detail or risks are provided; and (c) management of rubbish generated from the facility to prevent any risk to the surrounding environment.
HH 5	<p>Impacts - in many respects this is a high impact proposal by Tellus for the transport and storage of waste on Hanbury Station with significant risks. We note the following:</p> <ul style="list-style-type: none"> (a) It is not complementary or conducive to the existing land use. (b) The quality of the current environment could be significantly reduced. (c) The increase in road usage may also represent a risk to cattle breeding as cattle may be stressed by the sudden increase in vehicles. (d) Further, the impact from noise and increased road and rail activity may negatively impact cattle. (e) There is also a risk to breeding stock from vehicle strike. <p>On balance a reduction in the quality of the environment for breeding would be expected.</p>
HH 6	Apirnta Facility - the overall risk of an impact on the overall carrying capacity of Hanbury Station is quite high, particularly when looking at the risk of contamination and the subsequent reduction in grazing areas. On balance the footprint of the Apirnta Facility, the buffer zones and the potential for contaminated areas has the potential to significantly impact the overall carrying capacity
HH 7	Land use – there is a potential for a reduction in:



Issue reference	Issue raised
	<ul style="list-style-type: none"> (a) the demand for product produced on Henbury Station, particularly given some of the waste products that may be stored on site at the Apirnta Facility; and (b) the price payable for product produced on Henbury Station. Risk perception may be an issue here. If wholesalers perceive there to be a risk to food safety then this may be reflected in the wholesale price
HH 8	<p>Organic certification - There is a likelihood that Henbury Station may not achieve organic certification were it to be used in part for the storage and transport of some waste products. The organic certification process is rigorous and involves a 3 year certification period that assesses all aspects of the operation. In addition Henbury Holdings will be required to develop and Organic Management Plan. The aims of organic agriculture are largely at odds with the proposal for the Apirnta Facility</p>
HH 9	<p>Land use - As already noted, it is our submission that the EIS gives little consideration to cattle breeding and the potential impacts of the Tellus project on existing and future activities on Henbury Station.</p> <p>The following additional longer term hazards to the existing and potential future operations of Henbury Station have, in our submission not been considered or addressed:</p> <ul style="list-style-type: none"> (a) the potential impact on the overall quality of the environment for cattle breeding, including potential soil, water (quality and quantity) and vibration impacts. Impacts to water quality from a spill may not be evident immediately. Cattle may ingest polluted water without any obvious signs of immediate ill health. This requires further consideration and including the possible requirement for data loggers on cattle watering points; (b) the potential degradation and reduction in grazing, cattle carrying capacity and cattle related activities. It is expected that the overall quality of the natural/pastoral environment would be reduced which has impacts on breeding and overall carrying capacity. This has not been addressed in the EIS and should form of the wider socio-economic considerations. Our further comments on this issue are set out below; (c) the implications of activities which are likely to prevent Hanbury Station achieving organic certification. Impacts to soil and water quality over the long term represent a high risk to Henbury Station, particularly in relation to obtaining organic cattle certification; (d) the potential loss of livestock arising from increased traffic movements in the locality; (e) the real and perceived impact on the "green and clean" image that Henbury has been promoting; and (f) the potential reduced demand for Henbury generated product, from both a market and wholesaler point of view. <p>These matters could potentially have a significant negative impact on any future organic certification process for Henbury Station. It is important to note that organic certification is a rigorous three year process which involves soil and water sampling. Whilst minute traces of certain elements should not preclude Henbury Station from obtaining organic certification, the area will need to be fenced to allow for bioremediation, ahead of</p>



Issue reference	Issue raised
	<p>further sampling being conducted. Further, there is a risk that traces may not be at "trace" level but rather at a human safety trigger level in some cases.</p> <p>Section 1.4 of the NASAA Organic Standard (December 2004), identifies that organic agriculture has the following aims:</p> <ul style="list-style-type: none"> • To produce optimal quantities of food and fibre compatible with human and environmental needs; • To produce food of high nutritional value; • To work within natural systems in ways which enhance those systems; • To maintain and increase long term productivity of soil; • To promote wise use of land, water and vegetation and minimise off farm effects of agriculture on aquatic and terrestrial systems; • To foster local and regional production and distribution; • To use renewable resources as much as possible; • To maintain and increase long-term fertility and biological activity of soils using locally adapted cultural, biological and mechanical methods as opposed to input reliance; • To maintain and encourage agricultural and natural biodiversity on the farm and surrounds through sustainable production systems and protection of plant and wildlife habitats; • To provide balanced nutrients, optimise opportunities to cycle nutrients within the farm, to recycle nutrients and energy that leave the farm or other farms in food and fibre products that are not consumed (ie organic waste containing energy and nutrients), with the aim of feeding the soil ecosystem; • To provide livestock with conditions which satisfy their behavioural and physiological needs; • To maintain or increase as appropriate the genetic diversity of domesticated and native plants, animals and other organisms on the farm (this precludes the use of Genetic Engineering); • To allow everyone involved in organic production a quality of life to cover their basic needs and obtain adequate return and satisfaction from their work, including a safe working environment; • To progress towards an entire organic production chain, which is both socially just and ecologically responsible; and • To recognise the importance of and protect and learn from, indigenous knowledge and traditional farming systems. <p>The proposed development by Tellus, irrespective of the area or potential risk, does not in our submission accord with the basic principles of organic agriculture. Accordingly the Tellus proposal provides a disincentive for Henbury to pursue organic accreditation, which is a costly and time consuming process, but is something that Henbury Holdings is committed to achieving for a variety of reasons including financial.</p> <p>The price of organic beef in recent years has been significantly higher than standard mass produced beef, and in some areas it is thought that an increase in China's interest in organic beef will promote further increases in the value. It is likely that this will be an ongoing trend as China taps into the Australian agricultural market.</p>



Issue reference	Issue raised
	<p>From a Henbury Station perspective, it would be beneficial for Tellus to assess the risk to organic beef accreditation in the first instance and then to determine impacts to organic beef operations. This may provide a clearer understanding of Tellus' intention for negotiation with Henbury Holdings and provide a means of determining potentially mutually beneficial outcomes</p>
HH 10	<p>Management plans - The other high level risks which in our submission remain include the following:</p> <ul style="list-style-type: none"> (a) A Biodiversity Management Plan has been prepared but a number of them are in draft form or incomplete and in our submission, it does not address a number of hazards and/or does not propose to adopt the most appropriate mitigation measures. Issues remain in relation to: <ul style="list-style-type: none"> (i) implications to the environment arising from the incidental clearance of vegetation; (ii) the mitigation measures which do not reduce the impact on fauna, including cattle; (iii) the need for and management of any laydown or other areas required during the construction phase. <p>A Construction and Environmental Management Plan and an Environmental Management Plan should be prepared.</p> <p>A portion of Henbury Station (out under 20% of its area) is subject to a conservation covenant registered on its title. The covenant affords protection of protected plants, animals and ecosystems.</p> <p>Henbury Holdings acquired the property subject to the covenant and although the covenant is relatively restrictive on its pastoral activities, it was seen as a positive contribution to the environmental and green credentials of Henbury Station.</p> <p>While the proposed Tellus activity is unlikely to have a direct impact on the covenant area, such activity (particularly the Apirnta Facility and the transportation of waste across Henbury Station) is by nature inconsistent with the purpose of the covenant area and the environmental and green credentials of Henbury Station.</p> <p>This is given little consideration in the EIS.</p> (b) A Traffic Management plan has been prepared, however information is lacking in relation to fauna strike hazards. (c) A Pest Management Plan has been prepared, however does not address the potential risks to the operations of Henbury Station. (d) The contamination of soil and water has been considered in the EIS with the preparation of Sediment and Erosion Management Plan. However in our submission this response is not considered to be sufficient, noting: <ul style="list-style-type: none"> (i) a Construction Environmental Management Plan (CEMP) and an Environmental Management Plan (EMP) are required to address all aspects of potential soil and water contamination and mitigation measures.



Issue reference	Issue raised
	<ul style="list-style-type: none"> (ii) the Sediment and Erosion Management Plan (SEMP) does not reduce the likelihood of erosion, particularly during haul road construction; and (iii) there is a need to address the impact of soil compaction on grazing. (e) The haul road construction will alter hydrology. We note that this risk has eventuated in coal seam gas sites in Queensland. (f) In relation to flooding, the Water Management Plan should include or at least consider the need for cess drains or culverting on the Henbury Access Road. More details should also be provided in relation to future new bores and maximum extraction rates. It is also relevant to note that the Finke River System is one of the oldest river systems in the world and one of the few with permanent water holes in Central Australia that will be exposed to significant crossing infrastructure and potential contamination. (g) The EIS addresses historic and cultural heritage issues and while, as far as we are aware, there are no known cultural or sacred sites affecting the area covered by the EIS on Henbury Station, we recommend that Tellus establishes a communication protocol for our approval, in order to better manage impacts, should a new site be discovered. (h) An Air Quality Management Plan has been prepared, however hazards and risks remain in relation to airborne dust contamination, which can have particular ramifications in relation to organic cattle certification requirements. (i) A Weed Management Plan has been prepared, however hazards and risks remain in relation to the potential introduction of weeds via rail and road transport. G) In the instance of waste storage, loss of containment is a significant risk for Henbury Holdings as the land owner, giving rise to potential land and water contamination related issues. (k) Whilst a Bushfire Management Plan has been prepared, in our opinion it does not address the potential impact on movements and loss of stock during a bushfire, or exposure to contaminated waste in the event of a fire. (l) Whilst a Blasting Management Plan has been prepared, in our opinion the potential impacts on cattle have not been adequately considered or addressed.
HH 11	<p>Henbury Access Road risks - In respect of Henbury Access Road and Chandler Haul Road, we note that a range of medium level hazards have not been fully addressed, including:</p> <ul style="list-style-type: none"> (a) Increased traffic volumes on access road during construction; (b) dust contaminating cattle/cattle feed particularly from traffic, construction and earthworks; (c) introduction of fauna and impact on cattle; (d) management of flooding and the need for stormwater drains or culverts (whilst not a direct risk, details are not provided); (e) waste spillage;



Issue reference	Issue raised
	<ul style="list-style-type: none"> (f) road formation resulting in changes to the area's hydrology (g) soil erosion during road construction leading to excess sedimentation in watercourses; and (h) fauna strike (vehicle)
HH 12	<p>Future management plans - Although many documents have been prepared, some of the plans are in draft form or incomplete, and should be further refined in order to clarify localised impacts arising from the proposed development. These include, in addition to those referred to above:</p> <ul style="list-style-type: none"> (a) a Landscape Management Plan should be prepared and provided to us for review and endorsement, given the relationship of the proposed development to Henbury Station; (b) additional information is needed to verify that risks in relation to potential flooding and contamination of surface water have been appropriately addressed; (c) a Rehabilitation and Closure Plan has been prepared, however it is limited in its approach to mitigate risks; (d) a Construction and Environment Management Plan (CEMP): needs to cover all aspects of potential soil and water contamination and mitigation measures, including: <ul style="list-style-type: none"> (i) the potential risk of soil erosion leading to excess sedimentation in watercourses needs further consideration; (ii) the risk that haul road construction will alter hydrology. Further design parameters and methodology for the haul and access roads are required. <p>Once these further documents and details have been provided, Henbury Holdings will require a reasonable time to consider and respond.</p>

5.16.1 HH 1

Issue raised

Transportation and storage of waste- Rhe Project, particularly the transportation and storage of waste on Hanbury Station will have a significant impact on its cattle enterprise including its proposed organic certification for Hanbury Station.

Proponent's response

Transportation of waste and loss of containment of waste

The risks associated with the construction and operation of the Proposal have been assessed throughout the draft EIS. The draft EIS has been prepared to address the requirements set out in the *Terms of Reference for the Preparation of an Environmental Impact Statement – Chandler Salt*



Mine (the 'Terms of Reference') issued by the NT Environment Protection Authority (NT EPA) on 23 September, 2016, under the NT *Environmental Assessment Act* (EA Act).

The environmental impacts assessed in the draft EIS have been assessed in a comprehensive risk assessment, which includes the identified risks associated with the transportation and storage of waste materials at the proposed Apirnta Facility. In a number of assessments, the Henbury Station has been identified and used as a discrete receptor location, that is, the corresponding risks have been specifically assessed at that location.

Of key consideration to the potential risks to cattle grazing on the Henbury Station is that of wind-blown transportation of materials from various loss of containment hazards. Reference should be made to Appendix X of the draft EIS, Parts A and C which addresses the risks associated with wind-blown spilled dry waste and liquid wastes. In the Air Quality Risk Assessment Henbury Station is listed as Receptor 8. Table 22 and Table 23 in Part C of Appendix X specifically tabulates the predicted risks at Henbury Station associated with the unmitigated loss of containment of solid wastes and liquid wastes, respectively. Table 22 and Table 23 are reproduced below as Table 5-58 and Table 5-59, respectively.

Table 5-58 Impact magnitude and risk by incident likelihood (loss of containment – Beryllium in solid waste) (Appendix X)

Rec	Sensitivity	Risk (Beryllium)					
		Frequent $F > 10$	Likely $10 > F > 10^{-1}$	Occasional $10^{-1} > F > 10^{-3}$	Unlikely $10^{-3} > F > 10^{-5}$	Remote $10^{-5} > F > 10^{-7}$	Incredible $F < 10^{-7}$
8	high	neutral	neutral	neutral	neutral	neutral	int/minor

Table 5-59 Impact magnitude and risk by incident likelihood (loss of containment – formaldehyde in sludge liquid waste) (Appendix X)

Rec	Sensitivity	Risk (Formaldehyde)					
		Frequent $F > 10$	Likely $10 > F > 10^{-1}$	Occasional $10^{-1} > F > 10^{-3}$	Unlikely $10^{-3} > F > 10^{-5}$	Remote $10^{-5} > F > 10^{-7}$	Incredible $F < 10^{-7}$
8	high	neutral	neutral	neutral	neutral	neutral	maj/int

It is noted that the unmitigated risks have been identified as *neutral* up to the point of an 'incredible' scale (frequency) event, involving the simultaneous loss of containment of all materials at Apirnta Facility as the worst-case solid waste and liquid waste component.

Given the spatial extent of the Henbury Station it is not feasible to assess risks at all locations, however, where there is a requirement to assess the potential impacts (consequences) of construction and operational phase activities, these have been presented as spatial risk maps. In terms of the above risks of wind-blown contamination, these risk maps are presented sequentially in Appendix X, Part C, Appendix C-5 of the draft EIS.

Organic certification

Organic production of livestock entails adherence to the following principles of livestock welfare according to Chapter 5 in the *Australian Certified Organic Standard - 2016 V4* (Australian Organic 2016):



1. Livestock are enabled to perform all natural social and physical functions relevant to their species and breed.
2. Livestock are afforded a quality of life and access to healthy diet and conditions so as to produce quality animal products.
3. Livestock are grown, or their by-products produced in a way which conforms with natural processes of growth and development, rather than being force fed or growth induced by unnatural methods.
4. Breed types are selected which are appropriate for the region and type of production system so as to achieve the principles listed above including maintaining optimal environmental conditions with minimal impact.
5. Breeding systems are based on breeds that can reproduce successfully under natural conditions without human involvement.

Livestock welfare (as outlined in Principals 1 through 5) would not be at risk during construction, operation or closure and rehabilitation of the Proposal. The Proposal would not impact livestock management on Henbury Estate (stock treatments, brought-in stock, agistment and finishing, feeds, living conditions and stocking rates, commons and stock routes, transport and handling) as per Section 5.1 of the *Australian Certified Organic Standard - 2016 V4* (Australian Organic 2016) nor rangeland production on Henbury Estate (tactical grazing and environmental management, ferals, stock management, feed and water) as per Section 5.7 of the *Australian Certified Organic Standard - 2016 V4* (Australian Organic 2016).

Setbacks (e.g. fencing to exclude cattle up to a certain distance from the proposed Apirnta Facility) would be investigated during detailed design of the Proposal. The setback distance, standard of fencing and maintenance schedule would be determined in consultation with the landowner, the NT Cattlemen's Association and/or Australian Certified Organic (as appropriate). This would satisfy the requirement in Section 5.7.12 of the *Australian Certified Organic Standard - 2016 V4* (Australian Organic 2016) which states that 'all potential contamination sources, such as old dip sites, dump sites, old orchards or holding yards, races and crushes, shall be fenced off or stock prevented from entering where contaminants pose risk of chemical or heavy metal residues in certified end products for sale'.

The impacts to flora and fauna (including cattle) were assessed in the biodiversity risk assessment (Appendix O) and air quality risk assessment (Appendix X) presented in the draft EIS.

Monitoring of soil and water

The draft EIS presents a robust dataset of current 'baseline' environmental conditions, including soil, surface water and groundwater quality. This provides a useful and distinct benchmark of baseline soil and water quality prior to commencing any works.



The proponent is committed and obligated to performing an ongoing and comprehensive water and soil monitoring program, as part of ongoing environmental management obligations and responsibilities. The purpose of the soil and water testing program implemented throughout the entire Proposal life-cycle is to transparently quantify the changes in environmental soil and water quality over time. To this end, the proponent would perform periodic programs of soil and water assessments, and these data would form the principal evidence of soil and water quality before, during and after the construction, operation and closure and rehabilitation of the Proposal.

The water and soil samples would be collected in accordance with the appropriate Australian Standards, and the results would be analysed by an independent National Association of Testing Authorities (NATA)¹⁰ accredited laboratory, which is the benchmark for laboratory testing in Australia. The independent testing results schedule would be published in full on the proponent's website and made available for free public access and full public scrutiny. For clarity, these are independently certified NATA accredited laboratory soil and water test results, and are not produced, written or edited by the proponent.

Further to the publication of the NATA soil and water test results, a trend analysis would be used to identify any potential significant changes in environmental quality and flag a requirement to implement a review of operations and implement pro-active management through the CEMP / OEMP / RCP. The trend analysis would also be published on the proponent's website and made available for free public access and full public scrutiny.

Further to the above, in the event of an accidental loss of containment that has the potential to give rise to any off-site impacts, the proponent would implement an Incident Response Procedure, as part of the CEMP/OEMP/RCP, as appropriate. Part of that response would be to take appropriate soil and water samples to understand the environmental implications of the spill, consult with the relevant stakeholders and provide evidence of actions taken to reduce the risk of repeat incidents.

5.16.2 HH 2

Issue raised

Apirnta Facility - We do not want the Apirnta Facility located on our property and do not want to dispose of any part of Hanbury Station (whether by way of surrender, sale or the grant of other interests over our property). We submit that this facility, which was not part of the original proposal, and the temporary storage of waste materials generally, should be located near to or as part of the Chandler Facility and not on Hanbury Station

¹⁰ <https://www.nata.com.au/nata/>



Proponent's response

Chapter 2 of the draft EIS presents a detailed assessment of the proposal alternatives, needs and benefits. Section 2.3.2 of the draft EIS presents a summary of the site selection and access alternatives evaluated as part of the draft EIS.

The proposed location of the Apirnta Facility is to facilitate the use of a rail siding for the efficient transport of salt to Adelaide Port and the efficient and controlled import of waste materials.

5.16.3 HH 3

Issue raised

Project design and description - The Project design and description and the EIS do not adequately address the impact the Project will have on Henbury's cattle enterprise

Proponent's response

Reference should be made to Chapter 12 and Appendix U of the draft EIS, which assesses the likely economic and social impacts during construction, operation, closure and rehabilitation of the Proposal.

Section 2.5.4 of Appendix U of the draft EIS provides a description of the major industries in NT, and provides a summary of agriculture (including cattle farming).

5.16.4 HH 4

Issue raised

Risks - The risks associated with providing services to the Apirnta Facility do not appear to have been addressed in the EIS. More information is required on the following items:

- (a) requirements for electricity, water and communications links to existing infrastructure (if required). The EIS states that connections to existing infrastructure will be required, however does not provide any detail on the requirements or where this infrastructure is or is to be located;

Proponent's response

The provision of electricity at the proposed Apirnta Facility would be provided by provision of a 0.9MW diesel-powered generator. The potential emissions to air from the operation of a 0.9MW diesel-powered generator have been addressed in Appendix X, Part B of the draft EIS.

Water supplies are detailed in Table 8-3 of Chapter 8 of the draft EIS. Raw water supplies would be provided through rainwater harvesting, 150m BGL bores that are fed to a water storage retention dam, as illustrated in Figure 3-1 of the draft EIS and a series of production bores located along the proposed Chandler Haul Road for dust suppression requirements.



The potable water supply would be provided by two 250mm diameter production bores, and treated to Australian Drinking Water Guidelines.

Communications would be provided through satellite linked telephones.

It is respectfully noted that none of these would require infrastructure links that could be assessed as part of the draft EIS.

Issue raised

Risks - The risks associated with providing services to the Apirnta Facility do not appear to have been addressed in the EIS. More information is required on the following items:

- (b) management of wastewater generated from the facility to prevent any risk of contamination of surface or ground water. The EIS states that a septic tank will be required, but no detail or risks are provided; and

Proponent's response

A detailed description of the water resources system, including process and drinking water supplies, water consumption, mine dewatering, stormwater management, erosion and sediment control is provided in Section 3.15 of the draft EIS. The risks associated with groundwater and surface water are assessed in detail in the draft EIS, Chapters 8 and 9 respectively.

The potential for contamination of the borefield aquifer from site activities is addressed in Section 8.5.1 of the draft EIS, including spills, equipment failure and accidents, and drilling activities. The risks are assessed in detail in Section 8.6 and the residual risks are summarised in Table 8-9 in Section 8.9 of the draft EIS.

The location of the wastewater evaporation pond located at the Chandler Facility is illustrated in Figure 3-4 of the draft EIS. The location of the sewage treatment system at the accommodation village is presented in Figure 3-25 of the draft EIS.

Issue raised

Risks - The risks associated with providing services to the Apirnta Facility do not appear to have been addressed in the EIS. More information is required on the following items:

- (c) management of rubbish generated from the facility to prevent any risk to the surrounding environment.

Proponent's response

The management of waste materials generated during construction of the Proposal is discussed in Section 3.5.10 of the draft EIS. The management of waste generated during operation of the Proposal is discussed in Section 3.6.9 of the draft EIS. Furthermore, a draft Waste Management Plan has been prepared for the Proposal (refer to Appendix G of the draft EIS). The Waste Management



Plan would be finalised following completion of the detailed design of the Proposal and prior to construction of the Proposal.

5.16.5 HH 5

Issue raised

Impacts - In many respects this is a high impact proposal by Tellus for the transport and storage of waste on Hanbury Station with significant risks. We note the following:

- (a) It is not complementary or conducive to the existing land use.

Proponent's response

With respect, the draft EIS has been prepared as a comprehensive risk assessment to identify and prioritise potential risks, develop suitable and targeted mitigation to proactively reduce those risks, identify where further management controls and environmental monitoring are required to manage those risks proactively, and evaluate the residual risks.

It is also noted that the draft EIS has been prepared to address the requirements set out in the *Terms of Reference for the Preparation of an Environmental Impact Statement – Chandler Salt Mine* (the 'Terms of Reference') issued by the NT Environment Protection Authority (NT EPA) on 23 September, 2016, under the NT *Environmental Assessment Act* (EA Act).

The draft EIS provides justification of the need for the Proposal, in terms of both the salt mining and waste storage and isolation facility in the geological voids. A detailed assessment of alternative locations and operations has been presented within the draft EIS, and presents a justification of why the Proposal location is highly conducive to the environmental setting.

Issue raised

Impacts - In many respects this is a high impact proposal by Tellus for the transport and storage of waste on Hanbury Station with significant risks. We note the following:

- (b) The quality of the current environment could be significantly reduced.

Proponent's response

Further to the above response, the draft EIS identifies and addresses the potential risks to the environment, through the adoption of a holistic risk assessment methodology. The purpose of the adopted risk methodology is to identify potential changes to the environmental and socio-economic conditions in the region, and implement suitable measures to minimise environmental risks and maximise the potential environmental and socio-economic opportunities resultant from the operation of the Proposal.

Issue raised

Impacts - In many respects this is a high impact proposal by Tellus for the transport and storage



of waste on Hanbury Station with significant risks. We note the following:

- (c) The increase in road usage may also represent a risk to cattle breeding as cattle may be stressed by the sudden increase in vehicles.

Proponent's response

As discussed in Section 7.4.2 of the draft EIS, construction and operational activities would result in an incremental increase in noise levels within the proposed development footprint and vicinity, which may affect fauna species (including cows - *Bos taurus*). Some fauna species would likely tolerate an increase in noise, while others may not, causing them to leave the affected area or making the area less desirable for foraging, nesting and breeding.

The risks associated with noise during operation and closure and rehabilitation of the Proposal would be similar to those during construction of the Proposal (refer to Section 7.5.1 and 7.6.2 of the draft EIS). Mitigation measures to avoid or reduce these impacts were discussed in Section 7.9 of the draft EIS.

It should be noted that the area impacted by the Proposal on Henbury Station would total approximately 219 hectares (39 hectares for the proposed Apirnta Facility and 180 hectares for the proposed Henbury Access Road) or 2.19 square kilometres. The Henbury Station is approximately 5,273 square kilometres in size, therefore, approximately 0.04 % of Henbury Station would be impacted as a result of the Proposal. There would be ample room for cattle to move to other areas on Henbury Station if they were bothered by increased traffic or noise during construction or operation of the Proposal.

Issue raised

Impacts - In many respects this is a high impact proposal by Tellus for the transport and storage of waste on Hanbury Station with significant risks. We note the following:

- (d) Further, the impact from noise and increased road and rail activity may negatively impact cattle.

Proponent's response

As discussed in Section 7.4.2 of the draft EIS, construction and operational activities would result in an incremental increase in noise levels within the proposed development footprint and vicinity, which may affect fauna species (including cows - *Bos taurus*). Some fauna species would likely tolerate an increase in noise, while others may not, causing them to leave the affected area or making the area less desirable for foraging, nesting and breeding.

The risks associated with noise during operation and closure and rehabilitation of the Proposal would be similar to those during construction of the Proposal (refer to Section 7.5.1 and 7.6.2 of the draft EIS). Mitigation measures to avoid or reduce these impacts were discussed in Section 7.9 of the draft EIS.



It should be noted that the area impacted by the Proposal on Henbury Station would total approximately 219 hectares (39 hectares for the proposed Apirnta Facility and 180 hectares for the proposed Henbury Access Road) or 2.19 square kilometres. The Henbury Station is approximately 5,273 square kilometres in size, therefore, approximately 0.04 % of Henbury Station would be impacted as a result of the Proposal. There would be ample room for cattle to move to other areas on Henbury Station if they were bothered by increased traffic or noise during construction or operation of the Proposal.

Issue raised

Impacts - In many respects this is a high impact proposal by Tellus for the transport and storage of waste on Hanbury Station with significant risks. We note the following:

- (e) There is also a risk to breeding stock from vehicle strike.

Proponent's response

As discussed in Section 7.4.2 of the draft EIS, increased vehicle movements within the proposed development footprint and vicinity during construction may result in an increased incidence of fauna strike (including cows - *Bos taurus*) resulting in injury or mortality. Section 7.5.1 similarly addresses vehicle strike during operations, and Section 7.6.2 during closure and rehabilitation of the Proposal. Mitigation and management measures to reduce fauna injury/mortality were summarised in Table 7-11 of the draft EIS. An extract of Table 7-11 (with regards to fauna injury/mortality) has been reproduced below as Table 5-60.

Mitigation and management measures were also detailed in Table 12-1 in Appendix 6 (Draft Biodiversity Management Plan) of Appendix O (Risks to Biodiversity Report) of the draft EIS. Note, though, that Table 12-1 has been revised so that the mitigation measures are 'SMART' (refer to the proponent's response to DEE 14, specifically Table 5-12 in Section 5.1.14). These measures would be incorporated into the CEMP, OEMP and/or RCP for the Proposal.

Table 5-60 Biodiversity mitigation and management measures (fauna injury/mortality)

ID	Outcome	Mitigation/management measure	Timing
B.11	Reduced incidence of fauna injury/ mortality	Ensure fauna is removed from areas intended to be cleared by a qualified ecologist.	Pre-construction and construction
B.12	Reduced incidence of fauna injury/ mortality	Avoid driving during high risk times; dawn, dusk and at night, where possible.	Construction, operation, closure and rehabilitation
B.13	Reduced incidence of fauna injury/ mortality	Prohibit off-road driving.	Construction, operation, closure and rehabilitation
B.14	Reduced incidence of fauna injury/ mortality	Develop and maintain a fauna strike register.	Construction, operation, closure and rehabilitation
B.15	Reduced incidence of fauna injury/ mortality	Limit access of third parties on-site.	Construction, operation, closure and rehabilitation



ID	Outcome	Mitigation/management measure	Timing
B.16	Reduced incidence of fauna injury/ mortality	Ensure traffic adheres to speed limits and local road rules.	Construction, operation, closure and rehabilitation
B.17	Reduced incidence of fauna injury/ mortality	Ensure speed limit and potential fauna crossing signs clearly are displayed on Chandler Haul Road, Henbury Access Road and other access tracks, as necessary.	Construction, operation, closure and rehabilitation



Issue raised

On balance, a reduction in the quality of the environment for breeding would be expected.

Proponent's response

As discussed in Section 7.4.2 of the draft EIS, construction and operational activities would result in an incremental increase in noise levels within the proposed development footprint and vicinity, which may affect fauna species (including cows - *Bos taurus*). Some fauna species would likely tolerate an increase in noise, while others may not, causing them to leave the affected area or making the area less desirable for foraging, nesting and breeding.

The risks associated with noise during operation and closure and rehabilitation of the Proposal would be similar to those during construction of the Proposal (refer to Section 7.5.1 and 7.6.2 of the draft EIS).

It is considered that there may be a minor reduction in the area of land suitable for breeding - approximately 0.04% of Henbury Station- rather than a reduction in quality of the environment for breeding.

5.16.6 HH 6

Issue raised

Apirnta Facility - the overall risk of an impact on the overall carrying capacity of Hanbury Station is quite high, particularly when looking at the risk of contamination and the subsequent reduction in grazing areas. On balance the footprint of the Apirnta Facility, the buffer zones and the potential for contaminated areas has the potential to significantly impact the overall carrying capacity

Proponent's response

Please refer to the proponent's responses provided in HH 1-5 (Section 5.16.1 through Section 0).

5.16.7 HH 7

Issue raised

Land use – there is a potential for a reduction in:

- (a) the demand for product produced on Henbury Station, particularly given some of the waste products that may be stored on site at the Apirnta Facility; and

Land use – there is a potential for a reduction in:

- (b) the price payable for product produced on Henbury Station. Risk perception may be an issue here. If wholesalers perceive there to be a risk to food safety then this may be reflected in the wholesale price.



Proponent's response

Setbacks

The organic production of livestock entails adherence to five principles of livestock welfare according to the *Australian Certified Organic Standard - 2016 V4* (Australian Organic 2016). These principals were listed in the proponent's response to HH 1 (Section 5.16.1). The five principals of livestock welfare would not be at risk during construction, operation or closure and rehabilitation of the Proposal. The Proposal would not impact livestock management nor rangeland production on Henbury Estate as per Section 5.1 and Section 5.7 of the *Australian Certified Organic Standard - 2016 V4* (Australian Organic 2016).

Setbacks (e.g. fencing to exclude cattle up to a certain distance from the proposed Apirnta Facility) would be investigated during detailed design of the Proposal. The setback distance, standard of fencing and maintenance schedule would be determined in consultation with the landowner, the NT Cattlemen's Association and/or Australian Certified Organic (as appropriate). This would satisfy the requirement in Section 5.7.12 of the *Australian Certified Organic Standard - 2016 V4* (Australian Organic 2016) which states that 'all potential contamination sources, such as old dip sites, dump sites, old orchards or holding yards, races and crushes, shall be fenced off or stock prevented from entering where contaminants pose risk of chemical or heavy metal residues in certified end products for sale'.

The impacts to flora and fauna (including cattle) were assessed in the biodiversity risk assessment (Appendix O) and air quality risk assessment (Appendix X) presented in the draft EIS.

Risks to biodiversity (including cattle)

The risks associated with cattle grazing and wind-blown spilled dry waste and liquid wastes were addressed in the proponent's response to HH 1 (refer to Section 5.16.1).

The potential impacts on terrestrial flora and fauna (including cattle) are assessed and mitigation and management measures are identified to reduce potential impacts in Chapter 7 of the draft EIS.

There would only be minimal amounts of fuel, oil or hazardous materials stored on-site for general operations and these materials would be stored in designated bunded areas at both the Apirnta Facility and the Chandler Facility. These materials would be stored and handled on-site in accordance with AS 1940-2004 *Storage and Handling of Flammable and Combustible Liquids*. In addition, all hazardous wastes brought to site for storage (either temporarily at the Apirnta Facility or for permanent storage and isolation at the Chandler Facility) would be packaged and transported in accordance with a strict Waste Acceptance Criteria (refer to Appendix C of the draft EIS). The risk of contamination from the accidental release of waste materials that are being transported to the proposed Apirnta Facility and Chandler Facility would, therefore, be very low.

Mitigation and management measures proposed to minimise the impacts on flora and fauna (including cattle) during construction, operation, and closure and rehabilitation of the Proposal are listed in Table 7-11 of the draft EIS (and have been further revised so that they are 'SMART' – refer



to Table 5-12 in Section 5.1.14). These measures would be incorporated into the CEMP, OEMP and/or RCP for the Proposal. A Draft Biodiversity Management Plan has also been prepared for the Proposal (refer to Appendix O of the draft EIS).

The mitigation and management measures listed in Chapter 9 (Surface water), Chapter 11 (Human Health and Safety), Chapter 15 (Air quality) and Chapter 16 (Noise and vibration) of the draft EIS would be implemented to minimise potential impacts associated with erosion and sedimentation, contamination, altered hydrology, dust, and noise and vibration on flora and fauna (including cattle).

Mitigation and management measures proposed to minimise the potential impacts on human health (including the risk of waste spillage) during construction, operation, and closure and rehabilitation of the Proposal are listed in Table 11-2 of the draft EIS. These measures would be incorporated into an Emergency Response Management Plan (a draft of which is provided in Appendix T of the draft EIS) that would be incorporated into the CEMP, OEMP and/or RCP for the Proposal. These measures would protect not just human health, but cattle in the event of waste spillage, etc.

5.16.8 HH 8

Issue raised

Organic certification - There is a likelihood that Henbury Station may not achieve organic certification were it to be used in part for the storage and transport of some waste products. The organic certification process is rigorous and involves a 3 year certification period that assesses all aspects of the operation. In addition, Henbury Holdings will be required to develop and Organic Management Plan. The aims of organic agriculture are largely at odds with the proposal for the Apirnta Facility

Proponent's response

Please refer to the proponent's response to HH 1 (Section 5.16.1).

5.16.9 HH 9

Issue raised

Land use - As already noted, it is our submission that the EIS gives little consideration to cattle breeding and the potential impacts of the Tellus project on existing and future activities on Henbury Station.

The following additional longer term hazards to the existing and potential future operations of Henbury Station have, in our submission not been considered or addressed:

- (a) the potential impact on the overall quality of the environment for cattle breeding, including potential soil, water (quality and quantity) and vibration impacts. Impacts to water quality from a spill may not be evident immediately. Cattle may ingest polluted water without any obvious signs of immediate ill health. This requires further consideration and including the possible requirement for data loggers on cattle watering



points;

- (b) the potential degradation and reduction in grazing, cattle carrying capacity and cattle related activities. It is expected that the overall quality of the natural/pastoral environment would be reduced which has impacts on breeding and overall carrying capacity. This has not been addressed in the EIS and should form of the wider socio-economic considerations. Our further comments on this issue are set out below;

Proponent's response

Please refer to the proponent's responses provided in HH 1-5 (Section 5.16.1 through Section 0) and HH 8 (Section 5.16.8).

Further to the commitment for ongoing soil and water quality monitoring, a parallel program of vibration monitoring would be performed through the installation of automatic vibration loggers. This would be particularly relevant to demonstrating the control of impacts during construction works that naturally involves a period of invasive ground works and during operation, associated with the mining of salt at approximately 850 metres below ground level.

Similarly to the commitment to publish soil and water quality data, the proponent would commit to publish the data from the vibration monitoring on the proponent's website, and made available for free public access and full public scrutiny.

Issue raised

Land use - As already noted, it is our submission that the EIS gives little consideration to cattle breeding and the potential impacts of the Tellus project on existing and future activities on Henbury Station.

The following additional longer term hazards to the existing and potential future operations of Henbury Station have, in our submission not been considered or addressed:

- (b) the potential degradation and reduction in grazing, cattle carrying capacity and cattle related activities. It is expected that the overall quality of the natural/pastoral environment would be reduced which has impacts on breeding and overall carrying capacity. This has not been addressed in the EIS and should form of the wider socio-economic considerations. Our further comments on this issue are set out below;

Proponent's response

Please refer to the proponent's responses provided in HH 1-5 (Section 5.16.1 through Section 0), HH 8 (Section 5.16.8) and HH9(a)(b) (Section 0).

Issue raised

Land use - As already noted, it is our submission that the EIS gives little consideration to cattle breeding and the potential impacts of the Tellus project on existing and future activities on Henbury Station.



The following additional longer term hazards to the existing and potential future operations of Henbury Station have, in our submission not been considered or addressed:

- (c) the implications of activities which are likely to prevent Hanbury Station achieving organic certification. Impacts to soil and water quality over the long term represent a high risk to Henbury Station, particularly in relation to obtaining organic cattle certification;

Proponent's response

Please refer to the proponent's response to HH 1 (Section 5.16.1).

Issue raised

Land use - As already noted, it is our submission that the EIS gives little consideration to cattle breeding and the potential impacts of the Tellus project on existing and future activities on Henbury Station.

The following additional longer term hazards to the existing and potential future operations of Henbury Station have, in our submission not been considered or addressed:

- (d) the potential loss of livestock arising from increased traffic movements in the locality;

Proponent's response

As discussed in Section 7.4.2 of the draft EIS, increased vehicle movements within the proposed development footprint and vicinity during construction may result in an increased incidence of fauna strike (including cows) resulting in injury or mortality. Section 7.5.1 similarly addresses vehicle strike during operations, and Section 7.6.2 during closure and rehabilitation. Mitigation and management measures to reduce fauna injury/mortality were summarised in Table 7-11 of the draft EIS. An extract of Table 7-11 (with regards to fauna injury/mortality) has been reproduced below as Table 5-61.

Mitigation and management measures were also detailed in Table 12-1 in Appendix 6 (Draft Biodiversity Management Plan) of Appendix O (Risks to Biodiversity Report) of the draft EIS. Note, though, that Table 12-1 has been revised so that the mitigation measures are 'SMART' (refer to the proponent's response to DEE 14, specifically Table 5-12 in Section 5.1.14). These measures would be incorporated into the CEMP, OEMP and/or RCP for the Proposal.



Table 5-61 Biodiversity mitigation and management measures (fauna injury/mortality)

ID	Outcome	Mitigation/management measure	Timing
B.11	Reduced incidence of fauna injury/ mortality	Ensure fauna is removed from areas intended to be cleared by a qualified ecologist.	Pre-construction and construction
B.12	Reduced incidence of fauna injury/ mortality	Avoid driving during high risk times; dawn, dusk and at night, where possible.	Construction, operation, closure and rehabilitation
B.13	Reduced incidence of fauna injury/ mortality	Prohibit off-road driving.	Construction, operation, closure and rehabilitation
B.14	Reduced incidence of fauna injury/ mortality	Develop and maintain a fauna strike register.	Construction, operation, closure and rehabilitation
B.15	Reduced incidence of fauna injury/ mortality	Limit access of third parties on-site.	Construction, operation, closure and rehabilitation
B.16	Reduced incidence of fauna injury/ mortality	Ensure traffic adheres to speed limits and local road rules.	Construction, operation, closure and rehabilitation
B.17	Reduced incidence of fauna injury/ mortality	Ensure speed limit and potential fauna crossing signs clearly are displayed on Chandler Haul Road, Henbury Access Road and other access tracks, as necessary.	Construction, operation, closure and rehabilitation

Issue raised

Land use - As already noted, it is our submission that the EIS gives little consideration to cattle breeding and the potential impacts of the Tellus project on existing and future activities on Henbury Station.

The following additional longer term hazards to the existing and potential future operations of Henbury Station have, in our submission not been considered or addressed:

- (e) the real and perceived impact on the "green and clean" image that Henbury has been promoting; and

Proponent's response

Please refer to the proponent's responses provided in HH 1-5 (Section 5.16.1 through Section 5.16.5), HH 7-8 (Section 5.16.7 and Section 5.16.8) and HH9(a)(b) (Section 5.16.9).

Issue raised

Land use - As already noted, it is our submission that the EIS gives little consideration to cattle breeding and the potential impacts of the Tellus project on existing and future activities on Henbury Station.

The following additional longer term hazards to the existing and potential future operations of Henbury Station have, in our submission not been considered or addressed:



- (f) the potential reduced demand for Henbury generated product, from both a market and wholesaler point of view.

Proponent's response

Please refer to the proponent's responses provided in HH 1-5 (Section 5.16.1 through Section 5.16.5), HH 7-8 (Section 5.16.7 and Section 5.16.8) and HH9(a)(b) (Section 5.16.9).

Issue raised

These matters could potentially have a significant negative impact on any future organic certification process for Henbury Station. It is important to note that organic certification is a rigorous three year process which involves soil and water sampling. Whilst minute traces of certain elements should not preclude Henbury Station from obtaining organic certification, the area will need to be fenced to allow for bioremediation, ahead of further sampling being conducted. Further, there is a risk that traces may not be at "trace" level but rather at a human safety trigger level in some cases.

Proponent's response

Please refer to the proponent's responses provided in HH 1-5 (Section 5.16.1 through Section 5.16.5), HH 7-8 (Section 5.16.7 and Section 5.16.8) and HH9(a)(b) (Section 5.16.9).

Issue raised

Section 1.4 of the NASAA Organic Standard (December 2004), identifies that organic agriculture has the following aims:

- To produce optimal quantities of food and fibre compatible with human and environmental needs;
- To produce food of high nutritional value;
- To work within natural systems in ways which enhance those systems;
- To maintain and increase long term productivity of soil;
- To promote wise use of land, water and vegetation and minimise off farm effects of agriculture on aquatic and terrestrial systems;
- To foster local and regional production and distribution;
- To use renewable resources as much as possible;
- To maintain and increase long-term fertility and biological activity of soils using locally adapted cultural, biological and mechanical methods as opposed to input reliance;
- To maintain and encourage agricultural and natural biodiversity on the farm and



surrounds through sustainable production systems and protection of plant and wildlife habitats;

- To provide balanced nutrients, optimise opportunities to cycle nutrients within the farm, to recycle nutrients and energy that leave the farm or other farms in food and fibre products that are not consumed (ie organic waste containing energy and nutrients), with the aim of feeding the soil ecosystem;
- To provide livestock with conditions which satisfy their behavioural and physiological needs;
- To maintain or increase as appropriate the genetic diversity of domesticated and native plants, animals and other organisms on the farm (this precludes the use of Genetic Engineering);
- To allow everyone involved in organic production a quality of life to cover their basic needs and obtain adequate return and satisfaction from their work, including a safe working environment;
- To progress towards an entire organic production chain, which is both socially just and ecologically responsible; and
- To recognise the importance of and protect and learn from, indigenous knowledge and traditional farming systems.

The proposed development by Tellus, irrespective of the area or potential risk, does not in our submission accord with the basic principles of organic agriculture. Accordingly the Tellus proposal provides a disincentive for Henbury to pursue organic accreditation, which is a costly and time consuming process, but is something that Henbury Holdings is committed to achieving for a variety of reasons including financial.

The price of organic beef in recent years has been significantly higher than standard mass produced beef, and in some areas it is thought that an increase in China's interest in organic beef will promote further increases in the value. It is likely that this will be an ongoing trend as China taps into the Australian agricultural market.

From a Henbury Station perspective, it would be beneficial for Tellus to assess the risk to organic beef accreditation in the first instance and then to determine impacts to organic beef operations. This may provide a clearer understanding of Tellus' intention for negotiation with Henbury Holdings and provide a means of determining potentially mutually beneficial outcomes

Proponent's response

Please refer to the proponent's responses provided in HH 1-5 (Section 5.16.1 through Section 5.16.5), HH 7-8 (Section 5.16.7 and Section 5.16.8) and HH9(a)(b) (Section 5.16.9).



5.16.10 HH 10

Issue raised

Management plans - The other high level risks which in our submission remain include the following:

- (a) A Biodiversity Management Plan has been prepared but a number of them are in draft form or incomplete and in our submission, it does not address a number of hazards and/or does not propose to adopt the most appropriate mitigation measures. Issues remain in relation to:
 - (i) implications to the environment arising from the incidental clearance of vegetation;
 - (ii) the mitigation measures which do not reduce the impact on fauna, including cattle;
 - (iii) the need for and management of any laydown or other areas required during the construction phase.

Proponent's response

Table 5-2 in Appendix O (Draft Biodiversity Management Plan) of the draft EIS presents a risk assessment associated with identified hazards including: vegetation clearing; habitat loss; fauna strike or injury; edge effects; habitat fragmentation; fauna displacement; loss of containment of hazardous materials; the effects of windblown dust upon disturbance to fauna and water courses. This identifies hazards, and identifies a number of mitigation measures required to manage risks.

Further assessment is presented in Sections 7.4, 7.5 and 7.6 of the draft EIS.

Issue raised

Management plans - The other high level risks which in our submission remain include the following:

A Construction and Environmental Management Plan and an Environmental Management Plan should be prepared.

Proponent's response

A Construction Environment Management Plan (CEMP), Operational Environment Management Plan (OEMP) and a Rehabilitation and Closure Plan (RCP) would be prepared after regulatory approval, and submitted to the relevant stakeholders for review, as appropriate. These plans would form components of a comprehensive Environmental Management System that would cover the entire Proposal life-cycle.

Issue raised

A portion of Henbury Station (out under 20% of its area) is subject to a conservation covenant registered on its title. The covenant affords protection of protected plants, animals and ecosystems.



Henbury Holdings acquired the property subject to the covenant and although the covenant is relatively restrictive on its pastoral activities, it was seen as a positive contribution to the environmental and green credentials of Henbury Station.

While the proposed Tellus activity is unlikely to have a direct impact on the covenant area, such activity (particularly the Apirnta Facility and the transportation of waste across Henbury Station) is by nature inconsistent with the purpose of the covenant area and the environmental and green credentials of Henbury Station.

This is given little consideration in the EIS.

Proponent's response

The proponent understands that the conservation covenant is a conservationally-significant area located along the southern side of the James Range in the northwestern corner of Henbury Station (approximately 95 kilometres to the northwest of the proposed Apirnta Facility). It covers approximately 20% of Henbury Station. It is understood that the conservation covenant provides habitat for threatened species including the central Australian cabbage palm (*Livistona mariae*), Latz's wattle (*Acacia latzii*), black-footed rock-wallaby (*Petrogale lateralis*) and Slater's skink (*Liopholis slateri slateri*). This area is unique on Henbury Station whereas the southern and eastern 80% of Henbury Station is located on very widespread land units extending for hundreds of kilometres to the south, east and west of Henbury Station.

Extensive biological field surveys have been undertaken within the proposed development footprint and vicinity over the past four years. Details of these surveys are presented in Chapter 7 (Biodiversity) and Appendix O (Biodiversity Assessment) of the draft EIS.

Construction of the Proposal would result in the removal of approximately 397.5 hectares of vegetation (39 hectares of which would be removed during construction of the proposed Apirnta Facility and 180 hectares of which would be removed during construction of the proposed Henbury Access Road). There would be no direct impact on the conservation covenant area referenced in the submission by Henbury Holdings. In addition, the results of the survey indicate that there would be no significant impact on species listed under the NT *Territory Parks and Wildlife Conservation Act* (TPWC Act) and/or the Commonwealth *Environmental Protection and Biodiversity Conservation Act* (EPBC Act). There would be no impact to the central Australian cabbage palm, Latz's wattle, black-footed rock-wallaby, nor to Slater's skink (*Liopholis slateri slateri*). Suitable habitat for these species is not located within the proposed development footprint or vicinity.

Mitigation and management measures would be implemented to reduce the potential impacts on biodiversity during construction, operation and closure and rehabilitation of the Proposal. These mitigation and management measures include the development of a Biodiversity Management Plan and Bushfire Management Plan. These plans would be incorporated into the Construction Environmental Management Plan (CEMP), Operational Environmental Management Plan (OEMP) and/or Rehabilitation Closure Plan (RCP) for the Proposal.



Based on the above, it is the opinion of the proponent that the conservation covenant and the 'environmental and green credentials' of Henbury Station would not be adversely impacted in the short, medium or long-term by the Proposal.

Issue raised

Management plans - The other high level risks which in our submission remain include the following:

- (b) A Traffic Management plan has been prepared, however information is lacking in relation to fauna strike hazards.

Proponent's response

As discussed in Section 7.4.2 of the draft EIS, increased vehicle movements within the proposed development footprint and vicinity during construction may result in an increased incidence of fauna strike (including cows) resulting in injury or mortality. Section 7.5.1 similarly addresses vehicle strike during operations, and Section 7.6.2 during closure and rehabilitation. Mitigation and management measures to reduce fauna injury/mortality were summarised in Table 7-11 of the draft EIS. An extract of Table 7-11 (with regards to fauna injury/mortality) has been reproduced below as Table 5-62.

Mitigation and management measures were also detailed in Table 12-1 in Appendix 6 (Draft Biodiversity Management Plan) of Appendix O (Risks to Biodiversity Report) of the draft EIS. Note, though, that Table 12-1 has been revised so that the mitigation measures are 'SMART' (refer to the proponent's response to DEE 14, specifically Table 5-12 in Section 5.1.14). These measures would be incorporated into the CEMP, OEMP and/or RCP for the Proposal.



Table 5-62 Biodiversity mitigation and management measures (fauna injury/mortality)

ID	Outcome	Mitigation/management measure	Timing
B.11	Reduced incidence of fauna injury/ mortality	Ensure fauna is removed from areas intended to be cleared by a qualified ecologist.	Pre-construction and construction
B.12	Reduced incidence of fauna injury/ mortality	Avoid driving during high risk times; dawn, dusk and at night, where possible.	Construction, operation, closure and rehabilitation
B.13	Reduced incidence of fauna injury/ mortality	Prohibit off-road driving.	Construction, operation, closure and rehabilitation
B.14	Reduced incidence of fauna injury/ mortality	Develop and maintain a fauna strike register.	Construction, operation, closure and rehabilitation
B.15	Reduced incidence of fauna injury/ mortality	Limit access of third parties on-site.	Construction, operation, closure and rehabilitation
B.16	Reduced incidence of fauna injury/ mortality	Ensure traffic adheres to speed limits and local road rules.	Construction, operation, closure and rehabilitation
B.17	Reduced incidence of fauna injury/ mortality	Ensure speed limit and potential fauna crossing signs clearly are displayed on Chandler Haul Road, Henbury Access Road and other access tracks, as necessary.	Construction, operation, closure and rehabilitation

Issue raised

Management plans - The other high level risks which in our submission remain include the following:

- (c) A Pest Management Plan has been prepared, however does not address the potential risks to the operations of Henbury Station.

Proponent's response

Please refer to Appendix 6 (Draft Biodiversity Management Plan) contained within Appendix O (Risks to Biodiversity Report) of the draft EIS. Table 12-1 committed to the preparation of a Pest Fauna Management Plan that would be implemented during construction, operation, and closure and rehabilitation of the Proposal (which includes the proposed Apirnta Facility located on the Henbury Station). Note, though, that Table 12-1 has been revised so that the mitigation measures are 'SMART' (refer to the proponent's response to DEE 14, specifically Table 5-12 in Section 5.1.14). Mitigation measures that would be included in the Pest Fauna Management Plan would include (but would not be limited to), the following:

- Develop and implement a no tolerance policy to the introduction of pest species by contractors, suppliers and personnel.
- Develop and implement an introduced fauna control program in consultation with stakeholders.
- Install fauna proof fence around infrastructure.



- Reduce artificial standing water.
- Prevent access to artificial water and heat sources through construction of fences. Ensure the top fence wire is not barbed for avifauna.
- Place brush or vegetation stockpiles across linear developments no longer required (access tracks etc.) to inhibit movement of predators and introduced herbivores.
- Dispose of all waste in predator-proof bins.
- No feeding of fauna, native or introduced, on site.
- Remove any dead fauna or insects from the Proposal and either dispose off-site or bury > 50cm deep to avoid predators uncovering.
- Close off and rehabilitate any cleared areas no longer required for safe operation.
- Trap and relocate predator species if they are noticed to have increased in numbers and habituate around facilities. Trapping and relocating of fauna would be undertaken by a qualified ecologist.

The Pest Fauna Management Plan would be prepared prior to construction of the Proposal.

Issue raised

Management plans - The other high level risks which in our submission remain include the following:

- (d) The contamination of soil and water has been considered in the EIS with the preparation of Sediment and Erosion Management Plan. However in our submission this response is not considered to be sufficient, noting:
 - (i) a Construction Environmental Management Plan (CEMP) and an Environmental Management Plan (EMP) are required to address all aspects of potential soil and water contamination and mitigation measures.

Proponent's response

Please refer to the proponent's responses provided in HH 1-5 (Section 5.16.1 through Section 5.16.5), HH 7-8 (Section 5.16.7 and Section 5.16.8) and HH9(a)(b) (Section 5.16.9) which address the commitment for ongoing environmental monitoring, laboratory analysis and publication of data.

A Construction Environment Management Plan (CEMP), and Operational Environment Management Plan (OEMP) and a Rehabilitation and Closure Plan (RCP) would be prepared after regulatory approval, and submitted to the relevant stakeholders for review, as appropriate.

These plans would form components of a comprehensive Environmental Management System that would cover the entire Proposal life-cycle.

Issue raised

Management plans - The other high level risks which in our submission remain include the following:



- (d) The contamination of soil and water has been considered in the EIS with the preparation of Sediment and Erosion Management Plan. However in our submission this response is not considered to be sufficient, noting:
 - (ii) the Sediment and Erosion Management Plan (SEMP) does not reduce the likelihood of erosion, particularly during haul road construction; and

Proponent's response

The potential consequences of construction upon surface water are discussed in Section 9.4 of the draft EIS.

Section 9.4.1 addresses direct impacts (including erosion, flooding and changes to existing surface water flows). The subsections of Section 9.4.1 deal with these direct impacts sequentially, and specifically address the Apirnta Facility, Chandler Facility and the road infrastructure.

Section 9.4.2 addresses indirect impacts correspondingly.

The Sediment and Erosion Management Plan would be finalised in the CEMP/OEMP/RCP which would be produced upon regulatory approval of the Proposal

Issue raised

Management plans - The other high level risks which in our submission remain include the following:

- (d) The contamination of soil and water has been considered in the EIS with the preparation of Sediment and Erosion Management Plan. However in our submission this response is not considered to be sufficient, noting:
 - (iii) there is a need to address the impact of soil compaction on grazing.

Proponent's response

Soil compaction would only occur at the proposed Apirnta Facility, Chandler Facility and along the proposed Henbury Access Road and Chandler Haul Road. The potentially affected areas are, therefore, considered to be small. As discussed in response to HH 5, it is considered that the hazard of fauna strikes along the proposed access and haul roads has been identified, and that various mitigation measures have been proposed to reduce this risk. It is considered that using the access and haul road for grazing is contrary to managing the risks of cattle strikes.

The Sediment and Erosion Management Plan would be finalised in the CEMP/OEMP/RCP which would be produced upon regulatory approval and prior to construction of the Proposal.

Issue raised

Management plans - The other high level risks which in our submission remain include the following:

- (e) The haul road construction will alter hydrology. We note that this risk has eventuated in coal seam gas sites in Queensland.



Proponent's response

Please refer to the proponents response provided at HH 10(d)(ii) (Section 5.16.10).

Issue raised

Management plans - The other high level risks which in our submission remain include the following:

- (f) In relation to flooding, the Water Management Plan should include or at least consider the need for cess drains or culverting on the Henbury Access Road. More details should also be provided in relation to future new bores and maximum extraction rates. It is also relevant to note that the Finke River System is one of the oldest river systems in the world and one of the few with permanent water holes in Central Australia that will be exposed to significant crossing infrastructure and potential contamination.

Proponent's response

The proponent acknowledges further flood modelling and details on the scale of culvert/engineering works is required. When the BFS and detailed design has commenced, the proponent commits to sharing this level of information with the land owner. In due course, the Drat WMP will be finalised as will be, a MMP and ESCP.

Issue raised

Management plans - The other high level risks which in our submission remain include the following:

- (g) The EIS addresses historic and cultural heritage issues and while, as far as we are aware, there are no known cultural or sacred sites affecting the area covered by the EIS on Henbury Station, we recommend that Tellus establishes a communication protocol for our approval, in order to better manage impacts, should a new site be discovered.

Proponent's response

Reference should be made to the mitigation measures outlined in Chapter 10 of the draft EIS, and specifically Table 10-7 which details the proposed mitigation measures that would be implemented including those for identification of new sites. Table 10-7 has been reproduced below as Table 5-63.



Table 5-63 Mitigation and management measures (cultural heritage)

ID	Outcome	Mitigation/management measure	Timing
CH.1	Reduce the risk of inadvertently disturbing archaeological material during construction.	Undertake additional surveys of areas that would be impacted but have not yet been surveyed and which have a moderate to high probability of containing archaeological material (e.g. sections of the proposed Chandler Haul Road and eastern end of the proposed Henbury Access Road).	Pre-construction
CH.2	Preservation of areas of cultural sensitivity.	Clearly mark cultural heritage exclusion zones and ensure there is no intrusion into cultural heritage exclusion zones.	Pre-construction, construction, operation, and closure and rehabilitation
CH.3	Appropriate consent obtained to impact or potentially disturb archaeological material.	Ensure that appropriate consent is obtained for all sites that would be directly impacted or vulnerable to disturbance and require protective measures. Consent would be obtained from the NT Heritage Branch under section 72 of the NT <i>Heritage Act</i> .	Pre-construction
CH.4	Mitigation and management of archaeological material within and in the vicinity of the proposed development footprint.	Undertake additional mitigative works as part of conditions associated with gaining consent to impact or disturb particular archaeological material. For example, establishing “no-go” areas, undertaking mitigative recording of sites, relocating artefacts and establishing protective fencing (refer to Table 11a through Table 11d of Cultural Heritage Management Plan, Appendix S).	Pre-construction
CH.5	Mitigation and management of archaeological material within and in the vicinity of the proposed development footprint.	Ensure that all cultural heritage resources within and in the vicinity of the proposed development footprint are identified on general site maps and that no-go areas (i.e. sites or parts of sites to be protected, restricted areas) are also shown on all construction drawings.	Pre-construction
CH.6	Facilitate the ongoing management of cultural heritage resources.	Establish a database of cultural heritage resources within and in the vicinity of the proposed development footprint.	Pre-construction
CH.7	Mitigation and management of archaeological material within and in the vicinity of the proposed development footprint.	Establish a cultural awareness induction program for all contractors, employees and agents working on-site. Maps and drawings showing cultural heritage resources within the proposed development footprint would be provided to all contractors and employees working on-site.	Pre-construction and construction
CH.8	Mitigation and management of archaeological material within and in the vicinity of the proposed development footprint.	Implement protocols for the unanticipated discovery of archaeological material and skeletal remains as per the Cultural Heritage Management Plan at Appendix S.	Pre-construction, Construction
CH.9	Mitigation and management of archaeological material within and in the vicinity	Ensure that sites identified as vulnerable to disturbance are subject to regular monitoring at monthly intervals. Implement management measures, if necessary (e.g. implementing works to stem erosion, reviewing the efficacy of site	Construction



ID	Outcome	Mitigation/management measure	Timing
	of the proposed development footprint.	protection measures including fencing, the cultural heritage induction program and mapping).	
CH.10	Mitigation and management of archaeological material within and in the vicinity of the proposed development footprint.	Ensure that sites identified as vulnerable to disturbance are subject to monitoring on an annual basis. Implement conservation and management measures for other sites as appropriate (e.g. detailed recording, conservation works).	Operation
CH.11	Mitigation and management of archaeological material within and in the vicinity of the proposed development footprint.	Ensure any new areas subject to ground disturbance in the future are assessed and surveyed in accordance with the predictive models and appropriate actions taken in relation to the NT <i>Heritage Act</i> .	Operation
CH.12	Mitigation and management of archaeological material within and in the vicinity of the proposed development footprint.	Ensure that the condition of all sites are recorded one last time. Remove protective fencing once all infrastructure had been dismantled and removed from site and other rehabilitation works are complete. Forward all data pertaining to each site including site records, documentation (e.g. results of monitoring), photographs, records of action taken, etc. are forwarded to the NT Heritage Branch.	Decommissioning

Reference should be made to the mitigation measure CH.8 specifically, which discusses the management of unanticipated discovery of archaeological materials, as per the draft Cultural Heritage Management Plan, presented in Appendix S of the draft EIS. As detailed in Section 9.2 of Appendix S:

'Tellus will also have a responsibility to ensure that all employees, contractors and agents working on the Chandler project are aware of their obligations under the NT Heritage Act, including all Aboriginal archaeological places and objects protected under that Act, regardless of whether or not such places or objects have been previously recorded, and that anyone discovering such material is required under s114 of the Act to report that discovery to the Chief Executive Officer of the NT Department of Lands, Planning and Environment as soon as practical.'

The Cultural Heritage Management Plan would be finalised in the CEMP/OEMP/REMP which would be produced upon regulatory approval and prior to construction of the Proposal.

Issue raised

Management plans - The other high level risks which in our submission remain include the following:

- (h) An Air Quality Management Plan has been prepared, however hazards and risks remain in relation to airborne dust contamination, which can have particular ramifications in relation to organic cattle certification requirements.



Proponent's response

The principal emissions to air associated with the construction and operation of the Chandler Facility are crustal particulates generated from invasive ground works during construction and wheel generated dust during operations.

Appendix X (Air Quality Risk Assessment) of the draft EIS identifies potential hazards and sensitive land uses, addresses risk, presents a substantial number of management measures and presents a residual risk (i.e. after the application of mitigation measures). The construction dust assessment is presented in Appendix X, Part B (Chandler Facility), Part C (Apirnta Facility) and Part D (Transport Infrastructure). For all components of the development it is respectfully demonstrated that risks may be managed to become 'not significant'.

The operational emission budget for the Chandler Facility is presented in Appendix X, Part B, Section 4.2. The emission estimation presented in Table 8 of Section 4.2 quantifies the emissions to air associated with the operation of the Chandler Facility, and also operational emissions from the Apirnta Facility and along the haul route. The consequence of these emissions has been determined through the application of an atmospheric dispersion model, and the predicted results have been presented in Table 34 of Section 4.8 of Part B. For all emissions, the predicted impacts (consequence) at the identified receptor locations is significantly below the relevant air quality standards. In terms of deposited dust, that is, particles that are emitted and may 'settle out' onto land, the predicted impacts (consequence) is predicted to be 'negligible' and the corresponding risk 'neutral'.

The plots of 'risk' for the operational scenarios, including operational emissions, are presented in Appendix B-6 of Part B.

The risks associated with accidental loss of containment, including the potential dispersal of particulates to air that may settle on surrounding land is the focus of much of the Air Quality Risk Assessment. A summary of the assessed risks associated with the accidental loss of solid waste materials (which may subsequently be deposited onto surrounding land) is presented in Table 30. It may be seen that the assessed risk is 'negligible' for all accidental loss of containment scenarios with a frequency of frequent, likely, occasional and unlikely.

It is respectfully noted that there are identified off-site risks associated with an accidental loss of containment of a 'remote' frequency ($10^{-5} > F > 10^{-7}$), which is a representation of an accident involving a simultaneous spillage of between 35 flexible intermediate bulk containers (FIBC) to 1,700 FIBC full of beryllium (equivalent to 2-100 TEU). To manage that risk, further controls are proposed as outlined in Section 4.6.2 of Part B of Appendix X, including a restriction on the movement to one TEU of similar waste materials in a single movement. Application of this management measure would effectively remove those identified risks from occurring, rendering the off-site risks as 'negligible' in the worst-case.

The Air Quality Management Plan would be finalised in the CEMP/OEMP/REMP which would be produced upon regulatory approval and prior to construction of the Proposal.



Issue raised

Management plans - The other high level risks which in our submission remain include the following:

- (i) A Weed Management Plan has been prepared, however hazards and risks remain in relation to the potential introduction of weeds via rail and road transport.

Proponent's response

Please refer to the proponent's response to DENR 20 (Section 5.6.20). A Weed Management Plan would be implemented during construction, operation and closure and rehabilitation of the Proposal (refer to Appendix 6 [Draft Biodiversity Management Plan] contained within Appendix O [Risks to Biodiversity Report] of the draft EIS). The Weed Management Plan would be prepared with reference to the guidelines outlined in DENR's *Preventing Weed Spread is Everybody's Business* and the *Weed Management Plan for Athel Pine (Tamarix aphylla)*. The Weed Management Plan would also be submitted to the DENR Weed Management Branch for review and approval prior to construction, operation, and decommissioning and rehabilitation of the Proposal.

Issue raised

Management plans - The other high level risks which in our submission remain include the following:

- G) In the instance of waste storage, loss of containment is a significant risk for Henbury Holdings as the land owner, giving rise to potential land and water contamination related issues.

Proponent's response

Please refer to the proponent's response provided in HH 10(h) (Section 5.16.10).

Issue raised

Management plans - The other high level risks which in our submission remain include the following:

- (k) Whilst a Bushfire Management Plan has been prepared, in our opinion it does not address the potential impact on movements and loss of stock during a bushfire, or exposure to contaminated waste in the event of a fire.

Proponent's response

It is agreed that the Bushfire Management Plan (presented in Appendix O of the draft EIS) does not provide a management plan for the protection of cattle during a bushfire and with respect this is outside of the control of the proponent.

Chapter 14 of the draft EIS presents a summary of the risk assessment for the management of bushfire upon the Chandler Facility, and control of hazards that may potentially increase the frequency of bushfires.



The identified mitigation and management measures are presented in Table 14-2 of Chapter 14 of the draft EIS, and is reproduced below as Table 5-64.

Table 5-64 Mitigation and management measures (bushfire)

ID	Outcome	Mitigation/management measure	Timing
BF.1	Reduced incidence of bushfire (protection of human life, assets and the environment)	Finalise draft Bushfire Management Plan prior to construction and incorporate into the CEMP, OEMP and RCP. The plan collates measures to mitigate and manage potential impacts on the humans, assets and the environment.	Pre-construction
BF.2	Reduced incidence of bushfire (protection of human life, assets and the environment)	Undertake fuel load assessments annually to assess bushfire potential and need for pro-active controls, e.g. back burning.	Construction, operation, closure and rehabilitation
BF.3	Reduced incidence of bushfire (protection of human life, assets and the environment)	Create fire breaks/asset protection zones with reference to prevailing wind directions, highest wind speeds and vegetation types. Preliminary asset protection zones are provided in Table 14-3.	Construction, operation, closure and rehabilitation
BF.4	Reduced incidence of bushfire (protection of human life, assets and the environment)	Consult with the NT Fire and Rescue Service on issues relating to: <ul style="list-style-type: none"> • Strategic planning of bushfire with respect to the layout of the Chandler Facility. • Fire safety. • Hazard abatement. • Firefighter training. • Operations support and administration. 	Pre-construction, construction and operation
BF.5	Reduced incidence of bushfire (protection of human life, assets and the environment)	Ensure bushfire suppression equipment is available on-site.	Construction, operation, closure and rehabilitation
BF.6	Reduced incidence of bushfire (protection of human life, assets and the environment)	Ensure fuels and other flammable materials are stored appropriately and in accordance with applicable regulations.	Construction, operation, closure and rehabilitation

The risk assessment is summarised in Table 5-65.



Table 5-65 Risk assessment

Hazard	Pre-mitigated risk			Post-mitigated risks			Risk outcome
	Likelihood	Consequence	Risk ranking	Likelihood	Consequence	Risk ranking	
Natural bushfires occurring	Possible	Major	High	Unlikely	Major	Medium	Risk reduced
Back burning on surrounding pastoral land	Possible	Major	High	Possible	Major	High	Risk same
Hot works resulting in spontaneous ignition	Possible	Major	High	Unlikely	Major	Medium	Risk reduced
Smoking cigarettes	Likely	Major	High	Likely	Major	High	Risk same
Increased ignition sources	Likely	Major	High	Unlikely	Major	Medium	Risk reduced
Flammable and/or volatile fuels	Likely	Major	High	Unlikely	Major	Medium	Risk reduced

The Bushfire Management Plan would be finalised in the CEMP/OEMP/REMP which would be produced upon regulatory approval and prior to construction of the Proposal.

Issue raised

Management plans - The other high level risks which in our submission remain include the following:

- (I) Whilst a Blasting Management Plan has been prepared, in our opinion the potential impacts on cattle have not been adequately considered or addressed.

Proponent's response

The potential impacts of vibration from blasting upon fauna have been identified in Section 7.4.2 of the draft EIS:

'Vibration from construction activities such as from blasting and heavy vehicle movements may deter native fauna from using the area near the vibration sources. This may potentially interrupt dispersal within the vicinity of the proposed development footprint if an individual is unwilling to travel through an area where vibration is detectable, or may cause some species to abandon an area in search of areas where vibration is not detectable.'

Section 16 of the draft EIS presents a detailed risk assessment of noise and vibration impacts associated with the construction, operation and rehabilitation phases of the proposed Chandler Facility. As discussed in Section 16.4.1:

'Ground vibration has been predicted for a range of charge masses for varying distances and assuming two cases: average and worst case ground conditions (refer to Figure 16-2 and Figure



16-3). Air-blast overpressure has not been assessed as the excavation would be undertaken at a depth of approximately 400 metres below the ground surface, which shields the pressure wave.

At the nearest point, the decline tunnel would be located approximately 200 metres from the northern-most cultural heritage exclusion zone. At this point, the decline tunnel would also be located at depth of approximately 400 metres below the ground surface... As can be seen from the worst case ground vibration predictions, compliance with the most conservative BS7385.2 vibration limits for cosmetic damage is achieved for a charge mass of 100 kilograms. It is expected that much smaller charge masses would be used by the blast contractor (such as five kilograms). If a charge mass in excess of 100 kilograms were required, additional assessment would be undertaken to determine the potential impacts on cultural heritage exclusion zones within the area of the proposed Chandler Facility.

Figure 16-3 in the draft EIS is reproduced below as Figure 5-88.

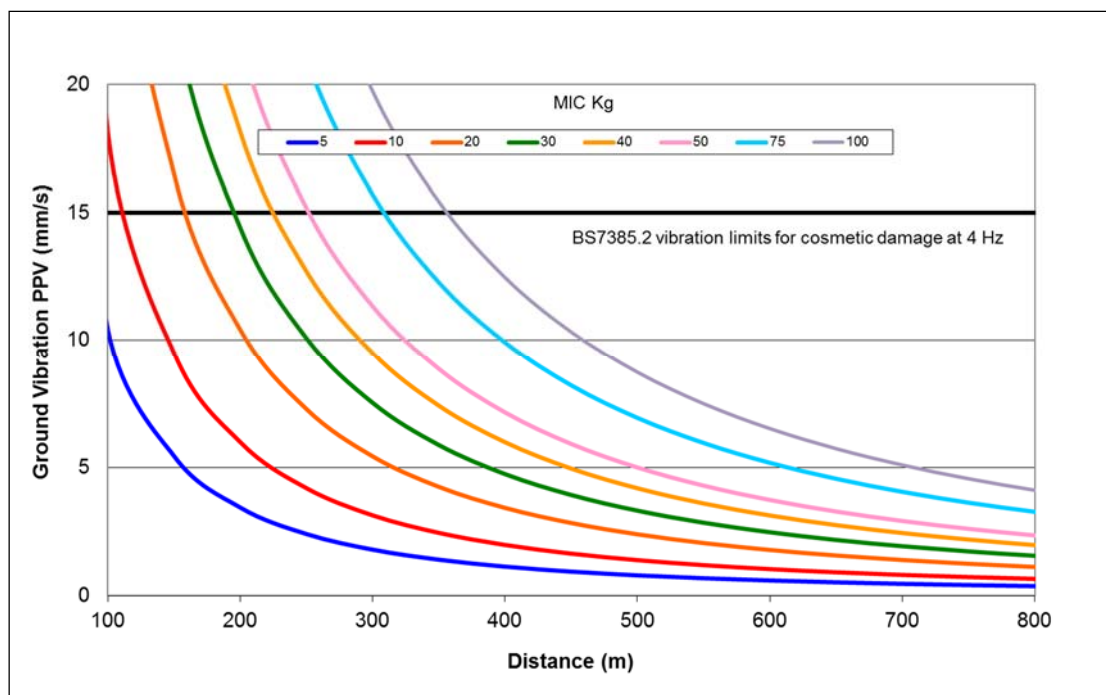


Figure 5-88 Ground vibration predictions for different charge masses and distances (worst case ground conditions)

It is therefore assessed that the impacts would be restricted to 400 metres, and as such it is considered highly unlikely that the vibration from blasting at the proposed Chandler Facility would affect cattle grazing on land on the Henbury Station.

5.16.11 HH 11

Issue raised

Henbury Access Road risks - In respect of Henbury Access Road and Chandler Haul Road, we note that a range of medium level hazards have not been fully addressed, including:



- (a) Increased traffic volumes on access road during construction;

Proponent's response

The purpose of the risk assessment is to identify risks, and provide mitigation and management measures to control the most significant risks. Some risks can be eliminated by design, whilst others can be controlled through risk reduction, and there remains a residual risk that provides the focus of ongoing management plans. In some situations, it is impossible to eliminate risks entirely, such as the risks to every citizen of driving a car on the public highway, for example.

Chapter 6 of the draft EIS presents a summary of the risk assessment procedure used, which is based upon the concepts identified in ISO 31000. Table 6-7 presented in Section 6.5.3 of the draft EIS presents a summary of the general descriptors of risk, from 'extreme' to 'eliminated'. This table has been reproduced below as Table 5-66.

Table 5-66 Management and mitigation measures

Initial impact significance rating	Mitigation response
Eliminated	No mitigation or management is typically required because the risk has been removed by either removing the risk through design changes and/or consultation with key stakeholders.
Low	Management of impacts should be addressed in day to day management. Monitoring may be required to validate that impacts are low.
Medium	Management of impact will be required and closely monitored to check that impacts are not more severe than predicted. Replacement may be required where consequence of the action on resources of low or moderate value is extreme (i.e. complete loss of the resource). Rehabilitate disturbed areas is likely and monitoring required to check effectiveness of mitigation measures.
High	High impacts must be avoided where ever possible and otherwise offset or fully compensated. An environmental bond must be in place. Ongoing monitoring is recommended to confirm effectiveness of mitigation and management measures.
Extreme	Risks must be designed out, eliminated or fully offset or compensated with offset and / or compensation measures in place before the project proceeds. International and national standards will need to be complied with and specialists with internationally or nationally recognised expertise should be involved in development and implementation of mitigation and offsetting. High level of ongoing monitoring is required to confirm effectiveness of mitigation measures and whether additional mitigation or other corrective actions are required.



Please note that the general description of 'medium' level risks are:

'Management of impact will be required and closely monitored to check that impacts are not more severe than predicted. Replacement may be required where consequence of the action on resources of low or moderate value is extreme (i.e. complete loss of the resource). Rehabilitate disturbed areas is likely and monitoring required to check effectiveness of mitigation measures.'

Mitigation and management measures proposed to reduce traffic impacts during construction, operation, and closure and rehabilitation of the Proposal are listed in Table 18-4 of the draft EIS. This table has been reproduced below as Table 5-67. These measures would include the development of a Traffic Management Plan (TMP) in line with Australian Standard 1742.3. The TMP would be incorporated into the CEMP, OEMP and RCP for the Proposal.

Table 5-67 Mitigation and management measures (traffic and transportation)

ID	Outcome	Mitigation/management measure	Timing
T.1	Minimise traffic and transportation impacts and reduce risk of vehicle collision and human collision with vehicle	Prepare and implement a Construction Traffic Management Plan in consultation with the NT Department of Transport in accordance with Australian Standard 1742.3	Pre-construction
T.2	Minimise traffic and transportation impacts	Install appropriate speed and warning signage prior to and at the crossing of Chambers Pillar Road.	Construction
T.3	Prevention of accidents between trucks hauling waste and salt along the Chandler Haul Road.	Develop a collision avoidance system for the Chandler Haul Road. Include the provision of a visible and/or audible alarm system to confirm the presence of vehicles traveling along the proposed Chandler Haul Road. Alarm system would alert drivers of haul trucks when another truck is within 500 metres, requiring a reduction in speed.	Operation
T.4	Minimise traffic and transportation impacts	Restrict speed limits to no more 60km/hr on the proposed Chandler Haul Road and Henbury Access Road. Ensure vehicles reduce speed and come to a complete stop at the crossing of Chambers Pillar Road.	Construction, operation, closure and rehabilitation
T.5	Minimise traffic and transportation impacts	Commit to workplace programs regarding road safety.	Construction, operation, closure and rehabilitation
T.6	Access to surrounding properties maintained	Maintain access to surrounding properties for the duration of the Proposal.	Construction, operation, closure and rehabilitation
T.7	Minimise traffic and transportation impacts and reduce	Prepare and submit to the NT Department of Transport a Construction Traffic Management	Pre-construction



ID	Outcome	Mitigation/management measure	Timing
	risk of vehicle collision and human collision with vehicle	Plan in accordance with Australian Standard 1742.3	
T.8	Understanding traffic impacts following final detailed design	The proponent would prepare a Traffic Impact Statement and submit to the NT Department of Transport.	Pre-construction.

Issue raised

Henbury Access Road risks - In respect of Henbury Access Road and Chandler Haul Road, we note that a range of medium level hazards have not been fully addressed, including:

- (b) dust contaminating cattle/cattle feed particularly from traffic, construction and earthworks;

Proponent's response

Please refer to the proponent's response to at HH 11(a) (Section 5.16.11). Medium level risks would be mitigated/managed through the development of management plans that would be prepared prior to construction of the Proposal.

Mitigation and management measures proposed to minimise the potential impacts on air quality (including dust on sensitive receptors, such as cattle) during construction, operation, and closure and rehabilitation of the Proposal are listed in Table 5-11 of the draft EIS. This table is reproduced below as Table 5-68. These measures would include the development of an Air Quality Management Plan that would be incorporated into the CEMP, OEMP and/or RCP for the Proposal.

Table 5-68 Mitigation and management measures (air quality)

ID	Outcome	Mitigation/management measure	Timing
AQ.1	Minimisation of air quality and human health impacts	Prepare an Air Quality Management Plan.	Pre-construction
AQ.2	Minimisation of dust and associated human health risks	Ensure effective communication between potentially affected communities and the proponent.	Construction
AQ.3	Minimisation of dust and associated human health risks	Perform daily on-site and off-site inspections.	Construction
AQ.4	Minimisation of dust and associated human health risks	Promote a program of considerate vehicle operation and sustainable travel.	Construction
AQ.5	Minimisation of dust and associated human health risks	Use enclosed tankers for the transportation of bulk materials.	Construction
AQ.6	Minimisation of dust and associated human health risks	Implement measures to ensure that vehicle track-out is adequately controlled.	Construction



ID	Outcome	Mitigation/management measure	Timing
AQ.7	Minimisation of dust and associated human health risks	Establish a dust monitoring network to monitor dust emissions within the development envelope. Dust monitors would likely be installed at: <ul style="list-style-type: none"> • Chandler Facility • Apirnta Facility • Accommodation village • Community of Titjikala (refer to Figure 15-2 of the draft EIS). 	Construction
AQ.8	Minimisation of particulate emissions from mine surface operations	Ensure use of diesel engines that comply with the emission standards of the United States Environmental Protection Agency (Tier 4 Emission Standards).	Operation
AQ.9	Minimisation of particulate emissions from mine surface operations	Install windbreaks at run-of-mine salt stockpiles.	Operation
AQ.10	Minimisation of particulate emissions from mine surface operations	Install windbreaks at sandstone, shale, limestone and topsoil stockpiles. In addition to windbreaks, shape and profile and rehabilitate stockpiles, as necessary.	Operation
AQ.11	Minimisation of dust and associated human health risks	Enforce vehicle speed restrictions, undertake surface improvements or surface treatments (including wet suppression and chemical stabilisation).	Operation
AQ.12	Minimise risk of loss of containment of waste materials	Ensure handling of IBC/FIBC from TEU containers is performed on a strict one-at-a-time basis, to avoid the potential for spillage of contents of multiple containers.	Operation
AQ.13	Minimise risk of loss of containment of waste materials	Ensure containers are removed from trucks in an appropriately bunded area to minimise the surface area of any spills and to enable efficient clean-up of any spilled materials. Ensure liquid waste is managed through a liquid waste collection system designed to allow for sufficient capacity of liquids to be removed (e.g. 110% of potential spill volume).	Operation
AQ.14	Minimise risk of loss of containment of waste materials (transportation)	Develop a collision avoidance system that provides a visible and audible positive confirmation of the presence of other vehicles travelling along the proposed Chandler Haul Road. Visible and audible alarm would alert drivers when haul trucks are within 500 metres of each other, requiring a reduction in speed.	Operation
AQ.15	Minimise risk of loss of containment of waste materials (transportation)	Restrict loads containing common and/or more toxic waste components, such that: <ul style="list-style-type: none"> • Less than one TEU equivalent is carried in one movement. • Less than one TEU equivalent is carried in any two sequential movements (to manage out the potential of loss of containment from collisions). 	Operation
AQ.16	Minimise risk of loss of containment of waste materials (transportation)	Manage loss of containment at Orange Creek, Desert Oaks Motel, Stuart Wells and at the Apirnta Facility	Operation



ID	Outcome	Mitigation/management measure	Timing
		through the implementation of specific mitigation measures, which include: <ul style="list-style-type: none">• A pre-prepared management response plan would be prepared for each location.• Restrictive speed limits imposed for road transport as it passes each of the locations.• The content of the response plan would need to be communicated to the respective residents, and also posted prominently for public reference in the unlikely event of a loss of containment at those locations.• The provision of spill kits at each location.	

Issue raised

Henbury Access Road risks - In respect of Henbury Access Road and Chandler Haul Road, we note that a range of medium level hazards have not been fully addressed, including:

- (c) introduction of fauna and impact on cattle;

Proponent's response

Please refer to the proponent's response provided at HH 11(a) (Section 5.16.11). Medium level risks would be mitigated /managed through the development of management plans that would be prepared prior to construction of the Proposal.

Table 12-1 in Appendix 6 (Draft Biodiversity Management Plan) contained within Appendix O (Risks to Biodiversity Report) of the draft EIS committed to the preparation of a Pest Fauna Management Plan that would be implemented during construction, operation, and closure and rehabilitation of the Proposal. Note, though, that Table 12-1 has been revised so that the mitigation measures are 'SMART' (refer to the proponent's response to DEE 14, specifically Table 5-12 in Section 5.1.14). Mitigation measures that would be included in the Pest Fauna Management Plan would include (but would not be limited to), the following:

- Develop and implement a no tolerance policy to the introduction of pest species by contractors, suppliers and personnel.
- Develop and implement an introduced fauna control program in consultation with stakeholders.
- Install fauna proof fence around infrastructure.
- Reduce artificial standing water.
- Prevent access to artificial water and heat sources through construction of fences. Ensure the top fence wire is not barbed for avifauna.



- Place brush or vegetation stockpiles across linear developments no longer required (access tracks etc.) to inhibit movement of predators and introduced herbivores.
- Dispose of all waste in predator-proof bins.
- No feeding of fauna, native or introduced, on site.
- Remove any dead fauna or insects from the Proposal and either dispose off-site or bury > 50cm deep to avoid predators uncovering.
- Close off and rehabilitate any cleared areas no longer required for safe operation.
- Trap and relocate predator species if they are noticed to have increased in numbers and habituate around facilities. Trapping and relocating of fauna would be undertaken by a qualified ecologist.

Issue raised

Henbury Access Road risks - In respect of Henbury Access Road and Chandler Haul Road, we note that a range of medium level hazards have not been fully addressed, including:

- (d) management of flooding and the need for stormwater drains or culverts (whilst not a direct risk, details are not provided);

Proponent's response

Please refer to the proponent's response provided at HH 11(a) (Section 5.16.11). Medium level risks would be mitigated /managed through the development of management plans that would be prepared prior to construction of the Proposal.

Mitigation and management measures proposed to minimise the potential impacts on surface water (including flooding) during construction, operation, and closure and rehabilitation of the Proposal are listed in Table 9-16 of the draft EIS. This table is reproduced below as Table 5-69. These measures would be incorporated into a Sediment and Erosion Management Plan (draft provided in Appendix L of the draft EIS) and a Water Management Plan (draft provided in Appendix Q of the draft EIS) that would be incorporated into the CEMP, OEMP and/or RCP for the Proposal.

Table 5-69 Mitigation and management measures (surface water)

ID	Outcome	Mitigation/management measure	Timing
SW1	Management of floodwater draining towards the Chandler Facility from the Maryvale Hills upstream of the mine site.	Formalise drainage channels through or around the site so that upstream runoff does not cause flooding of the site, and so that it is not contaminated by site runoff or sedimentation. Raise flood prone site infrastructure above surrounding ground level. Diversion channels should be designed according to best practice guidance including	Detailed design and pre-construction



ID	Outcome	Mitigation/management measure	Timing
		sizing and lining type (IECA, 2008). Estimates of water volumes generated during storm events at the three sites are given in the Flood and Hydrology Assessment for different return periods. These diversion channels would reduce the amount of “dirty water” requiring management, improve wet weather access to the sites and limit erosion and sediment mobilisation on the sites.	
SW2	Improved water quality and attenuation of surface water flow.	Treat runoff to improve water quality resulting in an attenuation of flows, mitigating any increase in runoff peak flows or volumes.	Pre-construction
SW3	Movement or reconfiguration of Halfway Dam.	Investigate current and future use of the Halfway Dam. Develop proposals to move or reconfigure the dam and intake.	Pre-construction
SW4	Management of floodwater on Chandler Haul Road.	Manage floodwater by: <ul style="list-style-type: none"> • Raising the road above surrounding ground level to prevent flooding. • Installing culverts to pass flood flow and reduce/minimise upstream ponding. • Installing causeways over which floodwaters in excess of the design event can pass, but that raise the road above frequent flood levels. • Carrying out repairs, following flood events, as necessary. 	Pre-construction
SW5	Minimisation of impacts from the Henbury Access Road at the Finke River crossing.	Limit the engineering required to cross the river.	Construction
SW6	No long term alterations to local hydrology.	Allow natural surface drainage to continue without interruption, where possible.	Construction
SW7	No long term alterations to local hydrology.	Avoid clearing or disturbance to watercourses or drainage depressions, where possible.	Construction
SW8	No long term alterations to local hydrology.	Avoid infrastructure developments in any watercourse or drainage depressions, where possible.	Construction
SW9	No long term alterations to local hydrology.	Ensure no impedance to natural creek flow, where possible.	Construction
SW10	No long term alterations to local hydrology.	Develop creek crossings to natural contours of creek bed.	Construction
SW10	No long term alterations to local hydrology.	Remove any concentrations points that would impede natural sheet flow.	Construction
SW12	No long term alterations to local hydrology.	Ensure minimal disturbance within watercourse buffer zones.	Construction
SW13	No long term alterations to local hydrology.	Leave large mature trees and shrubs, where possible.	Construction
SW14	No long term alterations to local hydrology.	Conduct routine inspection and maintenance of drains and watercourses.	Construction, operation,



ID	Outcome	Mitigation/management measure	Timing
			closure and rehabilitation
SW15	Avoidance of spills or accidental loss of hazardous materials.	Store hazardous waste within a bunded area sufficient to hold 110% of all material.	Construction, operation, closure and rehabilitation
SW16	Additional monitoring	Undertake level/flow measurements on Halfway Dam catchment and three to four catchments draining to the Chandler Haul Road or Chandler Facility, and including the catchment draining through the Apirnta Facility.	Pre-construction; construction, closure and rehabilitation.
SW17	Additional investigations during detailed design	Develop stormwater models of the Chandler Facility and Apirnta Facility, including the management of site runoff and the diversion /conveyance of floodwaters from upstream catchments around the sites.	Pre-construction
SW18	Additional investigations during detailed design	Develop two-dimensional modelling of flow paths and inundation in the mine lease area, including the 'washout area' to better understand the potential for floodwaters to reach the Hugh River near Titjikala. This investigation would include an assessment of infiltration and evaporation.	Pre-construction
SW19	Additional investigations during detailed design	Model flood risk and scour protection at the crossing of the Finke River.	Pre-construction
SW20	Additional investigations during detailed design	Model flood risk ¹¹ of haul crossings (bridges, culverts, causeways) of drainage lines.	Pre-construction
SW21	Develop site specific water quality guidelines	Develop guidelines for both the no-flow and flowing phases. This could be done by collecting and interrogating monitoring data and developing conceptual, probabilistic and/or numerical models that incorporate flow, catchment and in-stream influences. This site-specific system would be developed during detailed design and as part of the Water Management Plan and relies on obtaining more site data.	Pre-construction
SW22	No offsite sedimentation	Improving water retention by slowing upstream surface flow and improving transmission properties, which provides more time for water to infiltrate	Pre-construction and Construction
SW23	Preventing erosion and sedimentation	Decreasing runoff rate and its velocity by providing appropriate surface drainage systems for safe conduct of water into pre-designed surface storage systems (Section 5	Pre-construction
SW24	No offsite pollution	Silty or oily water should not be used for dust suppression purposes, because this would	Construction and operation

¹¹ The modelling would include an expanded suite of design events, including extreme events such as the Probable Maximum Flood



ID	Outcome	Mitigation/management measure	Timing
		transfer pollutants to the haul roads or generate more dust	
SW25	No offsite release of salt laden sediment	A clay lined drainage swale would be constructed around the perimeter of the run of mine salt stock pile to prevent offsite release of salt laden sediment	Operation
SW26	Prevent sediment from being tracked off site and onto the road	It is recommended that one entry / exit point to the Apirnta Facility and Chandler Facility sites should be established. If the site slopes towards this entry / exit, drainage and sediment control devices should be installed so that all sediment laden runoff can be fully contained and treated on-site	Pre-construction
SW27	Prevent sediment from being tracked off site and onto the road	Vehicles and construction equipment may require washing to prevent transfer and accumulation of mud on the haulage and access roads. Alternatively, manned jet washes or lance sprays could be used in a bunded area where the runoff can be contained and channelled to a treatment area, such as a settlement pond.	Construction and operation
SW28	Best practice in stockpile management	Soil and sand stockpiles need to be located within the compound and upslope of a sediment control. Impervious covers, filter fences, mulch berms or sediment fences.	Construction and operation
SW29	Prevent sediment runoff	Provision of a sediment trap, such as a mulch bank or a sediment fence, on the downslope boundaries of the Apirnta Facility, Chandler Facility and haulage roads is recommended. The mulch banks and sediment fencing should be positioned on the contour where possible	Construction and operation and closure
SW30	Prevent sediment runoff	Onsite drop inlet pits and haulage road side entry pits should be protected prior to the commencement of works or as soon as constructed	Construction and operation and closure
SW31	Prevent sediment runoff	Buffer strips and vegetation filters should be employed, where practical, along the haulage road instead of sediment trapping structures (DLRM, 2013b)	Construction and operation and closure
SW32	Best possible location for the replacement of Halfway Dam	Make use of a similar gully or depression off-line from an adjacent to a creek with similar catchment area nearby on gently sloping terrain (<15%). A site investigation and selection should be undertaken to optimise the sustainable use of available water within a dam's catchment. The size of the catchment, soil and vegetation characteristics and path of surface run-off water determines what water is available within a catchment. Contour maps should be used to predict the	Detailed design



ID	Outcome	Mitigation/management measure	Timing
		path of rainfall and irrigation run-off within the dam's catchment.	
SW33	Prevent the release of stormwater offsite	Stormwater from disturbed areas would not be discharged into down-gradient properties. To capture 'dirty' surface runoff, u-shaped earth banks would be constructed to pond water (DLRM, 2013b).	Detailed design and pre-construction
SW34	Provide habitat and prevent erosion	Retained vegetation can have the dual purpose of not only assisting in the settling of sediment from overland flows, but also provide a refuge for flora and fauna.	Construction and operation.
SW35	Prevent erosion and sedimentation	A disturbance plan would be prepared following the completion of detailed design. This would be done to retain or preserve as much of the existing vegetation as possible would be implemented, especially adjacent to drainage lines. Identification of any areas to be used as 'turn around' or laydown areas should be completed with an indication in the Construction Notes how cleared and NO-GO areas would be implemented e.g. GPS data provided to clearing contractors and areas flagged on the ground prior to any clearing activity.	Pre-construction
SW36	Retain riparian vegetation and prevent offsite release of sediments.	DLRM Land Clearing Guidelines provide information on required buffer zones for watercourses (DLRM, 2013a and DLRM, 2013b). To be effective as a sediment control, the area for retention should contain at least 80% ground cover. Buffer zones for the Apirnta Facility, Chandler Facility, and Haulage Roads have been developed based on stream order. The bulk of buffer zones are 25 metres. The exception is Charlotte Creek, a second order stream, requiring a buffer of 50 metres.	Construction and operation

Issue raised

Henbury Access Road risks - In respect of Henbury Access Road and Chandler Haul Road, we note that a range of medium level hazards have not been fully addressed, including:

- (e) waste spillage;

Proponent's response

Please refer to the proponent's response provided at HH 11(a) (Section 5.16.11)). Medium level risks would be mitigated /managed through the development of management plans that would be prepared prior to construction of the Proposal.



Mitigation and management measures proposed to minimise the potential impacts on human health (including the risk of waste spillage) during construction, operation, and closure and rehabilitation of the Proposal are listed in Table 11-2 of the draft EIS. An extract of Table 11-2 (with regards to waste spillage) has been reproduced below as Table 5-70. These measures would be incorporated into an Emergency Response Management Plan (a draft of which is provided in Appendix T of the draft EIS) that would be incorporated into the CEMP, OEMP and/or RCP for the Proposal.

Table 5-70 Mitigation and management measures (human health and safety)

ID	Outcome	Mitigation/management measure	Timing
HS.1	Minimisation of potential impacts on human health and the environment through responsible storage and handling of hazardous materials.	Finalise Safety Case for a Major Hazard Facility in accordance with the NT <i>Work Health Safety Act</i> and the NT WHS Regulations 536, 537 and 547 administered by NT WorkSafe and the Australian Dangerous Goods Code 2007.	Detailed design
HS.2	Minimisation of potential impacts on human health and the environment.	Finalise Emergency Response Management Plan.	Pre-construction
HS.3	Minimisation of potential impacts on human health and the environment.	Update Environmental Management System with management plans and procedures relevant to the construction, operation and closure and rehabilitation of the Proposal.	Pre-construction, construction, operation, closure and rehabilitation
HS.4	Minimisation of potential impacts on human health and the environment through responsible transportation, storage and handling of hazardous materials.	<ul style="list-style-type: none"> Transport, store and handle hazardous materials in accordance with industry regulations, codes and standards (e.g. <i>Work Health and Safety (National Uniform Legislation)</i> Act and the NT WHS Regulations Adhere to Chandler Safety Case. Adhere to Chandler Waste Acceptance Procedure (WAP), Waste Acceptance Criteria (WAC) and Waste Zoning Guide (WZG). Adhere to Emergency Response Management Plan. 	Construction, operation, closure and rehabilitation
HS.5	Minimisation of potential impacts on human health and the environment through responsible transportation of hazardous materials.	<ul style="list-style-type: none"> Transport hydrocarbons in compliance with the Australian Dangerous Goods Code 2007. Ensure all vehicles are registered and carry appropriate equipment to respond to a spill, including personal protective equipment (PPE). 	Construction, operation, closure and rehabilitation
HS.6	Minimisation of potential impacts on human health and the environment through responsible handling of hazardous materials.	Ensure personnel are trained in the appropriate handling of hazardous materials and in clean-up procedures in the event of a spill.	Construction, operation, closure and rehabilitation
HS.7	Minimisation of potential impacts on human health	Store diesel in 30,000 litre self-bunded tanks manufactured in compliance with Australian	Construction, operation



ID	Outcome	Mitigation/management measure	Timing
	and the environment through responsible storage of hazardous materials.	Standard (AS)1692 (Steel Tanks for Flammable and Combustible Liquids) and installed in compliance with AS1940 (The Storage and Handling of Flammable and Combustible Liquids).	
HS.8	Minimisation of potential impacts on human health and the environment through responsible storage of hazardous materials.	<ul style="list-style-type: none"> • Store lubricating oil in bulk containers inside a bunded area with spill protection and recovery kits. • Ensure waste hydrocarbons are stored in tanks inside a bunded area and held for collection by an appropriately licensed contractor for reprocessing and recycling. 	Construction, operation
HS.9	Minimisation of potential impacts on human health and the environment through responsible storage and handling of hazardous materials.	Store ammonium nitrate in a dedicated building and in accordance applicable regulations, codes and standards. Ensure that ammonium nitrate is handled by appropriately trained personnel.	Construction, operation
HS.10	Minimisation of potential impacts on human health and the environment through appropriate clean-up of spills in accordance with Emergency Response Management Plan.	<p>In the event of a spill of hazardous material, implement the strategies outlined in the Emergency Response Management Plan. These strategies would include (but would not be limited to):</p> <ul style="list-style-type: none"> • Isolating and containing spill using spill kit. • Evacuating area if potential danger exists. • Notifying Environmental Manager. Provide location, extent, substance type, quantity, environments impacted (e.g. soils, surface watercourses, groundwater) and spill kit contents used. • Using spill kit to remove the contamination source or, where relevant, excavate and appropriately dispose of contaminated sediments. • Commencing investigation into soil, surface and/or groundwater impacts from the spill. Detail spill quantity, determine extent and significance of impact to human health and/or environment (including upstream/control samples, as required). • Providing DPIR with Section 29 Notification and NT EPA with Section 14 Incident Report Form within 24 hours of incident occurring if the incident caused or is threatening or may threaten to cause pollution resulting in minor or serious environmental harm. • Ensuring spill kits are located at all hazardous material storage locations. Spill 	Construction, operation, closure and rehabilitation



ID	Outcome	Mitigation/management measure	Timing
		kits would be available to be relocated to specific areas in accordance with scopes of work.	
HS.11	Minimisation of potential impacts on human health and safety (general)	Establish emergency medical safety points containing eye flush/body flush stations and first aid kits at easily identifiable key locations above and underground.	Construction, operation, closure and rehabilitation
HS.12	Minimisation of potential impacts on human health and safety (exposure from fuel spills)	<ul style="list-style-type: none"> Adhere to WAP and WAC. Wear appropriate PPE. 	Construction, operation, closure and rehabilitation
HS.13	Minimisation of potential impacts on human health and safety (pedestrian and vehicle interactions)	<ul style="list-style-type: none"> Develop Traffic Management Plan. The plan would include standard traffic rules, signage etc. It would also include collision avoidance system (refer to Chapter 15) Mark designated pedestrian areas. Promote driver competency through training programs, as necessary. 	Construction, operation, closure and rehabilitation

Issue raised

Henbury Access Road risks - In respect of Henbury Access Road and Chandler Haul Road, we note that a range of medium level hazards have not been fully addressed, including:

- (f) road formation resulting in changes to the area's hydrology

Proponent's response

Please refer to the proponent's response provided at HH 11(a) (Section 5.16.11). Medium level risks would be mitigated /managed through the development of management plans that would be prepared prior to construction of the Proposal.

Mitigation and management measures proposed to minimise the potential impacts on surface water (including hydrology) during construction, operation, and closure and rehabilitation of the Proposal are listed in Table 9-16 of the draft EIS (this table has been reproduced above as Table 5-69). These measures would be incorporated into a Sediment and Erosion Management Plan (draft provided in Appendix L of the draft EIS) and a Water Management Plan (draft provided in Appendix Q of the draft EIS) that would be incorporated into the CEMP, OEMP and/or RCP for the Proposal.

Issue raised

Henbury Access Road risks - In respect of Henbury Access Road and Chandler Haul Road, we note that a range of medium level hazards have not been fully addressed, including:

- (g) soil erosion during road construction leading to excess sedimentation in watercourses;
and



Proponent's response

Please refer to the proponent's response provided at HH 11(a) (Section 5.16.11). Medium level risks would be mitigated /managed through the development of management plans that would be prepared prior to construction of the Proposal.

Mitigation and management measures proposed to minimise the potential impacts on surface water (including sedimentation and erosion) during construction, operation, and closure and rehabilitation of the Proposal are listed in Table 9-16 of the draft EIS (this table has been reproduced above as Table 5-69). These measures would be incorporated into a Sediment and Erosion Management Plan (draft provided in Appendix L of the draft EIS) and a Water Management Plan (draft provided in Appendix Q of the draft EIS) that would be incorporated into the CEMP, OEMP and/or RCP for the Proposal.

Issue raised

Henbury Access Road risks - In respect of Henbury Access Road and Chandler Haul Road, we note that a range of medium level hazards have not been fully addressed, including:

(h) fauna strike (vehicle)

Proponent's response

Please refer to the proponent's response provided at HH11 (a) (Section 5.16.11). Medium level risks would be mitigated /managed through the development of management plans that would be prepared prior to construction of the Proposal.

Mitigation and management measures proposed to minimise the potential impacts on biodiversity (including the risk of vehicle strike) during construction, operation, and closure and rehabilitation of the Proposal are listed in Table 7-11 of the draft EIS. An extract of Table 7-11 (with regards to fauna injury/mortality) has been reproduced below as Table 5-71.

Mitigation and management measures were also detailed in Table 12-1 in Appendix 6 (Draft Biodiversity Management Plan) of Appendix O (Risks to Biodiversity Report) of the draft EIS. Note, though, that Table 12-1 has been revised so that the mitigation measures are 'SMART' (refer to the proponent's response to DEE 14, specifically Table 5-12 in Section 5.1.14). These measures would be incorporated into the CEMP, OEMP and/or RCP for the Proposal.



Table 5-71 Biodiversity mitigation and management measures (fauna injury/mortality)

ID	Outcome	Mitigation/management measure	Timing
B.11	Reduced incidence of fauna injury/ mortality	Ensure fauna is removed from areas intended to be cleared by a qualified ecologist.	Pre-construction and construction
B.12	Reduced incidence of fauna injury/ mortality	Avoid driving during high risk times; dawn, dusk and at night, where possible.	Construction, operation, closure and rehabilitation
B.13	Reduced incidence of fauna injury/ mortality	Prohibit off-road driving.	Construction, operation, closure and rehabilitation
B.14	Reduced incidence of fauna injury/ mortality	Develop and maintain a fauna strike register.	Construction, operation, closure and rehabilitation
B.15	Reduced incidence of fauna injury/ mortality	Limit access of third parties on-site.	Construction, operation, closure and rehabilitation
B.16	Reduced incidence of fauna injury/ mortality	Ensure traffic adheres to speed limits and local road rules.	Construction, operation, closure and rehabilitation
B.17	Reduced incidence of fauna injury/ mortality	Ensure speed limit and potential fauna crossing signs clearly are displayed on Chandler Haul Road, Henbury Access Road and other access tracks, as necessary.	Construction, operation, closure and rehabilitation

5.16.12 HH 12

Issue raised

Future management plans - Although many documents have been prepared, some of the plans are in draft form or incomplete, and should be further refined in order to clarify localised impacts arising from the proposed development. These include, in addition to those referred to above:

- (a) a Landscape Management Plan should be prepared and provided to us for review and endorsement, given the relationship of the proposed development to Henbury Station;

Proponent's response

A Construction Environment Management Plan (CEMP), Operational Environment Management Plan (OEMP) and a Rehabilitation and Closure Plan (RCP) would be prepared and/or finalised after regulatory approval and submitted to the relevant stakeholders (as appropriate) for review and approval prior to construction of the Proposal. These plans would contain various sub-plans, as listed in Section 20.1 of the draft EIS. Some of these sub-plans were provided as drafts in the draft EIS. All sub-plans would be finalised for inclusion in the CEMP, OEMP and/or RCP for the Proposal.

The CEMP, OEMP and RCP would form components of a comprehensive Environmental Management System that would cover the life-cycle of the Proposal.

As discussed in Section 17.8 of the draft EIS, a Landscape Concept Plan would be prepared during detailed design of the Proposal. Measures in the plan would include the consideration of existing



landscape features when siting infrastructure and choosing building materials and treatments to minimise the potential visibility of the Proposal. This plan would be developed in consultation with Henbury Station but must be approved by relevant NT Government authorities.

Issue raised

Future management plans - Although many documents have been prepared, some of the plans are in draft form or incomplete, and should be further refined in order to clarify localised impacts arising from the proposed development. These include, in addition to those referred to above:

- (b) additional information is needed to verify that risks in relation to potential flooding and contamination of surface water have been appropriately addressed;

Proponent's response

It is not feasible to complete management plans for the Proposal until detailed design has been completed. Subject to project approval and a successful capital raise, the proponent is due to commence a BFS in early 2018 with a view to finalising management plans by the close of 2018.

Issue raised

Future management plans - Although many documents have been prepared, some of the plans are in draft form or incomplete, and should be further refined in order to clarify localised impacts arising from the proposed development. These include, in addition to those referred to above:

- (c) a Rehabilitation and Closure Plan has been prepared, however it is limited in its approach to mitigate risks;

Proponent's response

Risks during rehabilitation and closure of the Proposal are discussed in detail in Section 13.3 of the draft EIS.

Mitigation and management measures proposed to minimise impacts during closure and rehabilitation of the Proposal were listed in Chapter 7 through Chapter 19 of the draft EIS. These measures would be incorporated into a Rehabilitation and Closure Plan (RCP) for the Proposal. A draft RCP has been prepared for the Proposal and is provided in Appendix J of the draft EIS.

As discussed above, a Construction Environment Management Plan (CEMP), Operational Environment Management Plan (OEMP) and a RCP would be prepared and/or finalised after regulatory approval and submitted to the relevant stakeholders (as appropriate) for review and approval prior to construction of the Proposal. These plans would form components of a comprehensive Environmental Management System that would cover the lifecycle of the Proposal.



Issue raised

Future management plans - Although many documents have been prepared, some of the plans are in draft form or incomplete, and should be further refined in order to clarify localised impacts arising from the proposed development. These include, in addition to those referred to above:

- (d) a Construction and Environment Management Plan (CEMP): needs to cover all aspects of potential soil and water contamination and mitigation measures, including:
 - (i) the potential risk of soil erosion leading to excess sedimentation in watercourses needs further consideration;
 - (ii) the risk that haul road construction will alter hydrology. Further design parameters and methodology for the haul and access roads **are required**.

Proponent's response

As discussed above, a Construction Environment Management Plan (CEMP), Operational Environment Management Plan (OEMP) and a Rehabilitation and Closure Plan (RCP) would be prepared and/or finalised after regulatory approval and submitted to the relevant stakeholders (as appropriate) for review and approval prior to construction of the Proposal. These plans would contain various sub-plans, as listed in Section 20.1 of the draft EIS. Among these sub-plans would be a Sediment and Erosion Management Plan (draft provided in Appendix L of the draft EIS) and a Water Management Plan (draft provided in Appendix Q of the draft EIS). These sub-plans would cover all aspects of potential soil and water contamination during construction, operation and closure and rehabilitation of the Proposal. All sub-plans would be finalised for inclusion in the CEMP, OEMP and/or RCP for the Proposal.

The CEMP, OEMP and RCP would form components of a comprehensive Environmental Management System that would cover the life-cycle of the Proposal.

Issue raised

Once these further documents and details have been provided, Henbury Holdings will require a reasonable time to consider and respond.

Proponent's response

As discussed above, a Construction Environment Management Plan (CEMP), Operational Environment Management Plan (OEMP) and a Rehabilitation and Closure Plan (RCP) would be prepared and/or finalised after regulatory approval and submitted to the relevant stakeholders (as appropriate) for review and approval prior to construction of the Proposal.



5.17 Australian Conservation Foundation

Issues identified by the Australian Conservation Foundation are provided in Table 5-72. A response to each issue is provided in Section 5.17.1 through Section 0.

Table 5-72 Issues identified by Australian Conservation Foundation

Issue reference	Issue raised
ACF 1	<p>Radioactive wastes – ACF notes and welcomes that the project specifically excludes the handling of low, intermediate and high level radioactive wastes (Table 3.6). This needs to be clearly articulated and explicitly reinforced in any future licensing and regulatory approvals.</p> <p>Elsewhere in the proponents documents it states:</p> <p><i>Nuclear material: Wastes classified as nuclear wastes will not be accepted at the proposed Chandler facility. For the avoidance of doubt the definition of nuclear waste does not include waste that results from the use of the products of a nuclear plant.</i></p> <p><i>Nuclear material is waste of a nuclear plant; or results from the testing, use or decommissioning of nuclear weapons, whether or not that material has been conditioned or reprocessed.</i></p> <p>ACF is concerned about a possible definitional inconsistency between the two approaches to radioactive/nuclear materials at the proposed facility. We seek clarification whether this would or could allow the facility to handle industrial, medical and possibly legacy radioactive wastes given that the definition of nuclear waste expressed here clearly <i>does not include waste that results from the use of the products of a nuclear plant.</i></p> <p>We are concerned over the potential for future project creep and the extension of materials deemed acceptable at any future facility. We urge the explicit rejection of non-NORM radioactive and nuclear waste along with any international origin waste.</p>
ACF 2	<p>Waste Acceptance Criteria – ACF is notes the lack of reference and detail to any waste conditioning and containerisation capacity at the proposed facility. There is a need for further detail of Waste Acceptance Criteria and for how non-compliant wastes would be handled. ACF views the process outlined in the proposal – that such wastes would be quarantined and returned to the waste generator – as inadequate. As is the related approach of the operator contacting ‘the relevant regulatory authority’ (p 3.62).</p>
ACF 3	<p>Waste Acceptance Procedure – ACF seeks further detail in relation to the N4 rejection notice process and the fact that the proponent may decide to treat or re-package non-compliant waste at the cost of the customer (p 3.95). Who decides this, on what basis, where is this treatment done and what likelihood is there that waste producers will simply pay an extra premium and routinely ship non-compliant material to the facility? ACF seeks further attention to these and related waste acceptance and conditioning issues.</p>
ACF 4	<p>Hydraulic backfill – ACF notes that the proposed facility clearly has a preference towards bulk handling and hydraulic backfill and that much of the modelling around this is preliminary and there is uncertainty over the approach and implications of particle reduction works. These assumptions and models need further pre-approval development and articulation. ACF also seeks further detail on the proposed size and weight bearing properties of the pillars in the proposed pillar and room method.</p>
ACF 5	<p>Engineering of salt rooms – ACF also seeks further detail on the proposed size and weight bearing properties of the pillars in the proposed pillar and room method.</p>
ACF 6	<p>Institutional control period – ACF contests the assertions made throughout the proposal that the facility would permanently isolate contaminants from the wider bio-sphere. This may be</p>



Issue reference	Issue raised
	<p>the proponent's intention however it cannot be assumed as an outcome.</p> <p>This is of relevance given the lack of agreement over the institutional control period and the need for greater clarity in relation to closure and post-closure obligations and responsibilities and the adequacy of post closure financial provisions. It is imperative that these issues are detailed and adequate provision identified during the assessment process and capacity provision realised at the front end of any subsequent project.</p>

5.17.1 ACF 1

Issue raised

ACF notes and welcomes that the project specifically excludes the handling of low, intermediate and high level radioactive wastes (Table 3.6). This needs to be clearly articulated and explicitly reinforced in any future licensing and regulatory approvals.

Elsewhere in the proponents documents it states:

Nuclear material: Wastes classified as nuclear wastes will not be accepted at the proposed Chandler facility. For the avoidance of doubt the definition of nuclear waste does not include waste that results from the use of the products of a nuclear plant.

Nuclear material is waste of a nuclear plant; or results from the testing, use or decommissioning of nuclear weapons, whether or not that material has been conditioned or reprocessed.

ACF is concerned about a possible definitional inconsistency between the two approaches to radioactive/nuclear materials at the proposed facility. We seek clarification whether this would or could allow the facility to handle industrial, medical and possibly legacy radioactive wastes given that the definition of nuclear waste expressed here clearly *does not include waste that results from the use of the products of a nuclear plant*.

We are concerned over the potential for future project creep and the extension of materials deemed acceptable at any future facility. We urge the explicit rejection of non-NORM radioactive and nuclear waste along with any international origin waste.

Proponent's response

Radioactive waste (e.g. nuclear and uranium mining waste) would not meet the strict Waste Acceptance Criteria (WAC) that have been established for the Proposal. Radioactive waste would not be stored at either the proposed Chandler Facility or the Apirnta Facility. The proponent is, however, planning to accept Naturally Occurring Radioactive Material (NORM) up to Exemption Level¹² (EW) activity content, which is the lowest activity level on the waste classification scheme (refer to Section

¹² 2 Classification of Radioactive Waste – RPS20, Schedule 4 of the NDRP (ARPANSA 2010)



3.2.6 and Table 3-6 of the draft EIS). Storing radioactive waste at the proposed Chandler Facility or Apirnta Facility would be in breach of the conditions of approval or consent for the Proposal.

Approval to import international wastes under the Basel Convention (Regulation of Transboundary Movements) and Waigani Convention (Regulation of Exports and Imports) also forms part of the Proposal. The Proposal would help Australia to meet our international obligations as signatories to the Basel Convention and Waigani Convention 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.

5.17.2 ACF 2

Issue raised

ACF notes the lack of reference and detail to any waste conditioning and containerisation capacity at the proposed facility. There is a need for further detail of Waste Acceptance Criteria and for how non-compliant wastes would be handled. ACF views the process outlined in the proposal – that such wastes would be quarantined and returned to the waste generator – as inadequate. As is the related approach of the operator contacting ‘the relevant regulatory authority’ (p 3.62).

Proponent’s response

Please refer to response to NT EPA 27.

5.17.3 ACF 3

Issue raised

ACF seeks further detail in relation to the N4 rejection notice process and the fact that the proponent may decide to treat or re-package non-compliant waste at the cost of the customer (p 3.95). Who decides this, on what basis, where is this treatment done and what likelihood is there that waste producers will simply pay an extra premium and routinely ship non-compliant material to the facility? ACF seeks further attention to these and related waste acceptance and conditioning issues.

Proponent’s response

Please refer to NT EPA 27 and ACF 2.



5.17.4 ACF 4

Issue raised

ACF notes that the proposed facility clearly has a preference towards bulk handling and hydraulic backfill and that much of the modelling around this is preliminary and there is uncertainty over the approach and implications of particle reduction works. These assumptions and models need further pre-approval development and articulation.

Proponent's response

Please refer to NT EPA 22 and NT EPA 27.

5.17.5 ACF 5

Issue raised

ACF also seeks further detail on the proposed size and weight bearing properties of the pillars in the proposed pillar and room method.

Proponent's response

Please refer to NTEPA 7 and NT EPA 18.

5.17.6 ACF 6

Issue raised

ACF contests the assertions made throughout the proposal that the facility would permanently isolate contaminants from the wider bio-sphere. This may be the proponent's intention however it cannot be assumed as an outcome.

This is of relevance given the lack of agreement over the institutional control period and the need for greater clarity in relation to closure and post-closure obligations and responsibilities and the adequacy of post closure financial provisions. It is imperative that these issues are detailed and adequate provision identified during the assessment process and capacity provision realised at the front end of any subsequent project.

Proponent's response

Please refer to NT EPA 41 and NT EPA 45. In addition, the proponent has committed to an institutional control model on its WA Sandy Ridge project. The model will be used to discuss similar arrangements with the NT Government.



5.18 Arid Lands Environment Centre, Inc

Issues identified by the Arid Lands Environment Centre, Inc are provided in Table 5-73. A response to each issue is provided in Section 5.18.1 through Section 5.18.13.

Table 5-73 Issues identified by Arid Lands Environment Centre, Inc

Issue reference	Issue raised
ALEC 1	<p>Waste acceptance and hydraulic backfill – ...we are requesting clarification around the nature, volume and concentration of wastes that will be processed and stored on site....Specifically we are requesting clarification about how these processes will be regulated in relation to the requirements under the <i>Water Act</i> and the <i>Waste Management Pollution Control Act</i> (WMPC).</p> <p>ALEC requests further information on:</p> <ol style="list-style-type: none"> 1. Licences that are going to be applied for and when: discharge nature and volumes. Waste disposal will be occurring on a commercial basis so the statutory provisions of the WMPC Act apply. 2. The method of hydraulic backfilling to be used: flushing or viscous 3. A comprehensive assessment of the suitability of hydraulic backfilling has not been undertaken; this needs to be demonstrated before the project can proceed to the next stage. 4. Potential for storage of shale bed methane waste material meaning that Tellus would be facilitating the development of unconventional gas resources in the Northern Territory. Also, clarification on which projects CSG waste will be sourced from.
ALEC 2	<p>Regulatory framework – The principal concern for this project is how the transportation, treatment and storage of waste will be conducted without the appropriate regulatory approvals having being acquired and disclosed. Acknowledging that mining actions are exempt from the environmental protections afforded by the WMPC Act there is a significant contamination concern relating to the waste produced by mining actions as they are able to be discharge without appropriate disclosure and monitoring.</p> <p>...It is necessary to clarify which wastes will be regulated under the Act and accordingly required a licence and which will not be disclosed in the licence and the reasons for this. The water management plan does not address the granting of licences under the WMPC Act but other EIS documents note the need to acquire licences under the Act. This contradiction should be clarified by the proponent to demonstrate there is not unlawful discharge of contamination occurring.</p>
ALEC 3	<p>Licences – The proponent is required to apply for a waste water discharge licence, groundwater withdrawal licence and an environmental protection licence (s 74 licence). While the proponent has made general references to these licences it is not clear exactly what licences are already pending and what have yet to be applied for. As a result of this it is not clear the exact nature of the discharges that the proponent is proposing. Non- discrete chemicals are at this stage only listed categorically. There is limited quantitative data provided on the waste materials that are proposed for storage, the WAC only outlines categories of waste not specific volumes or concentrations. Thus an increased level of transparency is necessary to ensure public oversight of waste disposal and that appropriate safeguards are in place.</p> <p>An underground waste disposal licence will be required. It is not clear if this licence will apply to the waste disposal component of the project or waste disposal that is ancillary to the mining of salt. It is of significant environmental concern that the proponent intends to rely on</p>



Issue reference	Issue raised
	<p>the statutory exemptions applicable to mining projects under the WMPC Act and the Water Act, considering these exemptions are likely to be abolished in the near future.</p> <p>... The proponent needs to explain in what circumstances it is contemplated that contaminated waters would need to be discharged from the tenement.</p> <p>The proponent needs to publicly disclose the substance of the following licences:</p> <ul style="list-style-type: none"> • Waste discharge licence (s. 74 Water Act) • Underground waste disposal licence (s. 63 Water Act) • Environmental protection licence and approvals (s. 34 of the WMPC Act) • Groundwater withdrawal (s. 60 Water Act)
ALEC 4	<p>Hydraulic back fill processing – ALEC is concerned about the undertaking of hydraulic backfill processing, which is being proposed as an additional method to isolate wastes (page 4-207 of the EIS). The proponent intends to utilise hydraulic backfill processing to store up to 50% of all the waste received but is yet to conduct the appropriate investigations to determine if this method is appropriate in the context and what method of back fill will be used.</p> <p>Hydraulic processing increases the environmental risk of the waste disposal aspect of the project because it increases the volume of leachate and thus the possibility of groundwater contamination (waste materials: appendix F). Target wall creep, formation of volatile gases and breakdown of containment structures are all additional risks related to hydraulic backfilling (Appendix I). While the proponent has commissioned a report on the feasibility of this technique of disposal, the report notes it is not able to make a final determination as to feasibility, without a complete understanding of host rock suitability and the relevant regulatory measures (Appendix I). Before gaining approval for hydraulic backfilling the proponent needs to demonstrate the appropriateness of the facility for the use of this method and the proper safeguards it intends to utilise in preventing contamination events in the void spaces by validating the assumptions made about host rock suitability and containment structures.</p>
ALEC 5	<p>Origin of waste – There is a secondary concern relating to the origins of wastes from resource sector refineries which is of particular importance to ALEC. Acknowledging that the shale bed methane industry has not proceeded past exploration phase, and the production potential of the industry is in doubt amongst wide spread community opposition, it is necessary to highlight the potential linkages with the Chandler Facility and the problem of produced water from potential fracking operations. We seek clarification on the possible waste materials that would be sourced from resource sector refining processes and further an undertaking that the proponent will not be accepting produced water sourced from any hydraulic fracturing operations. In accepting CSG waste material the Chandler Project will in effect be facilitating the expansion of unconventional gas industry in the Northern Territory. The proponent should be mindful of this relationship and the social consequences of storing materials from an industry that does not have a social licence to operate.</p>
ALEC 6	<p>Geomechanical investigations – ALEC supports the recommendation of further geomechanical investigations into the halite formation once results of the geochemical analysis are made available to the public. However, ALEC does not have high confidence in sufficiently robust monitoring of hydraulic processes considering the statutory exemptions on waste disposal. While there may be protocols in place, these are not legislatively mandated safeguards and therefore compliance is not guaranteed in law, especially as hydraulic processing is only in the pre-feasibility stage.</p>



Issue reference	Issue raised
ALEC 7	<p>Water – ... ALEC is concerned about the impact of drawdown on groundwater systems because there are significant gaps in baseline data along the Finke River. There are no bores adjacent to the river so monitoring cannot be conclusive of no harm to shallow aquifers supporting groundwater dependent flora and fauna species of the spring.</p> <p>Furthermore surface water discharge and increased magnitude of high flow events will present a threat to surface water contamination if hazardous materials are stored on the surface during such a time. How will they be contained on the surface?</p> <p>Hazardous waste listed under Schedule 2 includes Arsenic, Cadmium, Lead and Mercury. If these are in solution form and stored on the surface they represent a significant risk of environmental contamination during a high rainfall event. Research from CSIRO modeling suggests that the 1 in 100 year ARI is likely to change as a result of climate change. The magnitude and frequency of extreme rainfall events is predicted to increase, with high confidence. Over the entire life span of the project the hydrological regime accounted for in modeling will thus become less and less valid over time.</p> <p>The proponent needs to ensure that contemporary climate change modeling information is incorporated into monitoring strategies and that the impact of extreme rainfall events is accounted for in aspects of the project, such as the surface storage of wastes.</p> <p>Acknowledging that there is potential for connectivity between shallow alluvium aquifers through gradients with deeper groundwater sources means there is potential for connectivity to the south-east along the Finke River 20km from the Chandler Facility (Appendix G pg 10). There are no bores along the river so this is a substantial gap in the ability of the proponent to monitor down gradient impacts of changes to surface and groundwater flows. This undermines the ability of the proponent to adequately monitor changes to ground and surface water flows including the ability to monitor the migration of potential contaminants.</p>
ALEC 8	<p>Biodiversity – The project generally has a very comprehensive analysis of the flora and fauna at risk and a discussion of appropriate mitigation strategies. There is however a notable lack of discussion on invertebrates. Only one species of invertebrate has been recognised as having a low likelihood of occurring on site. Resource projects in the NT need to expand the biodiversity impact assessment to include the impact on invertebrates.</p>
ALEC 9	<p>Biodiversity –There are localised pockets of introduced weeds within the project site. These are likely to extend their presence in the area if construction went ahead as they would exploit the disturbance of the natural ecology. Disturbance coupled with increased industrialisation, trucks and other infrastructure would increase the risk of further spreading weeds which already represent a major threat to the ecological integrity of the arid regions.</p>
ALEC 10	<p>Biodiversity –Several of the identified threatened species are recognised as being data deficient and because of this it is difficult to assume that the asserted conclusions on the populations are reliable. Considering the cumulative issues of ecosystem fragmentation, weed invasion, industrialisation and climate change induced variation in rainfall patterns the monitoring regime on site should continue for many years into operation and expand on the area monitored.</p>
ALEC 11	<p>Energy – ...2MW of energy will be sourced from Solar PV and 3MW from diesel combustion, with the remaining standby and emergency provisions also supplied by diesel. This energy composition is commendable but is not consistent with the NT Government's commitment to 50% renewable energy.</p>



Issue reference	Issue raised
	<p>...the proponent is encouraged to increase the solar PV capacity of the mine to at least 50%.</p> <p>...the proponent must be required to complete a lifecycle assessment of the carbon footprint of the project. This is necessary to ensure compliance with national emissions reduction and renewable energy targets.</p>
ALEC 12	Decommissioning and rehabilitation – The proponent must be required to set aside significant funds to ensure monitoring of underground containment structures continues well after the mine has been decommissioned so that the taxpayer is not paying for rehabilitation after the proponent has relinquished ownership.
ALEC 13	<p>General – We seek further clarification and disclosure on the following issues:</p> <ul style="list-style-type: none"> • Greater clarity on the WAC: concentrations, volumes and chemical analysis that will be conducted on site to ensure compliance with the WAC. • Completed geomechanical investigations demonstrating wall spalling and roof instability will not increase risk of contamination events. • Confirmation of the hydraulic backfill method determined and the consequent mitigation and monitoring strategies. • Undertaking that the project will not accept waste materials from fracking operations in the NT. • Improved certainty over surface and groundwater connectivity along the Finke River by compiling more baseline data. • More comprehensive surveys of threatened species which are recognised as being data deficient • Complete public disclosure and certainty of the licences required under the WMPC Act and the Water Act. • Commitment to finance ranger services and feral animal management programs, including culling of cats, donkeys, camels and horses. • Independent accredited translators are used by the proponent in all future consultations with the Tjitjikala community.

5.18.1 ALEC 1

Issue raised

...we are requesting clarification around the nature, volume and concentration of wastes that will be processed and stored on site....Specifically we are requesting clarification about how these processes will be regulated in relation to the requirements under the *Water Act* and the *Waste Management Pollution Control Act* (WMPC).

ALEC requests further information on:

- Licences that are going to be applied for and when: discharge nature and volumes. Waste disposal will be occurring on a commercial basis so the statutory provisions of the WMPC Act apply.
- The method of hydraulic backfilling to be used: flushing or viscous.



- A comprehensive assessment of the suitability of hydraulic backfilling has not been undertaken; this needs to be demonstrated before the project can proceed to the next stage.
- Potential for storage of shale bed methane waste material meaning that Tellus would be facilitating the development of unconventional gas resources in the Northern Territory. Also, clarification on which projects CSG waste will be sourced from.

Proponent's response – hydraulic backfilling

- The method of hydraulic backfilling to be used: flushing or viscous. Further detailed assessment of both types of backfill will be undertaken during the BFS. This will include consultation with KU-Tech of Germany.
- A comprehensive assessment of the suitability of hydraulic backfilling has not been undertaken; the proponent acknowledges this needs to be demonstrated before the project can proceed to the next stage. The draft EIS did provide international independent advice on the advantages and disadvantages of both methods.
- Refer to NT EPA 22, NT EPA 42, NT EPA 45, NT EPA 46 for information relating to the suitability of hydraulic backfill in salt mines.

Proponent's response – coal seam gas waste

A range of hazardous wastes produced mostly by mining, oil and gas, chemical, manufacturing, agricultural, site remediation, utilities and government could be stored either temporarily (until recovery and treatment is possible) or permanently inside the void spaces left from the salt mining operations at the proposed Chandler Facility. The waste accepted and not accepted at the proposed Chandler Facility are specified in the Waste Acceptance Criteria presented in Section 3.2.6 and Appendix C of the draft EIS.

Waste received at the proposed Chandler Facility would be in line with those listed under the NT *Waste Management Pollution Control Act* (WMPC Act) and the *Waste Management Pollution Control (Administration) Regulations* (WMPC Regulations). Materials listed in Schedule 2 of the WMPC Regulations are attached in Appendix F of the draft EIS. The wastes listed in Schedule 2 include waste that could be associated with coal seam gas operations. It is important to note, however, that no one waste material would underpin the Proposal.

At this stage, the proponent is unable to determine which projects coal seam gas waste would be sourced from (if at all).

5.18.2 ALEC 2

Issue raised

The principal concern for this project is how the transportation, treatment and storage of waste will be conducted without the appropriate regulatory approvals having being acquired and disclosed.



Acknowledging that mining actions are exempt from the environmental protections afforded by the WMPC Act there is a significant contamination concern relating to the waste produced by mining actions as they are able to be discharge without appropriate disclosure and monitoring.

...It is necessary to clarify which wastes will be regulated under the Act and accordingly required a licence and which will not be disclosed in the licence and the reasons for this. The water management plan does not address the granting of licences under the WMPC Act but other EIS documents note the need to acquire licences under the Act. This contradiction should be clarified by the proponent to demonstrate there is not unlawful discharge of contamination occurring.

Proponent's response

The proponent seeks approval to store and permanently isolate all wastes listed in Append F of the draft EIS. These are exactly the same listed wastes as described in Schedule 2 of the NT Waste Management Pollution Control Regulations.

5.18.3 ALEC 3

Issue raised

The proponent is required to apply for a waste water discharge licence, groundwater withdrawal licence and an environmental protection licence (s 74 licence). While the proponent has made general references to these licences it is not clear exactly what licences are already pending and what have yet to be applied for. As a result of this it is not clear the exact nature of the discharges that the proponent is proposing. Non- discrete chemicals are at this stage only listed categorically. There is limited quantitative data provided on the waste materials that are proposed for storage, the WAC only outlines categories of waste not specific volumes or concentrations. Thus an increased level of transparency is necessary to ensure public oversight of waste disposal and that appropriate safeguards are in place.

An underground waste disposal licence will be required. It is not clear if this licence will apply to the waste disposal component of the project or waste disposal that is ancillary to the mining of salt. It is of significant environmental concern that the proponent intends to rely on the statutory exemptions applicable to mining projects under the WMPC Act and the Water Act, considering these exemptions are likely to be abolished in the near future.

... The proponent needs to explain in what circumstances it is contemplated that contaminated waters would need to be discharged from the tenement.

The proponent needs to publicly disclose the substance of the following licences:

- Waste discharge licence (s. 74 Water Act)
- Underground waste disposal licence (s. 63 Water Act)
- Environmental protection licence and approvals (s. 34 of the WMPC Act)
- Groundwater withdrawal (s. 60 Water Act)



Proponent's response

Noted – and further consultation with the NT EPA will be undertaken with respect to licensing of the Proposal.

5.18.4 ALEC 4

Issue raised

ALEC is concerned about the undertaking of hydraulic backfill processing, which is being proposed as an additional method to isolate wastes (page 4-207 of the EIS). The proponent intends to utilise hydraulic backfill processing to store up to 50% of all the waste received but is yet to conduct the appropriate investigations to determine if this method is appropriate in the context and what method of back fill will be used.

Hydraulic processing increases the environmental risk of the waste disposal aspect of the project because it increases the volume of leachate and thus the possibility of groundwater contamination (waste materials: appendix F). Target wall creep, formation of volatile gases and breakdown of containment structures are all additional risks related to hydraulic backfilling (Appendix I). While the proponent has commissioned a report on the feasibility of this technique of disposal, the report notes it is not able to make a final determination as to feasibility, without a complete understanding of host rock suitability and the relevant regulatory measures (Appendix I). Before gaining approval for hydraulic backfilling the proponent needs to demonstrate the appropriateness of the facility for the use of this method and the proper safeguards it intends to utilise in preventing contamination events in the void spaces by validating the assumptions made about host rock suitability and containment structures.

Proponent's response

Refer to NT EPA 22, NT EPA 42, NT EPA 45, NT EPA 46 for information relating to the suitability of hydraulic backfill in salt mines.

5.18.5 ALEC 5

Issue raised

There is a secondary concern relating to the origins of wastes from resource sector refineries which is of particular importance to ALEC. Acknowledging that the shale bed methane industry has not proceeded past exploration phase, and the production potential of the industry is in doubt amongst wide spread community opposition, it is necessary to highlight the potential linkages with the Chandler Facility and the problem of produced water from potential fracking operations. We seek clarification on the possible waste materials that would be sourced from resource sector refining processes and further an undertaking that the proponent will not be accepting produced water sourced from any hydraulic fracturing operations. In accepting CSG waste material the Chandler Project will in effect be facilitating the expansion of unconventional gas industry in the Northern



Territory. The proponent should be mindful of this relationship and the social consequences of storing materials from an industry that does not have a social licence to operate.

Proponent's response

A range of hazardous wastes produced mostly by mining, oil and gas, chemical, manufacturing, agricultural, site remediation, utilities and government could be stored either temporarily (until recovery and treatment is possible) or permanently inside the void spaces left from the salt mining operations at the proposed Chandler Facility. The waste accepted and not accepted at the proposed Chandler Facility are specified in the Waste Acceptance Criteria presented in Section 3.2.6 and Appendix C of the draft EIS.

Waste received at the proposed Chandler Facility would be in line with those listed under the NT *Waste Management Pollution Control Act* (WMPC Act) and the Waste Management Pollution Control (Administration) Regulations (WMPC Regulations). Materials listed in Schedule 2 of the WMPC Regulations are attached in Appendix F of the draft EIS. The wastes listed in Schedule 2 include waste that could be associated with coal seam gas operations. It is important to note, however, that no one waste material would underpin the Proposal.

5.18.6 ALEC 6

Issue raised

ALEC supports the recommendation of further geo-mechanical investigations into the halite formation once results of the geochemical analysis are made available to the public. However, ALEC does not have high confidence in sufficiently robust monitoring of hydraulic processes considering the statutory exemptions on waste disposal. While there may be protocols in place, these are not legislatively mandated safeguards and therefore compliance is not guaranteed in law, especially as hydraulic processing is only in the pre-feasibility stage.

Proponent's response

The proponent is not in a position to comment on the position of the NT Government when seeking approval for the Proposal. Should the Proposal be approved, the proponent will comply with all necessary Conditions of Consent and relevant Legislation and Regulations imposed upon it by either the Commonwealth or NT Governments.

5.18.7 ALEC 7

Issue raised

ALEC is concerned about the impact of drawdown on groundwater systems because there are significant gaps in baseline data along the Finke River. There are no bores adjacent to the river so monitoring cannot be conclusive of no harm to shallow aquifers supporting groundwater dependent flora and fauna species of the spring.



Furthermore surface water discharge and increased magnitude of high flow events will present a threat to surface water contamination if hazardous materials are stored on the surface during such a time. How will they be contained on the surface?

Hazardous waste listed under Schedule 2 includes Arsenic, Cadmium, Lead and Mercury. If these are in solution form and stored on the surface they represent a significant risk of environmental contamination during a high rainfall event. Research from CSIRO modelling suggests that the 1 in 100 year ARI is likely to change as a result of climate change. The magnitude and frequency of extreme rainfall events is predicted to increase, with high confidence. Over the entire life span of the project the hydrological regime accounted for in modelling will thus become less and less valid over time.

The proponent needs to ensure that contemporary climate change modelling information is incorporated into monitoring strategies and that the impact of extreme rainfall events is accounted for in aspects of the project, such as the surface storage of wastes.

Acknowledging that there is potential for connectivity between shallow alluvium aquifers through gradients with deeper groundwater sources means there is potential for connectivity to the south-east along the Finke River 20km from the Chandler Facility (Appendix G pg 10). There are no bores along the river so this is a substantial gap in the ability of the proponent to monitor down gradient impacts of changes to surface and groundwater flows. This undermines the ability of the proponent to adequately monitor changes to ground and surface water flows including the ability to monitor the migration of potential contaminants.

Proponent's response

The proponent has committed to a detailed Stage II groundwater and monitoring investigation program. Please refer to Table 4-1 for more information.

5.18.8 ALEC 8

Issue raised

The project generally has a very comprehensive analysis of the flora and fauna at risk and a discussion of appropriate mitigation strategies. There is however a notable lack of discussion on invertebrates. Only one species of invertebrate has been recognised as having a low likelihood of occurring on site. Resource projects in the NT need to expand the biodiversity impact assessment to include the impact on invertebrates.

Proponent's response

Noted. With regards to invertebrates, the biodiversity assessment focused on an assessment of conservation-significant invertebrate species. This involved database searches and habitat assessments undertaken during field surveys conducted over a four year period between October 2012 and April 2016.



Based on database searches, one conservation-significant invertebrate species has been recorded or is predicted to occur within the vicinity of the proposed development footprint or within the locality. This species is the desert sand-skipper (*Croitana aestiva*) listed as endangered under both the TPWC Act and EPBC Act. The likelihood of occurrence of this species within the proposed development footprint is considered to be low. Suitable habitat for the desert sand-skipper is not present within the proposed development footprint or vicinity. There would be no impact to the desert sand-skipper during construction, operation or closure and rehabilitation of the Proposal (refer to Section 7.3.3, Table 7-6 of the draft EIS).

5.18.9 ALEC 9

Issue raised

There are localised pockets of introduced weeds within the project site. These are likely to extend their presence in the area if construction went ahead as they would exploit the disturbance of the natural ecology. Disturbance coupled with increased industrialisation, trucks and other infrastructure would increase the risk of further spreading weeds which already represent a major threat to the ecological integrity of the arid regions.

Proponent's response

Please refer to the proponent's response to DENR 20 (Section 5.6.20). A Weed Management Plan would be implemented during construction, operation and closure and rehabilitation of the Proposal (refer to Appendix 6 [Draft Biodiversity Management Plan] contained within Appendix O [Risks to Biodiversity Report] of the draft EIS). The Weed Management Plan would be prepared with reference to the guidelines outlined in DENR's *Preventing Weed Spread is Everybody's Business* and the *Weed Management Plan for Athel Pine (Tamarix aphylla)*. The Weed Management Plan would also be submitted to the DENR Weed Management Branch for review and approval prior to construction, operation, and decommissioning and rehabilitation of the Proposal.

5.18.10 ALEC 10

Issue raised

Several of the identified threatened species are recognised as being data deficient and because of this it is difficult to assume that the asserted conclusions on the populations are reliable. Considering the cumulative issues of ecosystem fragmentation, weed invasion, industrialisation and climate change induced variation in rainfall patterns the monitoring regime on site should continue for many years into operation and expand on the area monitored.

Proponent's response

A number of flora and fauna species listed as near threatened or data deficient under the TPWC Act were recorded or are predicted to occur within the proposed development footprint or vicinity (refer to Section 7.3.2 and Section 7.3.3 of the draft EIS). However, there would be no significant impact on species listed as near threatened or data deficient under the TPWC Act. This is because



none of the species are considered to have conservation significance within the proposed development footprint or vicinity, or within the wider locality. All of the species are locally common with a widespread distribution in the region and there is no critical habitat for any of the species listed as near threatened or data deficient recorded or predicted to occur within the proposed development footprint or vicinity (refer to Section 7.4.1 and Appendix O of the draft EIS).

Mitigation and management measures proposed to minimise the impacts on flora and fauna (including conservation-significant species) during construction, operation, and closure and rehabilitation of the Proposal are listed in Table 7-11 of the draft EIS. Further details regarding these mitigation measures are provided in Appendix O of the draft EIS. These measures would be incorporated into the CEMP, OEMP and/or RCP for the Proposal. A draft Biodiversity Management Plan and draft Bushfire Management Plan have also been prepared for the Proposal (refer to Appendix O and Appendix W of the draft EIS). The Biodiversity Management Plan would include a Flora and Fauna Monitoring Program. The purpose of the Flora and Fauna Monitoring Program would be to monitor for threatened species, pest fauna, and vegetation health to determine the effectiveness of the mitigation measures that would be implemented for the Proposal.

5.18.11 ALEC 11

Issue raised

2MW of energy will be sourced from Solar PV and 3MW from diesel combustion, with the remaining standby and emergency provisions also supplied by diesel. This energy composition is commendable but is not consistent with the NT Government's commitment to 50% renewable energy.

The proponent is encouraged to increase the solar PV capacity of the mine to at least 50%.

The proponent must be required to complete a lifecycle assessment of the carbon footprint of the project. This is necessary to ensure compliance with national emissions reduction and renewable energy targets.

Proponent's response

The proponent understands that the NT Government has committed to adopt a target of 50% renewable energy by 2030. The commitment includes commissioning advice from an independent panel of experts to inform a report titled 'Roadmap to Renewables. Labours Plan to Transition to Renewable Energy in the Northern Territory'. If the Proposal is approved, the proponent will investigate adopting a target of 50% renewable energy for the Proposal.

The proponent would commit to annual sustainability reporting on the Proposal. This would involve measuring and publicly reporting on the economic, social and environmental performance and impacts of the Proposal in accordance with the 'Global Reporting Initiative Sustainability Reporting Guidelines' and the 'United Nations Sustainable Development Goals' (in addition to other standards and guidelines, as appropriate).



5.18.12 ALEC 12

Issue raised

The proponent must be required to set aside significant funds to ensure monitoring of underground containment structures continues well after the mine has been decommissioned so that the taxpayer is not paying for rehabilitation after the proponent has relinquished ownership.

Proponent's response

The lifecycle of the Proposal was presented in Table 3-4 and Figure 3-6, Section 3.2.2 of the draft EIS. Construction and commissioning would occur from year 1 through year 4. Operation would commence in year 5 and continue through year 29. Following the cessation of mining and waste disposal, closure and rehabilitation would commence.

An institutional control period would follow from year 45+ (the institutional control period is yet to be agreed with the NT Government). As shown in Figure 3-6 (and outlined in the various chapters and appendices of the draft EIS), both pre- and post-closure environmental monitoring would be undertaken for the Proposal. This monitoring would include (but would not be limited to) subsidence monitoring, groundwater, surface water and vegetation monitoring. Post closure monitoring would occur from year 29 through year 45.

As discussed in Section 13.3.2 of the draft EIS, financial assurance ensures that funds are available to close and rehabilitate a site, regardless of whether the operator remains financially viable. The proponent would provide appropriate financial assurance for the expected closure and rehabilitation costs of the Proposal. The proponent intends on this financial assurance being via appropriate contributions to a security bond that is administered by the DPIR.

The proponent would agree to the final legal structure of the financial assurances to be put in place following detailed legal, tax and accounting advice and following consultation with relevant agencies within the NT Government. Such a financial assurance package would also be considered on a holistic basis with other financial assurances to be provided for the Proposal (e.g. the institutional control period).

5.18.13 ALEC 13

Issue raised

We seek further clarification and disclosure on the following issues:

- Greater clarity on the WAC: concentrations, volumes and chemical analysis that will be conducted on site to ensure compliance with the WAC.

Proponent's response

Please refer to the proponent's response to ALEC 3 (refer to Section 5.18.3).



Issue raised

We seek further clarification and disclosure on the following issues:

- Completed geo-mechanical investigations demonstrating wall spalling and roof instability will not increase risk of contamination events.

Proponent's response

Please refer to NT EPA 18 and NT EPA 47.

Issue raised

We seek further clarification and disclosure on the following issues:

- Confirmation of the hydraulic backfill method determined and the consequent mitigation and monitoring strategies.

Proponent's response

Please refer to the proponent's response to ALEC 4 (refer to Section 5.18.4)

Issue raised

We seek further clarification and disclosure on the following issues:

- Undertaking that the project will not accept waste materials from fracking operations in the NT.

Proponent's response

Please refer to the proponent's response to ALEC 5 (Section 5.18.5).

Issue raised

We seek further clarification and disclosure on the following issues:

- Improved certainty over surface and groundwater connectivity along the Finke River by compiling more baseline data.

Proponent's response

Please refer to the proponent's response to ALEC 7 (Section 5.18.7).

Issue raised

We seek further clarification and disclosure on the following issues:

- More comprehensive surveys of threatened species which are recognised as being data deficient



Proponent's response

Please refer to the proponent's response to ALEC 10 (Section 5.18.10).

Issue raised

We seek further clarification and disclosure on the following issues:

- Complete public disclosure and certainty of the licences required under the WMPC Act and the Water Act.

Proponent's response

Please refer to the proponent's response to ALEC 1 (Section 5.18.1).

Issue raised

We seek further clarification and disclosure on the following issues:

- Commitment to finance ranger services and feral animal management programs, including culling of cats, donkeys, camels and horses.

Proponent's response

As discussed in Section 12.4.7 of the draft EIS, land use agreements are currently under negotiation with the government and with the Central Land Council. It is anticipated that the land use agreements would generate a range of potential opportunities for businesses in the local region and in the NT in the areas of agribusiness, tourism and conservation including ranger services and cultural and traditional tourism ventures. There would also be financial commitments to local Aboriginal groups under the *Native Title Act 1993*.

Please refer to Appendix 6 (Draft Biodiversity Management Plan) contained within Appendix O (Risks to Biodiversity Report) of the draft EIS. Table 12-1 committed to the preparation of a Pest Fauna Management Plan that would be implemented during construction, operation, and closure and rehabilitation of the Proposal. Measures to prevent an increase in the number or frequency of introduced fauna were also outlined in Table 12-1. Among the mitigation/management measures was 'carry out feral animal control as required in consultation with stakeholders'. This may include culling pest species such as cats, donkeys, camels and horses. Note, though, that Table 12-1 has been revised so that the mitigation measures are 'SMART' (refer to the proponent's response to DEE 14, specifically Table 5-12 in Section 5.1.14).

Issue raised

We seek further clarification and disclosure on the following issues:

- Independent accredited translators are used by the proponent in all future consultations with the Tjitjikala community.



Proponent's response

Noted. Registered interpreters from the NT Aboriginal Interpreter Service (run by the NT Government) will be used during future community consultation sessions in Titjikala.



5.19 GreenGlass Consulting

Issues identified by GreenGlass Consulting are provided in Table 5-74. A response to the issues raised is provided in Section 5.19.1.

Table 5-74 Issues identified by GreenGlass Consulting

Issue reference	Issue raised
GGC 1	<p>Economic and social – GreenGlass Consulting works to achieve Aboriginal Employment and Enterprise development outcomes with a key focus on the Resource Centre. GreenGlass Consulting Thanks you for the opportunity to comment on the Environmental Impact Statement for the proposed Chandler Facility. Major resource projects such as the Chandler project are the greatest chance of delivering long term, sustainable change to the remote Aboriginal Communities in the vicinity of the mine. The positive impact of sustainable employment on such communities is evidence based and can impact all facets of life, health, education, welfare `dependence, criminality, and social cohesion.</p> <p>Having worked in the field of Aboriginal employment in Central Australia for the last 6 years we believe the Chandler facility will deliver many potential social and economic outcomes for the region and the Government should be doing all it can to expedite the project.</p> <p>We believe the Chandler Facility will deliver many potential social and economic benefits for Alice Springs and other regional area including Titjikala.</p>

5.19.1 GGC 1

Issue raised

GreenGlass Consulting works to achieve Aboriginal Employment and Enterprise development outcomes with a key focus on the Resource Centre. GreenGlass Consulting Thanks you for the opportunity to comment on the Environmental Impact Statement for the proposed Chandler Facility. Major resource projects such as the Chandler project are the greatest chance of delivering long term, sustainable change to the remote Aboriginal Communities in the vicinity of the mine. The positive impact of sustainable employment on such communities is evidence based and can impact all facets of life, health, education, welfare `dependence, criminality, and social cohesion.

Having worked in the field of Aboriginal employment in Central Australia for the last 6 years we believe the Chandler facility will deliver many potential social and economic outcomes for the region and the Government should be doing all it can to expedite the project.

We believe the Chandler Facility will deliver many potential social and economic benefits for Alice Springs and other regional area including Titjikala.

Proponent's response

Noted.



5.20 Anonymous 1

Issues identified by Anonymous 1 are provided in Table 5-75. A response to each issue is provided in Section 5.20.1 through Section 5.20.4.

Table 5-75 Issues identified by Anonymous 1

Issue reference	Issue raised
A1 1	Waste acceptance – I am significantly concerned over the following: <ul style="list-style-type: none">the extensive list of waste types proposed for the Tellus Salt Mine (more than 60 wastes listed in the ‘Listed waste inventory’, many of which are hazardous to the environment and toxic to human health)the quantities of waste proposed to be disposed of, including toxic chemicals such as arsenic, cadmium, lead, organohalogenic compounds which totals close to 200,000 tonnes per year (Table 1 List of Potential Wastes).the hazardous nature of these waste materials and the potential for these materials to damage the environment and indirectly human health by leaching into waterways in the event of a flood.Environmental risk of transporting 200,000 tonnes of hazardous waste each year, long distances to an interstate receptacle on unsealed roads.
A1 2	Groundwater, flooding, geological movement – Given that the Titjikala community live only 25 kilometres from this mine, it is imperative that they have a clear understanding of the risks involved to their community, including potential contamination to ground water, drinking water and risks around transporting hazardous waste, in order to make an informed decision about whether they support the proposal. How can we be certain that their groundwater is not connected to the groundwater accessed for drinking water? What happens in the case of a flood or geological movement of the earth?
A1 3	Transportation of waste – The risks of transporting these hazardous materials throughout the NT also give risk to the greater population and the greater environment. Where are the wastes coming from? What is their proposed route? Has the greater Central Australian community been consulted about these risks? Do the benefits really outweigh the costs of transporting hazardous waste if the real potential for accidents and associated environmental clean ups are factored into the economic evaluation of the mine?
A1 4	Contamination of salt product and waste acceptance - I would like to ask why Tellus Holdings would want to store hazardous waste at its facility, due to the fact that it may contaminate its salt product? Would they go ahead with the mine if they were restricted to backfilling with non-hazardous waste? It seems like limiting waste management options to inert materials is the most feasible, safe and secure way forward for the region.

5.20.1 A1 1

Issue raised

I am significantly concerned over the following:

- the extensive list of waste types proposed for the Tellus Salt Mine (more than 60 wastes listed in the ‘Listed waste inventory’, many of which are hazardous to the environment and toxic to human health).



Proponent's response

The hazardous nature of the wastes is the driver behind the proposed engineered solution for the long-term storage and permanent isolation of these wastes. The proposed waste management component of the proposed Chandler Facility is designed to isolate hazardous wastes from pathways that may lead to human health risks.

Issue raised

I am significantly concerned over the following:

- the quantities of waste proposed to be disposed of, including toxic chemicals such as arsenic, cadmium, lead, organohalogenic compounds which totals close to 200,000 tonnes per year (Table 1 List of Potential Wastes).

Proponent's response

Noted. The proposed Chandler Facility would have a licenced capacity to store up to 400,000 tonnes of waste per annum, although average volumes are expected to be significantly less than this amount (refer to Table 3-14 in Section 3.6.1 of the draft EIS). Waste accepted in year one is expected to be 30,000 tonnes, with an average of 293,203 tonnes per annum.

Issue raised

I am significantly concerned over the following:

- the hazardous nature of these waste materials and the potential for these materials to damage the environment and indirectly human health by leaching into waterways in the event of a flood.

Proponent's response

The proposed solution to manage hazardous waste at the proposed Chandler Facility is to construct and operate a deep geological repository, which would utilise natural geological barriers and engineered barriers to isolate the waste materials from pathways that may lead to human health risks.

A detailed assessment of the risks to groundwater and surface water during construction, operation, and closure and rehabilitation of the Proposal are presented the draft EIS. Risks to groundwater are presented in Chapter 8 and Appendix P of the draft EIS. Mitigation and monitoring measures to manage the identified potential risks are presented in Section 8.8. Those measures are summarised in Table 8-8 of the draft EIS repeated as Table 5-76. This table has been reproduced below as Table 5-76.



Table 5-76 Proposed groundwater mitigation and management measures

ID	Outcome	Mitigation / management measure	Timing
GW.1	Sustainable use of groundwater reserves	Apply for water abstraction licences and permits under the NT <i>Water Act</i> .	Pre-construction
GW.2	Avoid groundwater contamination	Grout and seal production bores during construction, operation and post closure (as indicated in Sections 8.1.1 and 8.1.2).	Pre-construction
GW.3	Monitor and record groundwater drawdown	Ensure localised depressurisation of groundwater systems are monitored with data loggers in monitoring bores to ascertain potential of the Proposal to impact local groundwater users. Ensure groundwater level data is reviewed and reported in an Annual Environmental Monitoring Report (AEMR).	Pre-construction, construction, operations, post-closure
GW.4	Develop of detailed groundwater quality database	Report groundwater quality results to the DPIR and the NT EPA every four months (April, August and December) to compare seasonal data against project activities.	Seasonal (on a rolling basis over the life of the mine).
GW.5	Consultation to develop a local groundwater database	Undertake a hydro-census (condition) survey of local groundwater users prior to construction to ascertain bore condition and current status of the bores located within a 25 kilometre spatial buffer around the proposed Chandler Facility. Involve consultation with local groundwater users, with an end purpose of establishing baseline conditions of existing local groundwater users.	Pre-construction
GW.6	Develop a detailed groundwater database	Construct four additional water monitoring sites (as nested sites) to observe shallow groundwater and to monitor deeper systems predicted to be intercepted through mining activities. Monitor groundwater levels and quality near Titjikala, the Finke River, and within the deeper groundwater systems (Stairway Sandstone and Jay Creek Formations) near the proposed mine portal. Undertake shallow monitoring of ephemeral groundwater in aeolian/alluvial sediments at the Chandler Facility and Apirnta Facility to monitor any pollutant losses into the sub-surface.	Pre-construction
GW.7	Develop a detailed groundwater database	Complete a groundwater isotope study for monitoring bores prior to construction to confirm the relationship between shallow and deeper groundwater systems, and to confirm the origin and residence time of groundwater.	Pre-construction
GW.8	Develop a detailed groundwater database	Despite there being no known groundwater dependent ecosystems in the immediate vicinity of the Proposal, potential groundwater dependent ecosystems should be monitored and modelled through detailed design if identified to be potentially impacted by the Proposal. Establish a monitoring program if	Pre-construction (detailed design)



ID	Outcome	Mitigation / management measure	Timing
		potential groundwater dependent ecosystems are identified to be impacted through the construction, operation or closure and rehabilitation of the Proposal.	
GW.9	Avoid groundwater contamination	Ensure that the management of groundwater and surface water inflow into the mine portal and ventilation shafts, including the design and capture of this water is undertaken in consultation with the DPIR who administer the Mine Management Plan.	Construction
GW.10	Sustainable use of groundwater reserves	Ensure preference is given to re-use groundwater inflows over potable water for construction activities, where reasonable and feasible.	Construction
GW.11	Develop a more detailed understanding of local groundwater network	Refine or further develop the groundwater model to verify the predictions within the EIS (if water level variations outside of the natural range are observed). Ensure modelling is consistent with established guidelines, which allow for analytical or numerical modelling if appropriate for the project context and risks, subject to discussion and agreement with government agencies.	Operations
GW.12	Develop a detailed groundwater database	Monitor groundwater abstraction in production bores. Fit a cumulative flow meter to each production bore, and install pressure transducers in each bore to monitor groundwater drawdown at source.	Construction, operations, post-closure

Similarly, risks to surface water are presented in Chapter 9 and Appendix R of the draft EIS. Specifically, Section 9.3.10 addresses the potential risks associated with flooding. Mitigation and monitoring measures to manage the identified potential risks are presented in Section 9.7, including those associated with flooding events. Those measures are summarised in Table 9-16 of the draft EIS. This table has been reproduced below as Table 5-77.



Table 5-77 Mitigation and management measures (surface water)

ID	Outcome	Mitigation/management measure	Timing
SW1	Management of floodwater draining towards the Chandler Facility from the Maryvale Hills upstream of the mine site.	<p>Formalise drainage channels through or around the site so that upstream runoff does not cause flooding of the site, and so that it is not contaminated by site runoff or sedimentation.</p> <p>Raise flood prone site infrastructure above surrounding ground level.</p> <p>Diversion channels should be designed according to best practice guidance including sizing and lining type (IECA, 2008). Estimates of water volumes generated during storm events at the three sites are given in the Flood and Hydrology Assessment for different return periods. These diversion channels would reduce the amount of “dirty water” requiring management, improve wet weather access to the sites and limit erosion and sediment mobilisation on the sites.</p>	Detailed design and pre-construction
SW2	Improved water quality and attenuation of surface water flow.	Treat runoff to improve water quality resulting in an attenuation of flows, mitigating any increase in runoff peak flows or volumes.	Pre-construction
SW3	Movement or reconfiguration of Halfway Dam.	Investigate current and future use of the Halfway Dam. Develop proposals to move or reconfigure the dam and intake.	Pre-construction
SW4	Management of floodwater on Chandler Haul Road.	<p>Manage floodwater by:</p> <ul style="list-style-type: none"> • Raising the road above surrounding ground level to prevent flooding. • Installing culverts to pass flood flow and reduce/minimise upstream ponding. • Installing causeways over which floodwaters in excess of the design event can pass, but that raise the road above frequent flood levels. • Carrying out repairs, following flood events, as necessary. 	Pre-construction
SW5	Minimisation of impacts from the Henbury Access Road at the Finke River crossing.	Limit the engineering required to cross the river.	Construction
SW6	No long term alterations to local hydrology.	Allow natural surface drainage to continue without interruption, where possible.	Construction
SW7	No long term alterations to local hydrology.	Avoid clearing or disturbance to watercourses or drainage depressions, where possible.	Construction
SW8	No long term alterations to local hydrology.	Avoid infrastructure developments in any watercourse or drainage depressions, where possible.	Construction
SW9	No long term alterations to local hydrology.	Ensure no impedance to natural creek flow, where possible.	Construction



ID	Outcome	Mitigation/management measure	Timing
SW10	No long term alterations to local hydrology.	Develop creek crossings to natural contours of creek bed.	Construction
SW10	No long term alterations to local hydrology.	Remove any concentrations points that would impede natural sheet flow.	Construction
SW12	No long term alterations to local hydrology.	Ensure minimal disturbance within watercourse buffer zones.	Construction
SW13	No long term alterations to local hydrology.	Leave large mature trees and shrubs, where possible.	Construction
SW14	No long term alterations to local hydrology.	Conduct routine inspection and maintenance of drains and watercourses.	Construction, operation, closure and rehabilitation
SW15	Avoidance of spills or accidental loss of hazardous materials.	Store hazardous waste within a bunded area sufficient to hold 110% of all material.	Construction, operation, closure and rehabilitation
SW16	Additional monitoring	Undertake level/flow measurements on Halfway Dam catchment and three to four catchments draining to the Chandler Haul Road or Chandler Facility, and including the catchment draining through the Apirnta Facility.	Pre-construction; construction, closure and rehabilitation.
SW17	Additional investigations during detailed design	Develop stormwater models of the Chandler Facility and Apirnta Facility, including the management of site runoff and the diversion /conveyance of floodwaters from upstream catchments around the sites.	Pre-construction
SW18	Additional investigations during detailed design	Develop two-dimensional modelling of flow paths and inundation in the mine lease area, including the 'washout area' to better understand the potential for floodwaters to reach the Hugh River near Titjikala. This investigation would include an assessment of infiltration and evaporation.	Pre-construction
SW19	Additional investigations during detailed design	Model flood risk and scour protection at the crossing of the Finke River.	Pre-construction
SW20	Additional investigations during detailed design	Model flood risk ¹³ of haul crossings (bridges, culverts, causeways) of drainage lines.	Pre-construction
SW21	Develop site specific water quality guidelines	Develop guidelines for both the no-flow and flowing phases. This could be done by collecting and interrogating monitoring data and developing conceptual, probabilistic and/or numerical models that incorporate flow, catchment and in-stream influences. This site-specific system would be developed during detailed design and as part of the	Pre-construction

¹³ The modelling would include an expanded suite of design events, including extreme events such as the Probable Maximum Flood



ID	Outcome	Mitigation/management measure	Timing
		Water Management Plan and relies on obtaining more site data.	
SW22	No offsite sedimentation	Improving water retention by slowing upstream surface flow and improving transmission properties, which provides more time for water to infiltrate	Pre-construction and Construction
SW23	Preventing erosion and sedimentation	Decreasing runoff rate and its velocity by providing appropriate surface drainage systems for safe conduct of water into pre-designed surface storage systems (Section 5)	Pre-construction
SW24	No offsite pollution	Silty or oily water should not be used for dust suppression purposes, because this would transfer pollutants to the haul roads or generate more dust	Construction and operation
SW25	No offsite release of salt laden sediment	A clay lined drainage swale would be constructed around the perimeter of the run of mine salt stock pile to prevent offsite release of salt laden sediment	Operation
SW26	Prevent sediment from being tracked off site and onto the road	It is recommended that one entry / exit point to the Apirnta Facility and Chandler Facility sites should be established. If the site slopes towards this entry / exit, drainage and sediment control devices should be installed so that all sediment laden runoff can be fully contained and treated on-site	Pre-construction
SW27	Prevent sediment from being tracked off site and onto the road	Vehicles and construction equipment may require washing to prevent transfer and accumulation of mud on the haulage and access roads. Alternatively, manned jet washes or lance sprays could be used in a bunded area where the runoff can be contained and channelled to a treatment area, such as a settlement pond.	Construction and operation
SW28	Best practice in stockpile management	Soil and sand stockpiles need to be located within the compound and upslope of a sediment control. Impervious covers, filter fences, mulch berms or sediment fences.	Construction and operation
SW29	Prevent sediment runoff	Provision of a sediment trap, such as a mulch bank or a sediment fence, on the downslope boundaries of the Apirnta Facility, Chandler Facility and haulage roads is recommended. The mulch banks and sediment fencing should be positioned on the contour where possible	Construction and operation and closure
SW30	Prevent sediment runoff	Onsite drop inlet pits and haulage road side entry pits should be protected prior to the commencement of works or as soon as constructed	Construction and operation and closure
SW31	Prevent sediment runoff	Buffer strips and vegetation filters should be employed, where practical, along the haulage road instead of sediment trapping structures (DLRM, 2013b)	Construction and operation and closure



ID	Outcome	Mitigation/management measure	Timing
SW32	Best possible location for the replacement of Halfway Dam	Make use of a similar gully or depression off-line from an adjacent to a creek with similar catchment area nearby on gently sloping terrain (<15%). A site investigation and selection should be undertaken to optimise the sustainable use of available water within a dam's catchment. The size of the catchment, soil and vegetation characteristics and path of surface run-off water determines what water is available within a catchment. Contour maps should be used to predict the path of rainfall and irrigation run-off within the dam's catchment.	Detailed design
SW33	Prevent the release of stormwater offsite	Stormwater from disturbed areas would not be discharged into down-gradient properties. To capture 'dirty' surface runoff, u-shaped earth banks would be constructed to pond water (DLRM, 2013b).	Detailed design and pre-construction
SW34	Provide habitat and prevent erosion	Retained vegetation can have the dual purpose of not only assisting in the settling of sediment from overland flows, but also provide a refuge for flora and fauna.	Construction and operation.
SW35	Prevent erosion and sedimentation	A disturbance plan would be prepared following the completion of detailed design. This would be done to retain or preserve as much of the existing vegetation as possible would be implemented, especially adjacent to drainage lines. Identification of any areas to be used as 'turn around' or laydown areas should be completed with an indication in the Construction Notes how cleared and NO-GO areas would be implemented e.g. GPS data provided to clearing contractors and areas flagged on the ground prior to any clearing activity.	Pre-construction
SW36	Retain riparian vegetation and prevent offsite release of sediments.	DLRM Land Clearing Guidelines provide information on required buffer zones for watercourses (DLRM, 2013a and DLRM, 2013b). To be effective as a sediment control, the area for retention should contain at least 80% ground cover. Buffer zones for the Apirnta Facility, Chandler Facility, and Haulage Roads have been developed based on stream order. The bulk of buffer zones are 25 metres. The exception is Charlotte Creek, a second order stream, requiring a buffer of 50 metres.	Construction and operation

The risk assessment associated with managing the risks to groundwater are presented in the following sections of the draft EIS:



- Section 8.5 Assessment of risks during construction.
- Section 8.6 Assessment of risks during operation.
- Section 8.7 Assessment of risks during closure and rehabilitation.

A summary of the risk assessment for groundwater is presented in Table 8-9 of the draft EIS. This table has been reproduced below as Table 5-78.



Table 5-78 Summary of groundwater risk assessment

Hazard	Pre-mitigated risk			Post-mitigated risks			Risk outcome
	Likelihood	Consequence	Risk ranking	Likelihood	Consequence	Risk ranking	
Changes to groundwater levels	Almost certain	Minor	High	Possible	Minor	Medium	Risk reduced
Changes to groundwater chemistry	Possible	Minor	Medium	Remote	Minor	Low	Risk reduced
Changes to groundwater flow (direction)	Possible	Moderate	Medium	Remote	Minor	Low	Risk reduced
Contamination of Horseshoe Bend Shale aquatards from drilling activities	Remote	Major	Medium	Eliminated	Major	Eliminated	Risk reduced
Contamination of Langra aquifer from drilling activities	Remote	Major	Medium	Eliminated	Major	Eliminated	Risk reduced
Contamination of Hermannsberg Formation groundwater from drilling activities	Remote	Major	Medium	Eliminated	Major	Eliminated	Risk reduced
Contamination of Stairway Sandstone groundwater from drilling activities	Remote	Minor	Low	Eliminated	Minor	Eliminated	Risk reduced
Contamination of Jay Creek Limestone groundwater from drilling activities	Remote	Minor	Low	Eliminated	Minor	Eliminated	Risk reduced
Contamination of Titjikala water supply through loss of containment	Eliminated	Catastrophic	Eliminated	Eliminated	Catastrophic	Eliminated	Risk same
Contamination of Alice Springs aquifer through loss of containment	Eliminated	Catastrophic	Eliminated	Eliminated	Catastrophic	Eliminated	Risk same
Contamination of Great Artesian Basin through loss of containment	Eliminated	Major	Eliminated	Eliminated	Major	Eliminated	Risk same



Hazard	Pre-mitigated risk			Post-mitigated risks			Risk outcome
	Likelihood	Consequence	Risk ranking	Likelihood	Consequence	Risk ranking	
Contamination of livestock through loss of containment	Eliminated	Major	Eliminated	Eliminated	Major	Eliminated	Risk same
Uncontrolled inflow of groundwater during construction	Unlikely	Minor	Low	Remote	Minor	Low	Risk reduced
Uncontrolled inflow of groundwater during operations	Remote	Catastrophic	Medium	Remote	Major	Medium	Risk reduced
Engineered uses of naturally occurring corrosive groundwater	Almost certain	Major	Extreme	Almost certain	Minor	High	Risk reduced
Over abstraction of groundwater leading to local or regional drawdown	Remote	Minor	Low	Eliminated	Minor	Eliminated	Risk reduced
Lack of groundwater for supply	Remote	Major	Medium	Eliminated	Minor	Eliminated	Risk reduced



The risk assessment associated with managing the risks to surface water are presented in the following sections of the draft EIS:

- Section 9.4 Assessment of risks during construction.
- Section 9.5 Assessment of risks during operation.
- Section 9.6 Assessment of risks during closure and rehabilitation.

A summary of the risk assessment for groundwater is presented in Table 9-17 of the draft EIS. This table has been reproduced below as Table 5-79.



Table 5-79 Summary of surface water risk assessment

Hazard	Pre-mitigated risk			Post-mitigated risks			Risk outcome
	Likelihood	Consequence	Risk ranking	Likelihood	Consequence	Risk ranking	
Surface water ingress into decline area and general mining infrastructure	Likely	Moderate	High	Remote	Moderate	Low	Risk reduced
Contaminated surface water runoff off-site	Unlikely	Minor	Low	Remote	Minor	Low	Risk reduced
Salt dissolution and transport off-site	Likely	Major	High	Remote	Minor	Low	Risk reduced
Flash flooding into mine infrastructure area	Possible	Major	High	Remote	Moderate	Low	Risk reduced
Flooding of access/haul roads	Likely	Moderate	High	Possible	Minor	Medium	Risk reduced
Soil erosion leading to excess sedimentation in watercourses	Possible	Major	High	Remote	Minor	Low	Risk reduced
Contamination of regional surface waters (Hugh and Finke Rivers) through loss of containment	Remote	Major	Medium	Eliminated	Major	Eliminated	Risk reduced
Contamination of Hugh River through loss of containment	Remote	Major	Medium	Eliminated	Major	Eliminated	Risk reduced
Contamination of Finke River through loss of containment	Remote	Major	Medium	Eliminated	Major	Eliminated	Risk reduced
Altered hydrology surrounding Maryvale Hills	Almost certain	Moderate	High	Almost certain	Minor	High	Risk reduced
Altered hydrology surrounding the mine infrastructure area	Almost certain	Major	Extreme	Almost certain	Major	Extreme (Beneficial)	Risk same



Issue raised

I am significantly concerned over the following:

- Environmental risk of transporting 200,000 tonnes of hazardous waste each year, long distances to an interstate receptacle on unsealed roads.

Proponent's response

Waste materials would be transported via road and rail from reputable companies licenced to transport dangerous goods. Tier one logistics firm(s) would be selected who operate and are proven transporters of hazardous wastes and dangerous goods under relevant Commonwealth legislation and Australian Codes of Practice.

Potential traffic and transportation impacts during construction, operation, and closure and rehabilitation of the Proposal are presented in Section 18.4 of the draft EIS. Mitigation and management measures proposed to reduce traffic impacts during construction, operation, and closure and rehabilitation of the Proposal are listed in Table 5-80. This table has been reproduced below as Table 5-80. These measures would include the development of a Traffic Management Plan in line with Australian Standard 1742.3. Both plans would be incorporated into the CEMP, OEMP and/or RCP for the Proposal.

Table 5-80 Mitigation and management measures (traffic and transportation)

ID	Outcome	Mitigation/management measure	Timing
T.1	Minimise traffic and transportation impacts and reduce risk of vehicle collision and human collision with vehicle	Prepare and implement a Construction Traffic Management Plan in consultation with the NT Department of Transport in accordance with Australian Standard 1742.3	Pre-construction
T.2	Minimise traffic and transportation impacts	Install appropriate speed and warning signage prior to and at the crossing of Chambers Pillar Road.	Construction
T.3	Prevention of accidents between trucks hauling waste and salt along the Chandler Haul Road.	Develop a collision avoidance system for the Chandler Haul Road. Include the provision of a visible and/or audible alarm system to confirm the presence of vehicles traveling along the proposed Chandler Haul Road. Alarm system would alert drivers of haul trucks when another truck is within 500 metres, requiring a reduction in speed.	Operation
T.4	Minimise traffic and transportation impacts	Restrict speed limits to no more 60km/hr on the proposed Chandler Haul Road and Henbury Access Road. Ensure vehicles reduce speed and come to a complete stop at the crossing of Chambers Pillar Road.	Construction, operation, closure and rehabilitation
T.5	Minimise traffic and transportation impacts	Commit to workplace programs regarding road safety.	Construction, operation,



ID	Outcome	Mitigation/management measure	Timing
			closure and rehabilitation
T.6	Access to surrounding properties maintained	Maintain access to surrounding properties for the duration of the Proposal.	Construction, operation, closure and rehabilitation
T.7	Minimise traffic and transportation impacts and reduce risk of vehicle collision and human collision with vehicle	Prepare and submit to the NT Department of Transport a Construction Traffic Management Plan in accordance with Australian Standard 1742.3	Pre-construction
T.8	Understanding traffic impacts following final detailed design	The proponent would prepare a Traffic Impact Statement and submit to the NT Department of Transport.	Pre-construction.

5.20.2 A1 2

Issue raised

Given that the Titjikala community live only 25 kilometres from this mine, it is imperative that they have a clear understanding of the risks involved to their community, including potential contamination to ground water, drinking water and risks around transporting hazardous waste, in order to make an informed decision about whether they support the proposal. How can we be certain that their groundwater is not connected to the groundwater accessed for drinking water? What happens in the case of a flood or geological movement of the earth?

Proponent's response – consultation with the community of Titjikala

The stakeholder consultation process began in March 2012 and continued through the public exhibition of the draft EIS in February and March 2017. This stakeholder consultation included the residents and Traditional Owners within the community of Titjikala.

Stakeholders were engaged using a range of consultation and communication tools and techniques including face-to-face meetings, workshops, interviews, community information sessions, telephone and email communications, as well as news releases and website updates. These were supported by stakeholder feedback mechanisms, including a company-specific email address and newsletters.

Chapter 5, Table 5-1 of the draft EIS provides a summary of the proponent's activities and the purpose of each activity up to the public exhibition of the draft EIS.

Consultation undertaken during the public exhibition of the draft EIS is summarised in Chapter 3. A copy of the posters and factsheets used during public consultation are provided in Attachment B.

Company news releases (dating from 2009 to 2017) and corporate and project presentations (dating from 2012 to 2017) are posted on the company website:



- Company news releases: http://www.tellusholdings.com/investor_news.php.
- Corporate and project presentations: http://www.tellusholdings.com/investor_presentations.php

Risks during construction, operation, and closure and rehabilitation of the Proposal have been communicated to the residents and Traditional Owners within the community of Titjikala.

Proponent's response - groundwater

A detailed assessment of the risks to groundwater during construction, operation, and closure and rehabilitation of the Proposal are presented in Chapter 8 and Appendix P of the draft EIS.

The groundwater and aquifers at site of the proposed Chandler Facility lie within a separate system to Alice Springs' groundwater supply and to Titjikala's groundwater supply. The proponent has developed a conceptual groundwater model to demonstrate this (refer to Chapter 9 and Appendix P of the draft EIS).

There are four key reasons why the groundwater at the site of the proposed Chandler Facility is not connected to other sensitive systems:

1. The local geology of the site of the proposed Chandler Facility is different to the local geology of Alice Springs and to Titjikala.
2. It does not lie within a defined NT Water Control District. Alice Springs' water supply comes from the Mereenie Aquifer System.
3. The quality of water within aquifers at the site of the proposed Chandler Facility is, very salty. Water within the Mereenie Aquifer System is not as salty. Water from the Titjikala groundwater bore can be consumed by humans.
4. The groundwater flows in a direction away from sensitive receptors like Alice Springs and Titjikala.

Therefore, there is no risk of contamination to the water supply of Titjikala during construction, operation, or during closure and rehabilitation of the Proposal.

Proponent's response - flooding

The risk of flooding was discussed in Section 9.4.2 and Appendix R of the draft EIS. Mitigation and management measures proposed to minimise the risk of flooding during construction, operation, and closure and rehabilitation of the Proposal were listed in Table 9-16 of the draft EIS. These measures would be incorporated into the Water Management Plan (provided in Appendix Q of the draft EIS) for the Proposal. This plan would be included in the CEMP, OEMP and RCP for the Proposal. An extract of Table 9-16 (with regards to flooding) has been reproduced below as Table 5-81.



Table 5-81 Mitigation and management measures (surface water)

ID	Outcome	Mitigation/management measure	Timing
SW1	Management of floodwater draining towards the Chandler Facility from the Maryvale Hills upstream of the mine site.	<p>Formalise drainage channels through or around the site so that upstream runoff does not cause flooding of the site, and so that it is not contaminated by site runoff or sedimentation.</p> <p>Raise flood prone site infrastructure above surrounding ground level.</p> <p>Diversion channels should be designed according to best practice guidance including sizing and lining type (IECA, 2008). Estimates of water volumes generated during storm events at the three sites are given in the Flood and Hydrology Assessment for different return periods. These diversion channels would reduce the amount of “dirty water” requiring management, improve wet weather access to the sites and limit erosion and sediment mobilisation on the sites.</p>	Detailed design and pre-construction
SW4	Management of floodwater on Chandler Haul Road.	<p>Manage floodwater by:</p> <ul style="list-style-type: none"> • Raising the road above surrounding ground level to prevent flooding. • Installing culverts to pass flood flow and reduce/minimise upstream ponding. • Installing causeways over which floodwaters in excess of the design event can pass, but that raise the road above frequent flood levels. • Carrying out repairs, following flood events, as necessary. 	Pre-construction
SW17	Additional investigations during detailed design	Develop stormwater models of the Chandler Facility and Apirnta Facility, including the management of site runoff and the diversion /conveyance of floodwaters from upstream catchments around the sites.	Pre-construction
SW18	Additional investigations during detailed design	Develop two-dimensional modelling of flow paths and inundation in the mine lease area, including the ‘washout area’ to better understand the potential for floodwaters to reach the Hugh River near Titjikala. This investigation would include an assessment of infiltration and evaporation.	Pre-construction
SW19	Additional investigations during detailed design	Model flood risk and scour protection at the crossing of the Finke River.	Pre-construction
SW20	Additional investigations during detailed design	Model flood risk ¹⁴ of haul crossings (bridges, culverts, causeways) of drainage lines.	Pre-construction

¹⁴ The modelling would include an expanded suite of design events, including extreme events such as the Probable Maximum Flood



Proponent's response - geological movement

Geological movement (earthquakes) are discussed in Section 8.6.2 of the draft EIS. The site of the proposed Chandler Facility is located in the eastern part of the Amadeus Basin, within a tectonically stable plate interior, thousands of kilometres from the nearest tectonic plate boundaries that are characterised by frequent seismicity and on-going intense deformation (refer to Section 8.6.2 in the draft EIS).

Nevertheless, earthquakes do occur in stable continental interiors and there have been several earthquakes of magnitude up to 6.6 (the largest recorded in Australia) within the NT (refer to Figure 8-21 in the draft EIS). However, there have been no recorded large earthquakes within the immediate vicinity of the proposed Chandler Facility.

In the unlikely event earthquakes were to occur, the underground facilities would not be affected significantly, since damaging vibrations occur only at the earth's surface. Extensive research in Japan, a far more seismically active country than Australia, has established the feasibility of siting geological disposal facilities for high level radioactive waste at depths comparable to those proposed for the Chandler Facility. Seismic vibrations are attenuated rapidly and would be very unlikely to be felt at 850 metres below ground level, the target depth for hazardous waste emplacement (see for example the dataset from Kamaishi Mine, Japan; JNC 2000).

Earthquakes would only be of concern to the safety of a deep geological facility if the moving fault that causes the earthquake were to intersect the facility. However, under the stress regime in central Australia, new faults are not expected to form. Furthermore, seismic surveys have revealed no faulting within the footprint of the Proposal, or its surroundings (RPS 2013). On this basis, it can be assumed that if any faults do occur, they must be too small to be resolved (displacements likely less than 10 metres).

Since there is a well-established correlation between the sizes (displacements) of existing faults and the magnitude of earthquakes that are likely to occur along them (Wells and Coppersmith 1994), it follows that the risk of movements of existing faults within the Proposal causing significant seismic events is not a concern for the Proposal.



5.20.3 A1 3

Issue raised

The risks of transporting these hazardous materials throughout the NT also give risk to the greater population and the greater environment. Where are the wastes coming from? What is their proposed route? Has the greater Central Australian community been consulted about these risks? Do the benefits really outweigh the costs of transporting hazardous waste if the real potential for accidents and associated environmental clean ups are factored into the economic evaluation of the mine?

Proponent's response – source of waste

As discussed in Section 3.2.6 of the draft EIS, waste would be sourced from the NT and other states/territories within Australia and from Australia's Exclusive Economic Zone (which extends 200 nautical miles from shore). Approval to import international wastes under the Basel Convention also forms part of the Proposal.

Proponent's response – transportation routes to/from the proposed Chandler Facility

Waste would be transported predominantly by rail, but in some instances by road along major transportation routes (refer to figure 5-12).

Proponent's response – community consultation (greater Central Australia)

The stakeholder consultation process began in March 2012 and continued through the public exhibition of the draft EIS in February and March 2017. Stakeholder consultation was undertaken with the residents and Traditional Owners within the community of Titjikala and with the residents located within the wider community of Alice Springs. Stakeholder consultation was also undertaken with MacDonnell Regional Council and with government departments located in Alice Springs, Darwin and Canberra.

Stakeholders were engaged using a range of consultation and communication tools and techniques including face-to-face meetings, workshops, interviews, community information sessions, telephone and email communications, as well as news releases and website updates. These were supported by stakeholder feedback mechanisms, including a company-specific email address and newsletters.

Chapter 5, Table 5-1 of the draft EIS provides a summary of the proponent's activities and the purpose of each activity up to the public exhibition of the draft EIS.

Consultation undertaken during the public exhibition of the draft EIS is summarised in Chapter 3. A copy of the posters and factsheets used during public consultation are provided in Attachment B.

Company news releases (dating from 2009 to 2017) and corporate and project presentations (dating from 2012 to 2017) are posted on the company website:

- Company news releases: http://www.tellusholdings.com/investor_news.php.



- Corporate and project presentations:
http://www.tellusholdings.com/investor_presentations.php

Risks during construction, operation, and closure and rehabilitation of the Proposal have been communicated to the residents and Traditional Owners within the community of Titjikala and to the wider community of Alice Springs. These risks have also been communicated to MacDonnell Regional Council and to government departments located in Alice Springs, Darwin and Canberra.



Proponent's response – benefit/cost of the Proposal

As discussed in Section 2.4 of the draft EIS, proceeding with the Proposal would result in positive social, economic and environmental benefits in the NT and within Australia. This section states:

'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).*
 - *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:*
 1. *Tellus' School to Jobs Program (Annual Schools Tour).*
 2. *Tellus' Pre-employment Training Program ('Getting Job Ready') comprising Tellus' Traineeships Program, Tellus' Apprenticeships Program and Training Accreditation.*



3. *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 2-1 and Plate 2-2).*
 4. *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.*
 - *The NT EPA's Waste Management Strategy for the Northern Territory 2015-2022, the NT Department of the Chief Minister Framing the Future and the Australian Government National Waste Policy.*
 - *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.'

The purpose of the environmental impact assessment process is to assess the potential risks during construction, operation, and closure and rehabilitation of the Proposal. These risks have been assessed in detail and are presented in Chapter 6 through Chapter 19 (and in various appendices) of the draft EIS. The risks assessed include those to biodiversity, groundwater, surface water, historic and cultural heritage, human health, economic and social, and risks arising from closure and rehabilitation of the Proposal. Additional risks were assessed including bushfire, air quality, noise and vibration, landscape and visual amenity, public health and food, biting insects, greenhouse gases, traffic, and cumulative impacts of the Proposal.

Various sections of the draft EIS were prepared by external sub consultants were also peer reviewed by international experts.

Based on the findings of the environmental impact assessment:

- The Proposal would result in some minor adverse impacts on the environment.
- These impacts would be managed and mitigated by implementing the various mitigation measures outlined in the draft EIS and by adhering to relevant legislation, regulations, policies and guidelines.
- The environmental performance of the Proposal would be managed through the implementation of the CEMP, OEMP and RCP. This would also help to ensure compliance with relevant legislation, regulations and any conditions of approval.

It is considered that the Proposal is justified on the basis of environmental acceptability and is in accordance with the principles of ecologically sustainable development (refer to Section 21.3 of the draft EIS).

Based on the environmental impact assessment, it is considered that the long term operational benefits of the Proposal would outweigh the minor adverse effects of the Proposal.

5.20.4 A1 4

Issue raised

I would like to ask why Tellus Holdings would want to store hazardous waste at its facility, due to the fact that it may contaminate its salt product? Would they go ahead with the mine if they were restricted to backfilling with non-hazardous waste? It seems like limiting waste management options to inert materials is the most feasible, safe and secure way forward for the region.

Proponent's response – contamination of salt product

The salt mining operations and waste storage and isolation operations are described in detail in Section 3.6 of the draft EIS. Salt would be mined using a room and pillar system of mining. The



underground mine would, therefore, be composed of multiple lengthy passages (or rooms) running in parallel along a horizontal plane, separated by pillars of unmined material (therefore keeping the salt mining operations separate to the waste disposal operations). Each room would be approximately 250 metres long, 15 metres wide and six metres high. Each room would be allocated to a waste type which would allow separation of waste according to a Waste Zoning Guide. The indicative layout of these rooms is shown in Figure 3-13 in the draft EIS.

Once a room is excavated of salt, the entrance to the room would be barricaded until waste storage and isolation commences. The salt would be transferred to the surface and stockpiled. Salt processing would then be undertaken. Product salt would be filled into bulk bags or lined shipping containers and then transported to the proposed Apirnta Facility before being loaded onto trains for transport to Adelaide via the Central Australian Railway. Waste would then be moved underground (as dry packaged waste backfill or hydraulic backfill). The waste would be arranged into compatible zones within the rooms. The waste would then be backfilled and the room closed. Empty waste containers would then be returned to the surface.

Proponent's response – backfilling with non-hazardous and inert waste

The need for the Proposal is discussed in detail in Section 2.2 of the draft EIS. This section clearly outlines the problem (the growing volume of hazardous waste being produced and the volume of legacy waste in the NT and Australia) and the solution (the need [and regulatory obligation] to provide for the safe and secure storage, recovery of valuable materials and the permanent isolation of hazardous waste in a deep geological repository).

To that end, there are two primary objectives of the Proposal. These are:

1. To mine rock salt for industrial and edible uses that would be exported to Asia, with some salt available for use in Australia.
2. The void spaces left from the salt mining operations, would be used to store equipment and archives and also store, recover or permanently isolate hazardous waste materials.

Backfilling with non-hazardous or inert waste would not meet the objectives of the Proposal.

Geological repositories are designed for the storage/permanent isolation of specific waste types – namely hazardous waste (as is proposed to be stored at the proposed Chandler Facility) and low, intermediate and high level radioactive waste (not proposed to be stored at the proposed Chandler Facility). The storage of these waste types in geological repositories is globally considered 'best practice' for hazardous waste and is a solution that is currently being successfully utilised in the United Kingdom, Europe, the United States and Canada.

Many non-hazardous wastes (e.g. municipal solid waste – putrescible household and commercial waste) are not appropriate for storage in geological repositories where the waste can react with the repository geology (such as dissolving it or producing a gas). Non-hazardous or inert waste is traditionally re-processed, incinerated, or disposed of in landfills.



5.21 Anonymous 2

Issues identified by Anonymous 2 are provided in Table 5-82. A response to each issue is provided in Section 5.21.1 through Section 5.21.3.

Table 5-82 Issues identified by Anonymous 2

Issue reference	Issue raised
A2 1	Groundwater – Ambiguity as to how contaminated discharge will be controlled and how groundwater resources will be regulated. This is made more concerning by the fact that water discharges and allocation connected to the mining of salt are exempt from the laws regulating disclosure and control of waste under the Water Act and the Waste Management Pollution Control Act, although I understand that the NT Government is currently reviewing these exemptions.
A2 2	Waste acceptance - Concerns about some of the waste being accepted for this storage facility, especially lead products and waste water from CSG projects. I am particularly concerned about the latter as it has the potential to encourage the unconventional gas industry in Australia.
A2 3	Groundwater – Finally, I have concerns about potential groundwater contamination as the site is only about 20kms from the Finke River, and therefore near shallow alluvium aquifers. This means that there is a real possibility of groundwater contamination, which, given the scarcity of water in the region, would be a tragedy.

5.21.1 A2 1

Issue raised

Ambiguity as to how contaminated discharge will be controlled and how groundwater resources will be regulated. This is made more concerning by the fact that water discharges and allocation connected to the mining of salt are exempt from the laws regulating disclosure and control of waste under the Water Act and the Waste Management Pollution Control Act, although I understand that the NT Government is currently reviewing these exemptions.

Proponent's response

Should the Proposal be approved, all water resource activities will be undertaken in accordance with all requirements of the *Water Act* and associated Regulations. A MMP will also be submitted to the DPIR for approval. Furthermore, an Environmental Protection Approval and Environmental Protection Licence will be submitted to the NT EPA.

Combined, all forms of documentation will require the proponent to be regulated for their proposed water and waste activities.



5.21.2 A 2 2

Issue raised

Concerns about some of the waste being accepted for this storage facility, especially lead products and waste water from CSG projects. I am particularly concerned about the latter as it has the potential to encourage the unconventional gas industry in Australia.

Proponent's response

A range of hazardous wastes produced mostly by mining, oil and gas, chemical, manufacturing, agricultural, site remediation, utilities and government could be stored either temporarily (until recovery and treatment is possible) or permanently inside the void spaces left from the salt mining operations at the proposed Chandler Facility. The waste accepted and not accepted at the proposed Chandler Facility are specified in the Waste Acceptance Criteria presented in Section 3.2.6 and Appendix C of the draft EIS.

Waste received at the proposed Chandler Facility would be in line with those listed under the NT *Waste Management Pollution Control Act* (WMPC Act) and the Waste Management Pollution Control (Administration) Regulations (WMPC Regulations). Materials listed in Schedule 2 of the WMPC Regulations are attached in Appendix F of the draft EIS. The wastes listed in Schedule 2 include waste that could be associated with coal seam gas operations. It is important to note, however, that no one waste material would underpin the Proposal.

5.21.3 A2 3

Issue raised

Concerns about potential groundwater contamination as the site is only about 20kms from the Finke River, and therefore near shallow alluvium aquifers. This means that there is a real possibility of groundwater contamination, which, given the scarcity of water in the region, would be a tragedy.

Proponent's response

A detailed assessment of the risks to groundwater during construction, operation, and closure and rehabilitation of the Proposal are presented in Chapter 8 and Appendix P of the draft EIS.

The groundwater and aquifers at site of the proposed Chandler Facility lie within a separate system to Alice Springs' groundwater supply and to Titjikala's groundwater supply. The proponent has developed a conceptual groundwater model to demonstrate this (refer to Chapter 9 and Appendix P of the draft EIS).

There are four key reasons why the groundwater at the site of the proposed Chandler Facility is not connected to other sensitive systems:



1. The local geology of the site of the proposed Chandler Facility is different to the local geology of Alice Springs and to Titjikala.
2. It does not lie within a defined NT Water Control District. Alice Springs' water supply comes from the Mereenie Aquifer System.
3. The quality of water within aquifers at the site of the proposed Chandler Facility is, very salty. Water within the Mereenie Aquifer System is not as salty. Water from the Titjikala groundwater bore can be consumed by humans.
4. The groundwater flows in a direction away from sensitive receptors like Alice Springs and Titjikala.

Therefore, there is no risk of contamination to the water supply of Titjikala during construction, operation, or during closure and rehabilitation of the Proposal.

Other potential risks to groundwater are presented in Chapter 8 and Appendix P. Mitigation and monitoring measures to manage the identified potential risks are presented in Section 8.8 of the draft EIS. Those measures are summarised in Table 8-8. This table has been reproduced in the proponent's response to A1 1 (refer to Section 5.20.1).

5.22 Anonymous 3

Issues identified by Anonymous 3 are provided in Table 5-83. A response to the issues raised is provided in Section 5.22.1.

Table 5-83 Issues identified by Anonymous 3

Issue reference	Issue raised
A3 1	<p>Biodiversity and surface water – Leave that salt mine there. It was created by God, let it be in there. Don't get it out. I'm speaking for all the Pertame people, they would not wasn't that thing. We do not want that mining to go head for that salt mine. Leave it, it's been there all this time. Years and years before we were born. Why get it out? A lot of people don't want it. Luritja people, Pitjantjatjara people and Arrernte people don't want it. They just want money, that's why these white people want it. We are worried it's going to poison the Finke River. Everybody said no.</p> <p>I'm concerned for the animals and the people that live around Henbury station.</p> <p>Leave it, let it be.</p>

5.22.1 A3 1

Issue raised

Leave that salt mine there. It was created by God, let it be in there. Don't get it out. I'm speaking for all the Pertame people, they would not wasn't that thing. We do not want that mining to go head for that salt mine. Leave it, it's been there all this time. Years and years before we were born. Why get it out? A lot of people don't want it. Luritja people, Pitjantjatjara people and Arrernte people don't want it. They just want money, that's why these white people want it. We are worried it's going to poison the Finke River. Everybody said no.



I'm concerned for the animals and the people that live around Henbury station.

Leave it, let it be.

Proponent's response - biodiversity

Noted. Please refer to Chapter 7 (Biodiversity) for impacts to terrestrial flora and fauna during construction, operation and closure and rehabilitation of the Proposal.

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 habitat. Construction and operation of the Proposal may also result in indirect impacts on biodiversity such as fauna displacement, injury or mortality; fauna strike; altered hydrology; potential for contamination, erosion and sedimentation; and increased dust, light, noise and vibration. Indirect impacts may also include the introduction and spread of weeds and invasive species; increased predator species; increased introduced fauna use; and an increased incidence of fire.

Potential impacts on biodiversity during closure and rehabilitation of the Proposal would generally be the same as those during construction of the Proposal.

There would be no significant impact on species listed as near threatened or data deficient under the TPWC Act. None of the species are considered to have conservation significance within the proposed development footprint or vicinity, or within the wider locality. All species are locally common with a widespread distribution and there is no critical habitat for any of the species listed as near threatened or data deficient recorded or predicted to occur within the proposed development footprint or vicinity.

The potential for significant impacts on matters of national environmental significance and on state-listed threatened species were assessed in accordance with significant impact guidelines prescribed by the EPBC Act. The results of the assessments concluded that there would be no significant impact on species listed as threatened under the TPWC Act and/or EPBC Act. 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.

Additional, targeted surveys were undertaken post submission of the draft EIS (at the direction of DEE) to confirm the presense/absence of two matters of national environmental significance originally considered to have a low to moderate likelihood of occurrence within the proposed development footprint or vicinity - the Slater's skink (*Liopholis slateri slateri*) and the thick-billed grasswren (*Amytornis modestus indulkana*). Areas of potential habitat for these species were surveyed in April/May 2017 within the vicinity of the proposed Henbury Access Road. The additional surveys confirmed that these species are not present within the proposed development footprint or vicinity and would, therefore, not be impacted by the Proposal (refer to Attachment C).

Mitigation and management measures would be implemented to reduce the potential impacts on biodiversity during construction, operation, and closure and rehabilitation of the Proposal. These mitigation and management measures are detailed in Section 7.9 of the draft EIS.



Proponent's response – surface water

Please refer to Chapter 9 (Surface Water) for a detailed environmental impact assessment on surface water (including the Finke River) during construction, operation and closure and rehabilitation of the Proposal.

Potential direct impacts on surface water during construction, operation, and closure and rehabilitation include those primarily associated with erosion (through exposed soils and stockpiled materials). There would be no perceptible change to hydrology for the following reasons:

- **Chandler Facility.** Surface water flowing through the proposed facility would drain towards a flat washout area to the north, towards the Charlotte Range. The water would pond in this washout area where the majority of the water would be lost through evaporation and infiltration. Surface water runoff is not expected to reach the Hugh River. In addition, the proposed facility (including the accommodation village) and catchments upstream of the proposed facility only represent 10% of the catchment draining through the Charlotte Range towards the Hugh River and the community of Titjikala.
- **Chandler Haul Road and Apirnta Facility.** Surface water flowing across the proposed haul road and through the proposed storage and transfer facility would drain to the south-west, towards Charlotte Range. Though the haul road would be less impervious than the existing track, the area would be insignificant when compared to the areas of contributing catchments. In addition, runoff from the proposed Apirnta facility would be collected, treated, and reused on-site for various purposes (e.g. dust suppression, vehicle washdown, ablutions). It is, therefore, not anticipated that there would be any perceivable increase in flow or volume of water draining through the Charlotte Range towards the Finke River.

Potential indirect impacts on surface water during construction, operation, and closure and rehabilitation include flooding and contamination of surface water from accidental spills. These potential indirect impacts are easily managed through standard construction and operation sediment and erosion management measures. These management measures are detailed in Section 9.7 of the draft EIS.



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