# 6. Environmental Management Strategies

This section links to the Register of Environmental Objectives and Targets in EMS, and the Aspects and Impacts Register which forms the basis of the EMS.

## 6.1 Ground and Sand dune stability

Sand dunes and sandy soils are vulnerable to ground and soil stability issues due to erosion from wind, foot traffic, and vehicle and equipment movement. Maintaining vegetation cover is essential to protecting the soil cover and maintaining sand dune stability and height. Routine surveillance by staff including Landscaping staff identify and monitor any subsidence and developing erosion issues within the resort land area.

Table 6.1.1. Ground and Sand dune stability Objectives, standards and measurement criteria

| Objectives | Standards | Measurement criteria |
|---|---|---|
| Maintain ground stability<br>Reduce soil erosion<br>Reduce damage to vegetation | | Monitor sand dune subsidence<br>Track development of new, unauthorised pathways<br>Monitor dune erosion<br>Track number of people walking on unauthorised tracks<br>Monitor progress of revegetation programmes |

Table 6.1.2. Ground and Sand dune Stability, Aspects and Impacts table (from Aspects and Impacts Register).

| Aspect | Source of risk | Potential Impact Table 6.1.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Ground instability, sand dune erosion due to, foot or vehicle traffic. Damage to existing vegetation. (When vegetated sand dunes are stable, however when that vegetation damaged/destroyed they can start to move and quickly) | Multiple foot (note not always visitors) and vehicle tracks | 1.1. Erosion and potential movement of sand dunes. | Dedicated marked, lit pathways. Signage regarding sand dune stability in place. | Manager/s Campgrounds / Housing / Landscaping | Ground and Sand dune stability Procedure | Possible | Medium | Moderate |
| | | | Flyers on fragility of sand dune vegetation and stability provided to residents and guests on why and what resort is trying to achieve, may need to be in multiple languages. | | | | | |
| | | | Routine surveillance by Resort staff and Landscaping team undertaken to identify and monitor any erosion, sand dune subsidence, development of new pathways, reporting of people walking where they shouldn't. Reporting of any Incidents via company Incident system. | Resort staff, Landscaping team, Housing PA's, Sounds of Silence staff. | | | | |
| | | | Off road access within resort by vehicles limited to prevent erosion, sand dune damage and damage to existing vegetation. | GM Technical Services / Security | Housing Regulations p. 6 | | | |
| | | | Installation of barriers (logs, rocks, sand mounds) to prevent or close down pathways/potential vehicle access ways. | Manager/s Campgrounds / Housing / Landscaping | Ground and Sand dune stability Procedure | | | |
| | | | Undertake Photo monitoring points, to be reviewed 6 monthly, determine priority areas and control measures. | Environment Officer | | | | |

| Aspect | Source of risk | Potential Impact Table 6.1.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Ground instability, sand dune erosion due to, foot or vehicle traffic. Damage to existing vegetation. (When vegetated sand dunes are stable, however when that vegetation damaged/destroyed they can start to move and quickly) | Multiple foot (note not always visitors) and vehicle tracks | 1.2. Damage to existing vegetation. | Vegetation clearing minimised. Protective barriers/fencing in place. | GM Technical Services | | Possible | Medium | Moderate |
| | | | Signage in place. Education to resort staff and guests that revegetation is potentially very slow and costly exercise. | GM Technical Services / GM Hotels/ Housing | | | | |
| | Fencing: In places e.g. campground, fencing is in place but visitors may still go through, perhaps not as much as in other areas. | 1.3. Damage to existing vegetation. | Signs in place on fences and sand dunes. Flyers on fragility of sand dune vegetation and stability provided to guests. Fencing checked weekly. | | | Possible | Medium | Moderate |
| | Earthworks associated with construction, maintenance and repairs | 1.4. Erosion, damage to existing vegetation | Earthworks undertaken in smallest footprint area. Topsoil and subsoil removed and stored in separate piles with subsoil backfilled first and topsoil spread over the excavation to aid in restoration and revegetation of disturbed area. Any earthworks undertaken in vegetated areas, discussion with Assistant Landscaping Manager, revegetation plan in place, prior to work commencing. | GM Technical Services / VITA Project Manager | | Likely | Minor | Moderate |
| | | 1.5. Disturbance of unidentified potentially contaminated soils | | GM Technical Services | | Unlikely | Medium | Moderate |
| | | 1.6 Contamination associated with former tip sites | Locate former "tip" sites, noted in Due diligence resort documentation. Map or survey area and assess contamination. | GM Technical Services | | Likely | Medium | High |

## 6. 2 Water sustainability and Stormwater Management

This section describes the Aspects for both fresh water management to the Resort and housing as well as stormwater management. A sustainable supply of freshwater is critical for the operation of the Resort being in such a remote location. The freshwater for the Resort is sourced from the Dune Plains Aquifer and the extraction, treatment and supply is managed by NT Power and Water. Two streams of water are used throughout the Resort and housing, with potable water, water that has gone through further screening through the Reverse Osmosis plant and treatment being used in all areas where potable water may be consumed. Non potable water, still of a high quality, is used throughout the Resort and housing toilets. Water conservation measures are built into infrastructure. Due to the remoteness of the Resort, all laundry is undertaken at the Resort Laundry in Giles Street area. Stormwater management is also described in this section, however it must be remembered that due to the semi-arid environment and low rainfall that stormwater issues are irregular.

Table 6.2.1. Water sustainability and Stormwater management Objectives, standards and measurement criteria

| Objectives | Standards | Measurement criteria |
|---|---|---|
| Reduce water consumption in Resort | AS/NZS 6400, *Water efficient products – Rating and labelling.* | Track quantity of water used in Resort operations<br><br>Train staff in water conservation practices<br><br>Monitor leaks and wastage<br><br>Efficient water conservation practices and devices employed in gardens and housing |
| Manage stormwater | | Condition of road surfaces<br><br>Monitor for leaks from underground fuel and other chemical storages<br><br>Monitor accidental release of fuel and chemicals<br><br>Monitor soils for contamination |

Table 6.2 Water sustainability and Stormwater Management, Aspects and Impacts table.

| Aspect | Source of risk | Potential Impact Table 6.2.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Resort operations | Wastage of freshwater | 2.1. Difficulties with long term sustainability of freshwater supply's | Water consumption is measured by meter readings. Monthly water consumption is reported in the Carbon Footprint and Trend of Operations report to evaluate spikes, changes, reduction over time. | GM Technical Services/Environment Officer | Water sustainability and Stormwater management Procedure | Likely | Major | High |
| | | | NT Power and Water manage water extraction and quality for the Yulara area. Water is stored in large tanks at their site, enough for 7 days supply. | NT Power and Water | NT Power and Water internal Procedures | | | |
| | | | Two water streams are used within the Resort and Housing, potable water for all but toilets, and non potable (although high quality) for toilets and irrigation system for gardens, oval etc. | | | | | |
| | | | Treated Wastewater is used at the "Tree farm" for growing trees ultimately used for firewood at the campgrounds and remote dining sites. | | | | | |
| | | | Water saving devices are installed wherever possible within the Resort and housing and include: water saver showerheads, dual flush toilets, tap aerators, automatic time out taps for bubblers, public areas and public toilets. | Technical Service /Housing /Campground | Water sustainability and Stormwater management Procedure | | | |

| Aspect | Source of risk | Potential Impact Table 6.2.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Resort operations | Wastage of freshwater | 2.1. Difficulties with long term sustainability of freshwater supply's | Staff training and awareness of water conservation practices and as a critical resource at the Resort, reporting of any leaks, potential water saving ideas, water wastage to either Technical Services or relevant managers. | GM Technical Service / All staff / All Residents | Maintenance Request Form | Likely | Major | High |
| | | | Minimising grassed areas of lawn and planting of native species in garden beds. | Assistant Landscaping Manager | Water sustainability and Stormwater management Procedure | | | |
| | | | Tap timers are used for irrigation of gardens and lawn areas. Irrigation is only undertaken 3 times per week to encourage deeper plant root systems, as well as this irrigation is undertaken in summer months during night time hours to lessen evaporation. Micro dripper irrigation system used for efficiency and water conservation. | | | | | |
| | | | Guests are invited to reuse towels instead of having fresh towels daily to cut down on water use at laundry. Bed linen is changed every second day except at Sails in the Desert Hotel where it is changed daily. | GM Hotels | Hotel Housekeeping Procedures | | | |
| | | | Guest laundries at Hotels (except Emu Walk - washing machines installed) and Campgrounds | | | | | |
| | | | Guest rooms, above bath clothes lines for drying. | | | | | |

| Aspect | Source of risk | Potential Impact Table 6.2.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Resort operations | Wastage of freshwater | 2.1. Difficulties with long term sustainability of freshwater supply's | Water conservation signs in Toilet blocks at Campground/s. | Campgrounds Manager | Water sustainability and Stormwater management Procedure | Likely | Major | High |
| | | | Any of the large water use items, Cooling towers for air conditioning/heating, swimming pools, reflection ponds have recycling of water within system and make up tanks. | GM Technical Service | | | | |
| | | | Pools within housing areas and Recreation centre are dosed and covered during winter months to restrict evaporation. | Housing Manager | | | | |
| | | | NT Health requirement for evaporative air conditioning units for all kitchens. Switches linked to lights, so when kitchen is closed air conditioning units are off. | GM Technical Services/ Hotels | | | | |
| | | | Waterless urinals in all hotel area men's toilets. | GM Hotels | | | | |
| | | | Water delivery is undertaken to remote sites on a weekly basis. | GM Technical Services | | | | |
| | | | All remote sites have composting toilets. | | | | | |
| | | | Kitchen areas have dishwashing with minimal water use, Star rating system. Also have separate sink/tap system for pots and pans that require scrubbing. | GM Hotels | | | | |
| | | | Ice machines throughout Resort have a volume detection system so that once bin is full, machine stops making ice, reduction in water use. | Hotels/Technical Services | | | | |

| Aspect | Source of risk | Potential Impact Table 6.2.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Resort operations (cont.) | Wastage of freshwater (cont.) | 2.1. Difficulties with long term sustainability of freshwater supply's. (cont.) | Water saving measures at Laundry: The Hotel laundry is undertaken in the Continuous Batch Washer which has inbuilt water conservation measures and recycling of wash and rinse water streams, with a projected water usage of 5.5L/tonne of laundry.<br><br>For laundry which needs special attention, a number of Extractor machines (industrial washing machines with high spin rates) are also used. Wash water from these machines passes through a lint remover outside and the water is then recycled through extractors.<br><br>Water is also used in the Laundry boiler and the associated water tank levels are controlled by float valves.<br><br>Make up water for chemical dosing system is controlled by dosing system with alarms for overflow etc. | Laundry Manager | Laundry Standard Operating Procedures | Likely | Major | High |

| Aspect | Source of risk | Potential Impact Table 6.2.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Surface and groundwater quality, drainage pattern or flow modification | Resort or facility operations. Vehicle or heavy machinery movements. Clearing operations. Routine/non routine maintenance. | 2.2. Contamination of ephemeral surface water or flow areas, or groundwater, due to sediment, fuel or chemicals, organic matter, etc. | Ground and sand dune stability issues are managed as per Table 1 above. Traffic to stay on formed roads and access tracks as per Table 1 and 11. | | | Unlikely | Minor | Low |
| | | | The condition of roads, access tracks is regularly monitored for vehicle/access management and for movement of sand, road material off road. | GM Technical Services/ Security Manager | Ground and Sand Dune stability Procedure | | | |
| | | | Any fuels, oils, chemicals are stored, transported and handled as described in Table 4 to prevent contamination of land or ephemeral water channels/drainage lines. | Table 4 | | | | |
| | | 2.3. Altered drainage patterns or flow regimes of surface or groundwater. | Erosion control works or rehabilitation of drainage patterns or flow regimes affected by non routine maintenance works, new projects, is to occur as soon as is practical after issues raised. Restoration to be as close to original profile as possible. | Project Manager/ GM Technical Services | Ground and Sand Dune stability Procedure | Unlikely | Major | Moderate |

## 6.3. Vegetation Management and Protection

Due to the semi-arid environment, low and intermittent rainfall, vegetation growth rates are typically low outside any irrigated resort areas. The Resort gardens and public areas are vegetated to add aesthetic appeal to guests (and staff) and showcase the variety of native vegetation to Australia. In addition the garden areas and landscaping provides cooling for buildings and surrounds. Staff take great pride in the appearance of the resort gardens and surrounds. The gardens also provide valuable habitat and refuge and limited mature hollows for birds and mammals which increases the visual opportunities for seeing native species for national and internal guests. Outside of the garden areas maintaining vegetation cover is essential to protecting the soil cover in the resort area, and maintaining sand dune stability and height. Routine surveillance by staff, including Landscaping staff, is used to identify and monitor degradation of vegetation, new tracks being created by guests or residents, potential subsidence and developing erosion issues within the resort land area. Due to the semi-arid environment vegetation growth rates are typically low and much of the vegetation may be quite old. In the event of severe damage to vegetation or sand dunes necessitating replacement or replanting, this is a very costly exercise with long timeframes due to plant growth rates.

Table 6.3.1. Vegetation Management and Protection objectives, standards and measurement criteria.

| Objectives | Standards | Measurement criteria |
|---|---|---|
| Maintain Resort gardens for aesthetic appeal, shade and refuge habitat for wildlife | AS 4970:2009: Protection of trees on developments sites | Number of signs installed for Stay on Track<br>Reports of guests/staff/residents walking off tracks<br>Number of shrub/ tree seedlings planted per year |
| Maintain guest and resident safety | | Arborist visits per year |
| | | Number of trees removed, and/or number of trees trimmed/treated per year |
| Reduce damage to existing native vegetation from both humans and feral herbivores | *Environment Protection and Biodiversity Act*, 1999 | Number of staff educated on potential for damage to vegetation when walking off dedicated tracks (induction etc.).<br>Articles on vegetation awareness Manta guide - Guests<br>Number of Rabbit patrols<br>Rabbit numbers zero or 10% of initial population |
| Any clearing of native vegetation undertaken according to permit requirements | NT *Planning Act 2016*, potential breach of *EPBC Act.* | Permits issued per year |

Table 6.3.2. Vegetation Management and Protection Aspects and Impacts table.

| Aspect | Source of risk | Potential Impact Table 6.3.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Clearing of native vegetation | Illegal clearing of vegetation | 3.1. Breach of NT *Planning Act 2016*, potential breach of *EPBC Act.* | Any areas that require clearing of vegetation greater than 1hectare require approval under the Department of Natural Resources and Environment. Failure to obtain the necessary permits can attract heavy fines. | GM Technical Services | Vegetation management and protection Procedure | Unlikely | Major | Moderate |
| Maintain and enhance vegetation in resort gardens. | Guests, staff walking through gardens, trampling plants etc. | 3.2. Damage to resort gardens and plants. | Vegetation in resort gardens used as privacy screens in many areas between rooms, to screen restaurants, public areas and hide infrastructure. Guests asked to not walk on or through garden areas, designated pathways through resort area. Some "rustic" fencing installed as barrier to entry to gardens, revegetation areas. | GM Hotels / Assistant Landscaping Manager | | Likely | Minor | Moderate |
| | | | Organic material from vegetation management around resort gardens is mulched and spread back on gardens to aid soil water retention and increase vegetation growth rates, delineate garden areas and aid in weed suppression. | Assistant Landscaping Manager | | | | |
| | | | Garden areas provide refuge for reptiles, animals when disturbed by guests, staff moving through these areas or walking along pathways. | Assistant Landscaping Manager | | | | |

| Aspect | Source of risk | Potential Impact Table 6.3.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Protection of existing vegetation surrounding resort area and especially sand dunes. | Trampling of vegetation by visitors, staff and residents when taking shortcuts around resort walking to or from lookouts, or to and from work or walking on non-designated tracks. | 3.3. Poor or non-existent vegetation cover leading to destabilisation of sand dune slopes and potential movement of sand dunes.<br>New paths occurring from random foot traffic, damage to vegetation root systems and loss of amenity from vegetation death.<br>Low growth rates of vegetation due to semi arid environment mean that regeneration rates are slower.<br>Revegetation or regeneration of areas is very costly and timeframes for growth or regrowth can be long | Signage as to keeping on formed tracks and off sand dunes. Education and awareness of both guests, staff and residents as to damage caused to vegetation by walking through vegetation and not keeping to formed tracks. | Hotel/ Campgrounds / Housing Manager/s GM Technical services | Vegetation management and protection Procedure | Possible | Medium | Moderate |
| | | | Tracks and walking trails marked on maps for guests, staff and residents. | | | | | |
| | | | Information and education provided at Inductions, Resort Wide meetings and Toolbox talks regarding vegetation and sand dune stability and the reasons that guests and staff are requested to stay on designated tracks, and to stay off sand dunes where no designated lookout area exists. | Housing Manager / GM Technical services | | | | |
| | | | Fencing of areas as last resort for control, signage and potentially revegetation. | | | | | |
| | | | Any revegetated areas monitored and results and photo records retained and reported on. | Environment Officer | | | | |

| Aspect | Source of risk | Potential Impact Table 6.3.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Protection of existing vegetation surrounding resort area and especially sand dunes. | Driving vehicles not on designated roadways or fire trails | 3.4. Damage to vegetation, erosion of areas, damage to existing gardens, infrastructure (e.g. lighting), and irrigation systems | Information and education regarding vehicular access and not driving off designated roads or fire trails within greater land area. | Housing Manager | Housing Regulations p.6 | Likely | Minor | Moderate |
| | | | Damage in residential areas from staff or residents driving off road or through naturally vegetated areas, or within housing areas and damaging existing irrigation systems. | Housing / Security Manager | Maintenance Request Form (to report damages) | | | |
| | Rabbit activity | 3.5. Damage to lawns and grassed areas as well as newly planted shrubs etc., damage to root systems of plants on sand dunes when constructing warren systems, erosion of areas, damage to existing gardens. | Regular reporting of rabbit activity by Landscaping staff. Regular control by specialist contractor and trained landscaping staff, by release of latest biosecurity control methods, fumigation, closing of warrens, judicious use of poisons taking into account guest and resident activities. | Assistant Landscaping Manager/ Environment Officer | Pests and Disease Control Procedure | Likely | Minor | Moderate |
| Protection of Threatened species | Inadvertent or deliberate damage to Threatened flora species | 3.6. Breach of legislation, regulations, licence conditions. | Any new development or extension of development within Resort land area to be assessed for likelihood of Threatened Species. | GM Technical services | | Unlikely | Major | Moderate |
| | | | Ecologists Report to be provided to Voyages, prior to any work being undertaken. | | | | | |

| Aspect | Source of risk | Potential Impact Table 6.3.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Protection of Threatened species | Removal of certain numbers of Desert Oak /s *Allocasuarina decaisneana* annually where they may be a concern due to safety of guests and residents particularly after heavy rain and/or high winds.<br>Note Threatened species under NT Legislation. | 3.7. Breach of Territory Parks and Wildlife Conservation Act 2006 | Correspondence from NT Parks and Wildlife Service to say that we do not require a Permit for removal of Desert Oak /s *Allocasuarina decaisneana* at this stage for what we are looking to removal and that we are not removing for profit etc. | Environment Officer | NT Parks and Wildlife Service letter. | Unlikely | Minor | Low |
| | | | Copy of all correspondence kept with relevant department and Environment Officer records. | | | | | |
| | | | Ensure conditions remain valid and that a tally is kept of the number of Desert Oak /s Allocasuarina decaisneana removed annually and why, in case we are asked to provide this information. | Assistant Landscaping Manager | Landcaping Records | | | |
| | | | After heavy rain and/or high winds Desert Oaks, *Allocasuarina decaisneana*, within Resort hotel area/residential area are assessed. | | | | | |
| Aviation - Airport operations | Vegetation above certain heights | 3.8. Breach of Aviation requirements | Detailed in Table 6. | | | | | |

## 6.4. Chemical and Fuel Storage, Use, Disposal and Spill Response

Permanent storage facilities both above ground and underground (fuel) are located at the Resort. Due to the remote location and the fuel and energy requirements large quantities of Jet fuel, Aviation gas (Airport), diesel, petrol (Service Station) Liquefied Petroleum Gas (LPG) are stored on Resort land for use. Liquids are stored in bunded areas as per regulatory requirements and best practice guidelines. The major types of fuel and chemicals stored and used at the Resort include, jet fuel, aviation gas, diesel for vehicles, equipment and generators, petrol for vehicles (petrol station and business partners), LPG for cooking, hot water and energy, Laundry chemicals, gases at Maintenance, cleaning chemicals at Hotels, Housing and pools. All chemicals including fuels are listed under the Chemwatch Gold system accessible online on which all Safety Data Sheets (SDS) are stored. SDS are also stored in hard copy where chemicals and fuels are stored. Chemicals or fuels with known interactions are stored separately. Cleaning chemicals used in Hotels and Laundry chemicals are managed by a specialist chemical company.

Table 6.4.1. Chemical and Fuel storage, use, disposal and spill response, objectives, standards and measurement criteria.

| Objectives | Standards | Measurement criteria |
|---|---|---|
| Comply with licence conditions | *Waste Management and Pollution Control Act* 1999<br><br>NT EPA Licence EPL 179 | Licence non compliances reported<br><br>Number of reportable incidents<br><br>Tracking documentation of listed waste removed |
| Listed waste as per NT EPA L licence EPL 179 not disposed of in landfill, e.g. waste oil, chemicals | | |
| Prevent contamination of soil and groundwater | NT Groundwater Sampling Guidelines (DIPR, 2016) | Number of staff trained in spill response<br>Soil staining from hydrocarbons, chemicals etc.<br>Spillage reports and or Incident reports<br>Integrity testing of underground tanks<br>Groundwater results |
| Prevent accidental release into air or water | NT EPA Licence EPL 179 | Incident reports regarding odour from accidental release |

Table 6.4.2. Chemical and Fuel storage, use, disposal and spill response, Aspects and Impacts table.

| Aspect | Source of risk | Potential Impact Table 6.4.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Resort and Airport operational activities. | Fuel and chemical transport to site. (Includes, fuel road trains for Service station and Airport, LPG road trains, laundry chemicals etc.) | 4.1. Accidental release to land, water, air, of fuel, chemicals or oils during transport within resort land area, (note this extends north of airport) | Hazardous substances/Dangerous Goods in transit are subject to national and state regulations for road, rail, sea and air transport, including types and amounts to be transported. All companies and persons transporting Dangerous goods/Hazardous substances must hold the appropriate licences as per regulatory requirements. | Manager/s Yulara Aviation/ Service station / Technical services | Yulara Peterman Local Emergency Management Plan, 2014, (Draft), Annex E Hazardous Material Plan. Voyages Disaster Response Plan - ARR. | Rare | Major | Moderate |
| | | | Trucks carrying Hazardous substances/Dangerous Goods must have the correct labelling and placarding including pictograms notifying what they are carrying, volumes being transported, emergency response and company emergency contact phone numbers on the truck/trailer. Spill kits should also be located on the truck. | | | | | |

| Aspect | Source of risk | Potential Impact Table 6.4.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Resort and Airport operational activities. | Fuel and chemical storage. Large quantities of Jet fuel, aviation gas, diesel and petrol are stored in underground tanks at the Airport and Service Station. | 4.2. Leakage of underground tanks | All major chemical and fuel storage has placarding on Security fencing, Tanks detailing contents, amount, pictograms for hazard/s and emergency contact details for company responsible for storage. Airport - Yulara Aviation - all placarding is compliant with Aviation/Oil industry requirements.<br>**Airport** - Yulara Aviation: Automated overfill tank protection system in place. Two (2) sets of probes in tanks, tank gauges, high level probes, free vents in tanks.<br>Training manuals and Operating procedures in place and retained on site. Long term staff members on site full time. Environmental Management Manual on site. Plan of tank farm and maximum tank volumes on site as per company and regulatory body requirements.<br>Underground (internally epoxy coated) storage tanks are examined internally every 3 years by Yulara Aviation contractors.<br>Cathodic protection in place, sacrificial anode and meters in place.<br>Stock reconciliation of tank farm undertaken daily, weekly, quarterly and annually. Pressure testing of piping undertaken yearly. | Yulara Aviation Manager / Airport Manager | Yulara Aviation Standard Operating Procedures | Unlikely | Medium | Moderate |

| Aspect | Source of risk | Potential Impact Table 6.4.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Resort and Airport operational activities. | Fuel and chemical storage. Large quantities of Jet fuel, aviation gas, diesel and petrol are stored in underground tanks at the Airport and Service Station. | 4.2. Leakage of underground tanks | Tank farm area surrounded by a concrete wall to prevent surface water flows entering area. | Yulara Aviation Manager / Airport Manager | Yulara Aviation SOP | Unlikely | Medium | Moderate |
| | | | **Service Station**: Five underground storage tanks, daily dip points for tanks (electronic) tracked. Vapour stands in place. | | Standard Operating Procedures | | | |
| | | | Training manuals and Operating procedures in place and retained on site, all staff trained in emergency procedures. | | Standard Operating Procedures | | | |
| | | | Stock reconciliation of tank farm undertaken daily. Pipe pressure is checked weekly automatically. Pressure testing of piping undertaken yearly. | | Tank Dip Procedure | | | |
| | | | Groundwater monitoring wells (5) in place but previous reports cannot be located. Undertake annual groundwater monitoring for detection of any tank leakage. | Environment Officer | NT Groundwater monitoring Guidelines | | | |
| | | 4.3. Spills when loading into underground tanks, (note large volumes >20,000L at a time). | Airport: Unloading area is concrete, sloped so any spillage falls to central point and gravity fed to Interceptor. Lines and valves labelled for jet fuel or aviation gas and have double clamps. | Yulara Aviation Manager / Airport Manager | Yulara Aviation Standard Operating Procedures | Rare | Major | Moderate |
| | | | Tanker driver and Yulara Aviation staff in attendance during unloading. Three spill kits located in Tank farm area. Spill kit located on refuelling vehicles as well as Avgas bowsers. | | | | | |
| | | | Tank farm area security fenced and warning notices in place. | | | | | |

| Aspect | Source of risk | Potential Impact Table 6.4.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Resort and Airport operational activities. | Fuel and chemical storage, etc. as per above. | 4.3. Spills when loading into underground tanks, (note large volumes >20,000L at a time). | Service Station: Two trailers brought in at a time for unloading due to space and turn restrictions. Tanker driver blocks off area, erects bollards, brake interlock on tanker, hose locked onto tanker, outlets on tanker/s and underground tank marked, driver stays with tanker during unloading. Tanker driver also checks for water prior to filling underground tanks. | Service station Manager | Standard Operating Procedures | Rare | Major | Moderate |
| | | | Pumps are located underground not at bowsers. | | | | | |
| | | | Spill kits located outside main door. | | | | | |
| | | 4.4. Spills when loading Jets, Airplanes on Airport tarmac. | Yulara Aviation undertakes all jet fuel, aviation gas loading of Jet engine planes on Airport tarmac from truck as per their procedures. | Yulara Aviation Manager / Airport Manager | Yulara Aviation Standard Operating Procedures | Possible | Medium | Moderate |
| | Fuel and chemical storage. Above ground tanks of Diesel (Airport and AAT Kings) LPG, concentrated Laundry chemicals located on resort land. | 4.5. Contamination of soil, groundwater and potential for air and odour emissions. (Spills when loading fuel into above ground tanks (note large volume tanks >20,000L in places)). | Driver remains with tanker at all times when unloading. Brake interlock systems used on trucks so they cannot move when unloading. Lines labelled and double clamp couplings used for diesel. | Yulara Aviation Manager/ Airport Manager / Service station Manager | Chemical and Fuel Procedure. WHS | Unlikely | Minor | Low |
| | | | No staining on ground evident near tanker discharge/piping connection point. | | | | | |
| | | | Spill kits available at unloading location or located on trucks. Supervisor for area notified prior to unloading. | | WHS Dangerous Goods procedure | | | |

| Aspect | Source of risk | Potential Impact Table 6.4.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Resort and Airport operational activities (cont.). | Fuel and chemical storage ….. concentrated Laundry chemicals located on resort land (cont.) | 4.5. Contamination of soil, groundwater and potential for air and odour emissions. (Spills when loading fuel into above ground tanks (note large volume tanks >20,000L in places)). | **Laundry:** Laundry chemicals delivered in 200L plastic drums under cover outside laundry, bunded. Drums clearly labelled. | Laundry Manager Laundry Manager | Laundry SOP Chemicals, WHS Hazardous substances and Dangerous Goods procedure | Unlikely | Minor | Low |
| | | | Decanting pump station and each chemical has its own pump. Decant tubing, colour coded. Spill kit in place. | | | | | |
| | | | Inside Laundry chemical room, each large drum within its own separate concrete bunded area. Room signposted, each drum labelled. Any chemicals leaving this room have already been diluted by addition of water at pump system. | | | | | |
| | | | Staff training in hazards of chemicals, evacuation procedures, spill control. | | Laundry Training Record | | | |

| Aspect | Source of risk | Potential Impact Table 6.4.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Operational and Maintenance activities | Fuel and chemical use. (Refuelling of light aircraft, helicopters, buses, equipment, vehicles etc. Laundry chemicals, Cleaning chemicals in Hotels/Kitchens, Central Energy Plant and CoolingTowers dosing chemicals, Pool chemicals). | 4.6. Accidental release to land, water, groundwater, air of fuel and chemicals during use.<br>4.6b, Spill of >20L - 200L Laundry highest risk | Safety Data Sheets are kept at all storage locations and in any vehicles that are carrying fuel or chemicals. | Airport Manager/ Yulara Aviation Manager / Service station Manager / GM Technical Services/ GM Hotels/Laundry Manager | Chemical and Fuel Procedure. WHS Hazardous substances and Dangerous Goods procedure | Rare | Minor | Low |
| | | | Bunding of fuel and chemicals in place and managed. | | | | | |
| | | | Personnel wear appropriate Personal Protective Equipment (PPE) when handling, decanting and using chemicals or fuel as per Safety Data Sheets and company protocols. | | | | | |
| | | | Spill kits are kept at all permanent and temporary fuel, oil and chemical storage locations as per company procedure/protocol, and on vehicles carrying either as well. | | Chemical and Fuel Procedure, Service Station Spill Kit SOP | | | |
| | | | Spill prevention procedures are in place for refuelling of equipment, plant to reduce the risk of spillage. All spills of fuels, chemicals are responded to, and appropriate PPE is worn as described in the Safety Data sheets and or product label of the substance. | | Chemical and Fuel Procedure | | | |
| | | | All relevant personnel, including contractors, are trained in Spill response and use of spill kits for fuel and chemicals as per company procedure/protocol. | | | | | |
| | | | Spill responses shall be considered as an environmental incident and reported via Incident Reporting System - LUCIDITY - as per company procedure. | | Incident Report Policy and Procedure | | | |

| Aspect | Source of risk | Potential Impact Table 6.4.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Operational and Maintenance activities | Fuel and chemical use. (Refuelling of light aircraft, helicopters, buses, equipment, vehicles etc. Laundry chemicals, Cleaning chemicals in Hotels/Kitchens, Central Energy Plant and Cooling Towers dosing, Pool chemicals). | 4.6. Accidental release to land, water, groundwater, air of fuel and chemicals during use.<br>4.6b, Spill of >20L - 200L Laundry highest risk | Any spill clean-up material to be put in labelled container for removal to Noxious Yard at Waste Facility for removal by licenced contractor when next on site. | Airport Manager/ Yulara Aviation Manager / Service station Manager / GM Technical Services/ GM Hotels/Laundry Manager | Chemical and Fuel Procedure | Rare | Minor | Low |
| | | | Empty chemical containers to be controlled on site as per full containers. Empty oil, fuel, chemical containers that are not sent back to specific suppliers for recycling/reuse are to be removed from site to appropriately classified waste disposal facility and or are to be stored at the Noxious yard at the Waste facility until this is undertaken. | | | | | |
| | | 4.6.d Spills >200L fuelling of helicopters | **Airport**: Yulara Aviation area Refuelling area for Yulara Aviation trucks and also separate area for Helicopters, light planes to refuel. These areas are concreted, sloped so any spillage falls to central point pit and then gravity fed to Interceptor. Refuelling for Helicopters and light aircraft is undertaken using bowsers with automatic cut off. Lines and valves labelled for jet fuel or aviation gas in this area and have double hose clamps, pilots stay with helicopter/light plane during reloading. | Yulara Aviation Manager/ Airport Manager | Yulara Aviation Spill Response Procedure | Likely | Major | High |

| Aspect | Source of risk | Potential Impact Table 6.4.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Operational and Maintenance activities | Fuel and chemical use. (Refuelling of light aircraft, helicopters, buses, equipment, vehicles etc. Laundry chemicals, Cleaning chemicals in Hotels/Kitchens, Central Energy Plant and CoolingTowers dosing chemicals, Pool chemicals). | 4.6.d Spills >200L fuelling of helicopters, cont. | Bowsers and area clearly labelled. Spill kit in place. Emergency stop buttons. | Yulara Aviation Manager/ Airport Manager | Yulara Aviation Spill Response Procedure | Likely | Major | High |
| | | | Bowsers located under cover and filling procedure clearly marked. | | | | | |
| | | | Certain helicopters also refuel using 1000L double skinned storage tank near helicopter storage area. Spill kit should be in place at this location. | Airport Manager | Voyages Spill Response Procedure | | | |
| | | | Refuelling of Airservices (fire) trucks, normal airport trucks, airport security, is undertaken near the diesel bowser. This area needs to be upgraded as currently it is unbunded, drains to roadway, no dedicated drainage, interceptor or spill kit. | | | | | |
| | | 4.6a Spill >200L fuelling of vehicles | **Service Station:** Emergency stop button which stops all pumps. Note that this is checked monthly. | Service Station Manager | Emergency Shutdown SOP | Rare | Minor | Low |
| | | | Wash water from Bowser area goes to holding tank and then Separator. | | Service Station SOP's | | | |
| | | | Pumps are located underground not at bowsers. | | Pumping Procedure SOP | | | |
| | | | Bowsers have bollards in place to prevent someone driving into them. | | Service Station SOP's | | | |
| | | | Bowsers clearly marked, operation procedures displayed, including pictograms. | | | | | |
| | | | Bowser area under cover. | | | | | |

| Aspect | Source of risk | Potential Impact Table 6.4.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Operational and Maintenance activities | Fuel and chemical use. (Refuelling of light aircraft, helicopters, buses, equipment, vehicles etc. Laundry chemicals. Cleaning chemicals in Hotels/Kitchens, Central Energy Plant and Cooling Towers dosing chemicals, Pool chemicals). | 4.6. Accidental release to land, water, groundwater, air of fuel and chemicals during use. *Cont.*<br>4.6c Spills of <20L hotel cleaning chemicals | **Hotels and Kitchens:** Cleaning chemicals supplied by specialist company. Bulk condensed chemicals >20L minimised for staff safety. Training supplied on use to hotel and kitchen staff. Dilute chemicals supplied in dispenser situation. Hotel and kitchen cleaning chemicals colour coded, containers also have pictogram labels and Safety Data Sheets stored near major dispenser areas. Cleaning chemicals standard across resort for staff who may multi-hire/be sent to other sections to work. | Hotel Manager/s | Standard Operating Procedures for Kitchen cleaning, Housekeeping etc. | Almost Certain* | Negligible | Moderate |
| | | | Dangerous goods and Flammable liquids are stored in dedicated areas, placards in place, bunded cupboards or areas. | | | | | |
| | | 4.6c Spills of equal to or <20L fuel, dosing chemicals, paints, thinners | **Technical Services:** | | | Almost Certain* | Negligible | Moderate |
| | | | Dangerous goods are stored as per Compatibility classes, as per AS/NZS 3833:20078 for segregation and separation within stores. | GM Technical Services | Dangerous Goods Storage compatibility Guide, ChemAlert, latest version. | | | |
| | | | Annual review of chemicals/fuels stored. Note that additional items stored due to distances and timeframes if needed in a hurry. | | | | | |
| | | | Paint storage is limited to necessary items to limit potential for spillage, spoiling of product due to heat. | Paint Team Leader | | | | |

| Aspect | Source of risk | Potential Impact Table 6.4.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Operational and Maintenance activities | Fuel and chemical use. (Refuelling of light aircraft, helicopters, buses, equipment, vehicles etc. Laundry chemicals. Cleaning chemicals in Hotels/Kitchens, Central Energy Plant and Cooling Towers dosing chemicals, Pool chemicals). | 4.6c Spills of equal to or <20L | **Other:** Prior to first time purchase of bulk materials or dangerous goods including chemicals to a location a risk assessment is completed. First time purchase of new chemical triggers requirements within Purchasing. | GM Technical Services | Hazardous Chemicals Procedure | Almost Certain* | Negligible | Moderate |
| | | | Job Safety and Environment Analysis form undertaken when undertaking new task. | | | | | |
| | | 4.6.d Spills >200L | Various: Pool chemicals used at various locations around the resort, stored in dedicated, restricted access locations. Safety Data Sheets, placarding and signage in place. Chlorinators re-installed at most pools which reduces the amount of chemicals required. | Housing, Campground/s and Hotel/s Manager /GM Technical services | Standard Operating Procedure (SOP) Swimming Pool Chemical Handling | Likely | Major | High |
| | | | Dedicated staff are trained in Pool chemical testing and dosing. | | | | | |
| | | | Pool chemical log at Hotels, Campground/s and Housing. | | | | | |
| | | 4.6.d Spills >200L | LPG decanting from dedicated larger cylinders undertaken at Campground and at Technical Services by dedicated, trained staff. | Technical Services Senior Manager, Campground Manager | LPG Decanting Guidelines | Likely | Major | High |
| | | | PPE located where decanting undertaken - Campground. | | | | | |

| Aspect | Source of risk | Potential Impact Table 6.4.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Operational and Maintenance activities | Fuel carried on some utilities for refuelling of equipment. Refuelling of smaller vessels (sometimes at remote sites, e.g.Tali Wiru). | 4.7. Accidental release to land, water, groundwater of fuel or chemicals during transport or decanting. | Personnel trained in refuelling/decanting process. Fuel pods used. Bowser system used. Spill kits on vehicles. | Technical Services Senior Manager | Hazardous Chemicals Procedure | Possible | Minor | Moderate |
| | | | Decanting and use of Methylated spirits at Longitude 131 for fire braziers at guest lookout. Bowser system used. Spill kit available. 200L drums bunded and under cover. | Longitude 131 Maintenance Manager | | | | |
| | Fuel and chemical storage and consumption. | 4.8. Reporting requirements for storage and use of chemicals/fuels. | Greenhouse gas Challenge, National Pollutant Inventory annual reporting to Federal government agencies as required if volumes trigger. | Resort Finance Manager /Environment Officer | Carbon footprint spreadsheet | Unlikely | Medium | Moderate |
| | | | Annual reporting to ILC on "Carbon Footprint". Monthly reporting to Voyages on Trend of Operations. | | Carbon Footprint & Trend of Operations Report/s | | | |

## 6.5 Waste Management and Reduction, and Recycling

Due to the remoteness of the Resort, an on-site licenced Waste Facility is in operation, NT EPA Licence EPL 179, approximately 15kms from the Resort operated by full time staff, although they are not on site at all times. This facility accepts for storage or disposal nearly all wastes produced by the resort and airport operations. Certain wastes are stored as per the licence as Listed wastes for later pickup by licenced contractors e.g. Waste oil, batteries. Two separate "holes" operate at the facility, Industrial hole for non putresible material, and the Household for food and putrescible materials. A 'green" area exists outside the boundaries of the Waste facility for the storage of green material, gardening waste, weed material, broken timber pallets or those unable to be recycled, larger tree parts unable to be mulched or used for firewood, etc. This area is burnt at regular intervals depending on weather conditions. A fenced Noxious waste yard at the Waste facility is used to store items that are later picked up by licenced contractors. Refurbishment projects at the various hotels generate large amounts of waste from removal of composite wood products etc. from the rooms/restaurants. Mattresses independent of age may also at times need to be disposed of due to bedbugs, pests or general condition. Members of staff at the Resort pride themselves on the Recycling effort that exists, with glass, PET plastic bottles, cardboard, aluminium cans and cooking oil recycled. Recycling is organised by the Freight Services team. Increasing recycling rates and composting of food and kitchen wastes are items planned for the future. Segregation of recycling materials occurs at the hotels independently, and the material is picked up by Freight Services of glass, plastic bottles and cardboard. Each of the hotels has it's own cardboard baling machine, as well as their being one at the IGA which is also used at present by the Campground and Housing departments. Recycling stations are located around the resort and within the residential areas, the numbers of these are planned to increase.

Table 6.5.1. Waste management and reduction and Recycling, objectives, standards and measurement criteria.

| Objectives | Standards | Measurement criteria |
|---|---|---|
| Comply with NT EPA licence conditions for Waste facility | National Waste Policy, 2016<br>*Waste Management and Pollution Control Act* 1999<br>NT EPA Licence EPL 179 | No non compliances with Licence<br>Noxious waste stored for disposal, recycling or dismantling appropriately<br>Number of reports of illegal dumping<br>Tonnes of waste generated |
| Comply with Ongoing Monitoring Plan, as per NT EPA licence condition | NTEPA 2013: Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites | Groundwater and sub surface gas monitoring undertaken 6 monthly<br>Pests species, weeds, disease vectors surveys undertaken annually |
| Reduce waste material going to landfill | | Tonnes of material buried at landfill monthly/annually |
| Segregate waste for recycling at source e.g. glass, PET plastic bottles, cardboard, aluminum cans, etc. | AS 4736–2006: Biodegradable plastics – Biodegradable plastics suitable for composting and other microbial treatment | Tonnes of recyclable material transported from site annually |
| All EWaste sent away for recycling/destruction | AS/NZS 5377:2013 Collection, storage, transport and treatment of end-of-life electrical and electronic equipment' | Tonnes of e-waste recycled |
| Reduce the amount of organic waste going to landfill | AS 4454-2003 Composts, soil conditioners and mulches | Tonnes of organic matter composted |

Table 6.5.2. Waste management and reduction and Recycling, Aspects and Impacts table.

| Aspect | Source of risk | Potential Impact Table 6.5.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Licence conditions | Breach of licence conditions | 5.1. Potential loss of licence. | Waste facility is signposted as per Licence condition with contact numbers for key personnel. | Waste Manager | NT EPA EPL 179. Waste facility Procedure | Rare | Negligible | Low |
| | | | Waste facility is security fenced and locked outside open to Yulara community on Wednesday morning 7am - 3pm, to prevent entry by humans or large animals. | | | | | |
| | | | Employee and contractor inductions and environmental awareness training address waste disposal obligations of company and personnel. | | Induction | | | |
| | | | Safety data register available for all potentially harmful substances retained on site including chemicals and fuels with disposal information. | Housing, Campground/s and Hotel/s Managers /GM Technical services | SDS Register, all work areas | | | |
| | | | Regular checks by Waste facility staff as to what is being put and where by staff utilising facility. | Waste Manager | NT EPA EPL 179. Waste facility Procedure | | | |
| | | | All Waste facility related Incidents reported through company Incident system and if required through to NT EPA as per licence conditions. | | | | | |
| | | | Tracking documentation for all Waste oils/fuels collected for removal (recycling) retained on site. | | | | | |

| Aspect | Source of risk | Potential Impact Table 6.5.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Licence conditions | Illegal dumping or dumping of fuels, chemicals in wrong area. Dumping of cars. Dumping of empty fuel, chemical containers in wrong area, etc. | 5.2. Contamination of land, groundwater | Training of staff of materials that can be taken to facility and which area they need to go, what can be disposed and what needs to be stored for later removal/recycling. | Waste Manager | People and Culture Training Matrix | Likely | Minor | Moderate |
| | | | Groundwater bore monitoring as per Ongoing Monitoring Plan conditions. | Environment Officer | Ongoing Monitoring Plan | | | |
| | | | Regular checks by Waste facility staff as to what is being put and where by staff utilising facility. Follow up with appropriate managers of any items dumped in wrong area. | Waste Manager | Asset disposal Register Housing | | | |
| | | | Ensure training of relevant staff from item above and any relevant training also delivered to Retails staff if appropriate. | | People and Culture Training Matrix | | | |
| | | | Abandoned/dumped cars are crushed and taken away for steel recycling. | Security/ Waste Manager | NT EPA EPL 179. Waste facility Procedure | | | |
| | | | All Resort partially filled chemical containers are brought back to Technical Services for review and determination of disposal method as per SDS instructions. | Technical services Senior Manager | | | | |
| Operational activities at Resort | Amount of material dumped at Waste facility. | 5.3. Potential soil and groundwater contamination from leachate | Training of staff of amount of material being dumped at facility, what can be recycled and where to take that, what needs to go where once at facility, how to reduce amounts of waste produced. | Waste Manager | | Likely | Minor | Moderate |
| | | | Waste sorted at source and placed in appropriate disposal containers and taken to facility for either disposal or storage in appropriate area. | All staff/residences. Housing Manager | Induction. Housing Regulations | | | |

| Aspect | Source of risk | Potential Impact Table 6.5.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Operational activities at Resort | Amount of material dumped at Waste facility. | 5.3.. Potential soil and groundwater contamination from leachate 5.3 | All potential recycling material sent for recycling via dedicated receptacles at Resort. | All staff/residences. Housing Manager | Housing Regulations p.10 | Likely | Minor | Moderate |
| | | | Increase recycling rates through training and education and placement of additional recycling stations. | Environment Officer / Freight Services Mang. | Waste mang. reduction & Recycling Procedure Freight Services SOP | | | |
| | | | All recycling leaving Resort goes through Freight Services. Recycling sorted at hotels/campgrounds/housing brought to Freight Services for some items further treatment. Freight Services is responsible for the receiving, further separating and transport of recyclable material. | Freight Services Manager | | | | |
| | | | Any glass/plastic bottles that attract 10c deposit are sent away as part of Refund campaign. | | | | | |
| | | | Non refundable glass bottles/containers sorted into colours are crushed into "cullet" at Freight Services and put in 200L steel drums for transfer for recycling. | | | | | |
| | | | Green waste from IGA, out of date food, reject vegetables, fruit etc., suitable for composting, to be incorporated into green waste stream for composting | GM Retail | Waste management, reduction and Recycling Procedure | | | |
| | | | All recycling sent away is tracked for quantity and payment if the case on the Recycling Database. This data is reported monthly in the Trend of Operations Report. | Freight Services Manager | | | | |

| Aspect | Source of risk | Potential Impact Table 6.5.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Operational activities at Resort | Amount of material dumped at Waste facility. | 5.3.. Potential soil and groundwater contamination from leachate 5.3 | Styrofoam boxes, packaging types reviewed regularly by IGA Manager with suppliers with a view to reduction in use (acceptance) of excess packaging which then goes to landfill. | IGA Manager | | Likely | Minor | Moderate |
| | | | Hotel refurbishments large potential waste producer, planning for any items that can be used elsewhere in resort to be taken, items to go to local communities set aside. | GM Hotels | | | | |
| | Waste dumped illegally around resort, or outside resort area | 5.4. Reduction in visual amenity for guests and residents. Adverse effects on native vegetation and wildlife | Regular housekeeping inspections around hotels and town centre area addressing waste. | GM Hotel/s, Campground, GM Retail, GM Housing | Waste management, reduction and Recycling Procedure | Unlikely | Minor | Low |
| | | | Reporting and removal of any dumped material outside immediate hotel/residential area, Giles Street area. | | | | | |
| | Material, furniture, wooden pallets, vehicles etc. removed from Waste facility. | 5.5. Reduction in visual amenity for guests and residents | Material being removed from Waste facility, at times ending up back in residential areas causing problems for Housing department. ( Note that now Waste facility closed, operator in attendance during limited opening hours, this problem should not occur, risk returns however if current system altered) | Waste Manager/ Housing Manager | Housing Regulations p.11 | Likely | Minor | Moderate |

| Aspect | Source of risk | Potential Impact Table 6.5.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Operational activities at Resort (cont.) | Material, furniture, wooden pallets, vehicles etc. removed from Waste facility. | 5.6. Environment, health and safety concerns when people removing items from unattended Waste facility | Waste facility only open between certain hours. Security fencing and locked gates in place. | Waste Manager | Waste management, reduction and Recycling Procedure | | | |
| | | | Abandoned cars are crushed in situ in parking lots/housing by car crusher, or taken by NTFRS for training purposes. (Previously had been stored at Waste facility in locked fenced yard area, to deter people from trying to strip for parts). | Security Manager/ Housing manager | | Rare | | |
| | | | Security undertake patrols around Waste facility afterhours. | Security Manager | | | | |
| | Removal of Asbestos material | 5.7. Disposal of Hazardous waste | Known marked metal Container buried at depth at Landfill containing Asbestos, as detailed in Ongoing Monitoring Plan for Waste Facility. | Waste Manager | Ongoing Monitoring Plan | Unlikely | Minor | Low |
| | | | Asbestos register for Resort and residential buildings including Recreation centre, Library, AEC area etc. Asbestos Management Plan prepared by Napier and Blakely available to all staff. | Technical services Senior Manager | Asbestos Register | | | |
| | | | Any removal of Asbestos undertaken by Licenced contractors and removed from site. | | Technical Services, SOP | | | |

## 6.6 Fauna and Threatened species management

The land area of the Resort covers 10,218 hectares of semi arid land and is home to a variety of ecosystems providing habitat for varied ecological communities. In 2000 an extensive Flora and Fauna Assessment was undertaken. Populations of two Threatened species, Brush tailed Mulgara, *Dasyceruss blythi* and the Great Desert Skink, *Liopholis kintorei* are known to exist on the land area and as such protection measures for them are in place. A Conservation area exists in the south western area of the land mass for Brush tailed Mulgara.

Typically very little land disturbance outside the Resort ring road and associated hotel areas and the residential areas occurs. Thus any impacts on fauna and threatened species from human activities is minimised. In the event that larger land areas/parcels are likely to be disturbed a Threatened Species Survey is undertaken by a qualified, local Ecologist experienced in identification of local desert animals. An annual Threatened species monitoring is undertaken in November each year and a report is submitted to Voyages as part of this monitoring which also compares animals found and where compared to previous years so that any trends due to possible disturbance, predation by feral cats and foxes, fire regimes etc. can be discussed.

A Feral cat control programme is in place. Permits to Take or Interfere with Protected Wildlife are in place and current for Reptile (snake and lizard) relocation and for problematic Dingo control. An annual Fire Management Plan is prepared by the NTFRS, with hazard reduction undertaken in patch sizes that allow most animals to escape or take shelter and also allows for a "mosaic" vegetation system to evolve, providing habitat at different spinifex plant stages for different animals. The Airport is subject to control measures under Aviation Regulations and Requirements for Wildlife Hazard Management.

Table 6.6.1. Fauna and Threatened species management, objectives, standards and measurement criteria.

| Objectives | Standards | Measurement criteria |
|---|---|---|
| Meet legislative obligations<br><br>Permits in place for Wildlife permits<br><br>Minimise impacts on fauna from human activities<br><br>Ensure guests' and residents' safety | *Environment Protection and Biodiversity Conservation* Act, 1999<br><br>*Territory Parks and Wildlife Conservation Act*<br>NT Land clearance Guidelines<br><br>Planning Scheme<br><br>National Strategy for the Conservation of Australia's Biological Diversity | Annual Threatened species monitoring results<br><br>Annual Airport Wildlife hazard management surveys<br><br>Snake Handler call outs, type and number of animals<br><br>Pest animal control activities conducted (e.g. rabbit, fox, cat)<br><br>Reports of dead feral animals<br><br>New weed species occurrence |

Table 6.6.2. Fauna and Threatened species management, Aspects and Impacts table.

| Aspect | Source of risk | Potential Impact Table 6.6.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Maintain emergency and security access to airport, hotels, guest facilities and residential areas as well as remote sites. Maintain bushfire trail network in larger Resort land area. | Vegetation clearing for security, fire trail and access track management. Maintenance of security, fire trails and access roads. | 6.2. Disturbance or injury to fauna due to vehicular/machinery movements | Emergency access tracks and bushfire trail network were cleared during original construction of hotels and Resort. Vegetation cover exists close to areas and within gardens which provides escape routes and refuge for animals and reptiles.<br>Fire trail tracks are maintained to minimal practical width. | GM Technical Services | Fauna and Threatened species management Procedure | Possible | Medium | Moderate |
| | | 6.1. Disturbance or injury to fauna, localised reduction in biodiversity. Bare areas and lack of cover leading to greater predation rates | Vehicles remain on existing roads/tracks or within designated areas at all times. Signposting in place. Information included in induction and Motor Vehicle policy.<br>Night driving only to be undertaken where necessary on formed tracks. Speed limits apply to all Resort roads.<br>Speed limits of 40km/hour apply to all gravel roads. Fire trails only accessed by authorised vehicles on an as needs basis. | All staff/ Yulara residents | ARR Induction / Motor Vehicle Policy<br>Housing Regulations p.6 | Possible | Medium | Moderate |

| Aspect | Source of risk | Potential Impact Table 6.6.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Maintenance and Project work | Land disturbance during project work | 6.3. Disturbance or death of Threatened species, critical vegetation/habitat. Breach of Legislation, regulations. | All new project areas of greater than 1ha require Vegetation clearing Permit, DENR, or smaller areas of Land disturbance have a Threatened species survey undertaken prior to any clearing. Failure to obtain the necessary permits can attract heavy fines. | GM Technical Services | Fauna and Threatened species management Procedure | Unlikely | Minor | Low |
| | | | All projects will include costings for post project earthworks, levelling of areas and spreading of vegetation for stabilisation/rehabilitation of any bare ground. | | | | | |
| | | | Works undertaken in smallest footprint possible. Areas barricaded/fenced if open overnight to prevent human or fauna entry. | | | | | |
| | | | Sites shall be inspected following completion | | | | | |
| | | | Any fauna found during project activities is relocated by trained reptile Snake catchers. | | | | | |
| | | | Typically project and earthwork activities only occur during daylight hours. | | | | | |
| | Routine maintenance, emergency maintenance, Third party activities | 6.4. Injury to fauna, damage to or degradation of habitat. | Site inductions and JSEA, include vehicle speed restrictions, access to work sites, parking on cleared areas, potential for environmental damage, no off road driving. | GM Technical Services | Fauna and Threatened species management Procedure | Likely | Minor | Moderate |
| | | | Areas barricaded/temporarily fenced with webbing if open overnight, fauna egress ramps provided (earthen). | | | | | |

| Aspect | Source of risk | Potential Impact Table 6.6.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Maintenance and Project work (cont.) | Routine maintenance, emergency maintenance, Third party activities | 6.4. Injury to fauna, damage to or degradation of habitat. (cont.) | Snake catcher called for any fauna found during these activities that needs to be relocated. | GM Technical Services | Fauna and Threatened species management Procedure | Likely | Minor | Moderate |
| | | | Movement of fauna around Resort areas is not restricted, apart from any security fencing around certain facilities, airport, LPG tanks, Power and Water sites etc. | | | | | |
| Conserve populations of Threatened species (and other native species). | Feral cats, foxes and wild dogs, uncontrolled. | 6.5. Increased numbers of predators puts increased pressure on populations of Threatened species as well as small mammals and reptiles which also form part of the diet of feral cats, foxes, wild dogs and Dingos. | Warning signs at Campgrounds about the dangers of feeding Dingos. Information in Resort booklets provided to guests. | Campground Manager | | Likely | Medium | High |
| | Food or garbage not secured, animals such as feral cats, foxes, dingos, wild dogs scavenging in open garbage bins, on food scraps from takeaway food. | | All garbage bins have closing lids. Garbage pickups undertaken on regular basis. Any reports of overturned bins, food or food scraps not being disposed of properly reported and investigated and control measures put in place to prevent reoccurrence. | Waste Manager / All staff | Housing Regulations p.6 | | | |
| | | 6.6. Difficulties being able to control numbers of feral cats or attract them to traps due to amount of available food. | Education, signage for guests/residents of importance of placing all food scraps/food wrappers within garbage bins. All garbage bin to have lids closed at all times. Garbage pickups undertaken on regular basis. | Hotel Manager/s / Housing Manager / Waste Manager | Housing Regulations p.6-7 | Likely | Medium | High |
| | | | Trapping program for feral cats in place and as per latest methods. | GM Technical Services | Fauna and Threatened species management Procedure | | | |
| | | | Any feral cats trapped destroyed by dedicated licenced shooter/s at Yulara. | | | | | |

| Aspect | Source of risk | Potential Impact Table 6.6.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Conserve populations of Threatened species (and other native species). (cont.) | Rabbit population uncontrolled, see Table 9. | 6.7. Increased food for predators, increased number of predators on resort land, increased pressure on other species as well. | Rabbit warren active survey undertaken annually. Control measures implemented annually or more frequent if required. Different control measures include Calici virus release, fumigation and Pindone baiting. | Environment Officer | Fauna and Threatened species management Procedure | Possible | Minor | Moderate |
| | | | Removal of active warrens where possible. Removal of waste heaped vegetation/logs, any waste vegetative matter that will provide cover for rabbits to shelter or construct warren systems. | | | | | |
| | Wildfire/bushfire destroys habitat over large areas, potentially entire Resort land. | 6.8. Death or severe impairment of viable population/s in short time period, due to extensive bushfire/s, leads to population/s not surviving or re-establishing. | Prescribed burn patterns over smaller areas as per annual hazard reduction Fire plan prepared by NTFERS. Liaison with NTFERS for additional areas being added to Fire plan as per requests from Ecologists to increase diversity of growth years post fire regime of vegetation communities. | NTFRS / Environment Officer | Fire and Bushfire Control Procedure | Unlikely | Minor | Low |
| | | 6.9. Changed vegetation structure impairs critical habitat for certain species. | Increase "mosaic" burn pattern over remaining Resort land as species requirements differ. Certain species only utilise habitat consisting of "old growth" spinifex of more than 10 years old, whilst other species prefer 1 year old burnt areas with more complex vegetation species composition. | | | Rare | Minor | Low |
| | Driving off marked tracks and roadways | 6.10. Death of Threatened species, damage to burrows or critical habitat. | Enforce stay on marked roads and tracks for guests and staff (Motor Vehicle Policy) and residents. Report any new tracks, signs of vehicles travelling off road. | Security Manager / All | Motor Vehicle Policy / Induction | Likely | Minor | Moderate |

| Aspect | Source of risk | Potential Impact Table 6.6.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Conserve populations of Threatened species (and other native species). (cont.) | Mulgara Conservation area unknown/unprotected | 6.11. Development/operational activities, destruction of habitat, death of species in Mulgara Conservation Area, | Mulgara Conservation Area mapped, maps displayed, signs in place on land. | Environment Officer | Longitude 131 development consent conditions Mulgara Conservation Area Map | Unlikely | Medium | Moderate |
| Airport operations | Large animals accessing, wondering over Airport land. Vegetation close to Tarmac, airport land, habitat for birds and animals near to where planes are landing/taking off. | 6.12. Large animals on runway | Electrified stock proof fence on Airport boundary. Energiser on electric fence sends SMS to Security phone to alert. Security fencing closer to Airport terminal. Security patrols of airport perimeter twice daily. Surveillance by Airport traffic control. Fire break roadway inside/outside perimeter fence, also allows for checking of footprints during security patrols.<br>Vegetation kept to minimum heights near Runway area and also on approach and departure ends of tarmac for fire-fighting and safety purposes in the event of an aborted take-off or similar. | Airport Manager | CASA Technical Inspection requirements / Airport SOP's | Rare | **Critical*** | Moderate |
| | | 6.13. Breach of CASA Manual of Standards: Wildlife Hazard Management Plan<br>i.e. control of bird strikes and animals on the tarmac | Monitoring and recording by airport staff of all animals, including birds seen on Runway. Yearly monitoring and preparation of Technical Inspection against the existing Wildlife Hazard Reduction Management Plan (2013) by external consultant.<br>Conducting annual full airside and off airside bird survey. | Airport Manager | CASA Technical Inspection requirements / Airport SOP's | Unlikely | Minor | Low |

| Aspect | Source of risk | Potential Impact Table 6.6.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Airport operations | Large animals accessing, wondering over Airport land. Vegetation close to Tarmac, airport land, habitat for birds and animals near to where planes are landing/taking off. | 6.13. Breach of CASA Manual of Standards: Wildlife Hazard Management Plan i.e. control of bird strikes and animals on the tarmac (cont.) (Note that these requirements are Aviation requirements.) | Vegetation is removed close to Runways. Vegetation is slashed near Runways to reduce habitat and nesting opportunities for birds, reduce cover for small mammals which may entice raptors/birds of prey into areas closer to Runways. See Table 3 as well. | Airport Manager | CASA Technical Inspection requirements / Airport SOP's | Unlikely | Minor | Low |
| | | | Constant dragging of the runway strip & removal of suitable breeding habitat to prevent breeding of hazardous species. | | | | | |
| | | | Runway surveillance undertaken for Foreign Debris Objects including dead birds etc. as per CASA regulations. Any animals/birds found are reported to ATSB. | | | | | |
| | | | Monitoring and recording by airport staff of all animals, including birds seen on Runway. Yearly monitoring and preparation of Technical Inspection against the existing Wildlife Hazard Reduction Management Plan (2013) by external consultant. | | | | | |
| | Airport Permit to Take or Interfere with Wildlife expired | 6.14. Breach of Legislation | All Permits for bird and animal management activities are kept valid and copies retained at the Airport. Daily diary log book and Wildlife Monitoring data file in place and up to date. | Airport Manager | Current Permit to Take or Interfere with Wildlife | Rare | Negligible | Low |

| Aspect | Source of risk | Potential Impact Table 6.6.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Dingo interactions, and/or very close to habitation. | Guests/residents feeding dingos, leaving food out, not disposing of food scraps correctly. | 6.15. Dingos approaching guests/residents or coming in closer to habitation/guests/residents and can then cause interaction problems leading to dingos needing to be put down. | Warning signs at Campgrounds about the dangers of feeding Dingos. Information in Resort booklets provided to guests. Information provided in Staff Inductions. | Campground Manager / Housing Manager / Hotel Manager/s | Housing Regulations p.12 | Unlikely | Minor | Low |
| | | | All garbage bins have closing lids. Garbage pickups undertaken on regular basis. | Waste Manager | Fauna and Threatened species management Procedure | | | |
| | | | Dingo interactions reported through Incident system | All staff/ Yulara residents | | | | |
| | | | Permit to Interfere with Dingos is current at all times. | Environment Officer | | | | |
| | | | In the event that problematic Dingos occur, all conditions of the Permit to Interfere with Wildlife (Dingos) is adhere red to. NT Licenced professional shooter employed to undertake control measures. | GM Technical Services | | | | |
| Permitted activities | Wildlife Permit/s out of date. | 6.16. Breach of Permit, *Territory Parks and Wildlife Conservation Act* 2006 | Ensure Annual to two yearly Permit/s, (dependent on type) in place for both Resort area and Airport. | Airport Manager / Environment Officer | Fauna and Threatened species management Procedure | Rare | Negligible | Low |
| | | | Copy of Permit kept with relevant department and Environment Officer and Legal records. | | | | | |
| | | | Treatment of animal/reptile only as per Permit conditions. | | | | | |
| | | | All personnel involved in animal/reptile relocation, treatment are fully aware of Permit conditions pertaining to their actions. | GM Technical Services | | | | |
| | | | Trained Snake catchers used to relocate any reptiles near/in guest accommodation or activities, residential areas/activities. | | | | | |

## 6.7 Weed management

The Resort land has the potential to be the first point of weeds coming in from overseas from guest's shoes, clothing and luggage. This was recognised with the original siting of the resort land area. In addition weed seeds may be brought in the same way from interstate/intrastate from guests and residents as well as from vehicles, tyres, undercarriages, camping or recreation equipment. Resort operations through vehicles and staff movement may unwittingly transport weed seeds during day to day activities from the hotels/campground/residential area to far flung areas of the resort land and also potentially into the Uluru Kata Tutja National Park. The Resort also has the potential for invasion of weed species in areas due to soil disturbance from earthworks etc., reduction in vegetation competition, creation of conditions conductive to weed growth of increased water and light. Weeds can severely threaten the profitability and sustainability of agricultural production as well as conservation areas such as the National Park and or environmental resources of national significance and may require remedial actions across State and Territory boundaries which due to the distances that people travel from to arrive at the Resort is of importance. Weeds also constitute a major threat to biodiversity adversely affecting the regeneration and survival of native flora and fauna as well as affecting aesthetic values. Surveillance by landscaping and other staff and business partners for new weeds, weed infestations and other issues.

Under the National Weed Strategy, 32 introduced plants were determined to be Weeds of National Significance. These weeds have the key criteria of having invasive tendencies, level of impact, potential for spread and may impact socioeconomic or environmental values. In the NT in addition to Weeds of national significance, other weeds may be Declared weeds, under the Weeds Management Act and depending on their Class, A to C, will determine the control methods, from eradication to not being allowed into the NT initially. Certain species in the NT are regarded in some areas as being weeds, e.g. Buffel Grass but may not be listed on state or Federal government listings and are regarded as a species to manage rather than eradicate completely due to their widespread coverage.

Table 6.7.1. Weed management, objectives, standards and measurement criteria.

| Objectives | Standards | Measurement criteria |
|---|---|---|
| Meet statutory obligations relating to NT declared weeds and WoNS.<br><br>Protect native vegetation against new incursions or introductions of new weed species around Resort, campgrounds, waste facility and tourist areas, including Camel Farm and trails.<br><br>Control or eradicate weed species around same areas | NT Weed Management Act<br><br>Weeds of National Significance, guidelines for developing weed strategies<br><br>Weed identification tool<br><br>Australian Weed strategy | NT declared weed species and/or WoNS removed<br><br>Reported incidents of new weed incursions, as per Incident System<br><br>Weed control activities undertaken on Resort land<br><br>Weed monitoring activities undertaken on Resort land |

Table 6.7.2. Weed management, Aspects and Impacts table.

| Aspect | Source of risk | Potential Impact Table 6.7.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| New weeds on Resort land | Weed seeds on guests shoes or clothing, luggage etc. | 7.1. Introduction of international or national weeds of concern onto Resort land. | Regular monitoring by Landscaping staff for weeds in gardens, areas close to pathways and entrances/exits of buildings or walkways around the Resort. If new weeds are noticed the following is noted, weeds species present if known, a description, photo, location and extent of area are recorded for determination. | Assistant Landscaping Manager | Weed Management Procedure | Likely | Minor | Moderate |
| | | | Determination of any new weeds will be undertaken by initially Assistant Landscaping Manager or if difficulty encountered, by NT Weed Management Branch. | | | | | |
| | | | Any new weed infestations are reported through the Voyages Incident system. | | | | | |
| | | | Reporting to relevant NT Authorities if any new Weeds of National Significance or NT Declared weeds are discovered on Voyages land. | Environment Officer | | | | |
| | | | Pest and Weed monitoring is undertaken annually by Ecologists at the Waste facility and some parts of the Campground, as it is thought that these areas are the first areas, apart from immediate resort hotel areas, where new weeds species are likely to establish. | Environment Officer | | | | |

| Aspect | Source of risk | Potential Impact Table 6.7.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Weeds on Resort land or adjacent land | Cleared land around hotels, campgrounds, maintenance facilities and business partners. | 7.2. Loss of amenity, reputation. Potential to spread weeds to other areas including UKTNP. Infiltration of Resort land native vegetation areas with weeds. | As above, regular inspections of garden areas surrounding hotels, campgrounds, maintenance facilities. Reporting of any new infestations and control methods documented. | Assistant Landscaping Manager | Weed Management Procedure | Likely | Minor | Moderate |
| | | | Landscaping staff trained in identification of declared noxious and environmental weed species and techniques for their eradication. | | | | | |
| | | | Project specific Weed management programs - targeting specific weeds and management treatments developed and implemented across resort land. | | | | | |
| | | | All vehicles to remain on designated roads and access tracks as per Table 1 and 11. | | | | | |
| | | | Prior to any Landscaping staff spraying herbicides the correct certification/ licencing or training shall be recorded and that they are familiar with any specific resort issues. | | | | | |
| | | | Consult with surrounding landholders, UKTNP and Central Lands Council regarding weed management if required and coordination of efforts. | | | | | |
| | | | All excavation machinery and other equipment received on site is to be free of soil and organic matter and a record kept of all inspections. | Project Manager | | | | |
| | | | Clean any slashing equipment after use in known weed infestation areas. Record wash-downs and inspections. | Assistant Landscaping Manager | | | | |

| Aspect | Source of risk | Potential Impact Table 6.7.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Weeds on Resort land or adjacent land (cont.) | Cleared land around hotels, campgrounds, maintenance facilities and business partners. | 7.2. Loss of amenity, reputation. Potential to spread weeds to other areas including UKTNP. Infiltration of Resort land native vegetation areas with weeds. | Ensure that any demountable buildings brought to site for housing is cleaned prior to dispatch to site. | Project Manager | | Likely | Minor | Moderate |
| | | | Buffel grass is controlled by removal prior to /during flowering to prevent seeds from dispersing and reduce the amount of seed within soil areas. Removal is either by spraying, burning (NTFRS) and spraying of new green growth repeatedly or by hand and undertaken by Landscaping staff. Removed Buffel grass is gathered together, removed to the "green waste" area of the Waste facility and covered with broken wooden crates, green waste and then burnt at a later date to destroy the seeds. | Assistant Landscaping Manager | Weed Management Procedure | | | |
| | | | In the event that slashing needs to be undertaken, any Buffel grass remaining is then sprayed with herbicide to kill plants, any regrowth is also sprayed. | | | | | |
| | Feed brought to site for business partner operations. | 7.3. Introduction of weed species from contaminated feed. | Camel feed for the Camel farm is sourced from a "weed free" known supplier. | Camel Farm Manager | Weed Management Procedure | Possibl | Negligible | Low |
| | | | Checks undertaken by Camel farm staff along pathways traversed by camel tours for early detection of any weed species. | Environment Officer | | | | |

## 6.8 Fire and Bushfire control

NT Fire and Rescue Service operate out of the Fire station at the Resort, with two full time staff and approximately 15 volunteers. Regular weekly training as well as all equipment and vehicle checks are undertaken. Simulation sessions undertaken. Hazard reduction burns are undertaken on a prescribed program. An extensive network of fire trails/fire access tracks are in place throughout the Resort land area, including around residential areas and the airport. Fire access tracks/fire breaks are in place behind Hotels to allow for vehicular access of Fire tankers, Security and work vehicles, (also in front of hotels in some cases, e.g. Desert Garden rooms). Guest accommodation areas and Town centre area kept clean and tidy. Fire hose reels in place. Aviation Australia Air Services operate out of premises at the Airport with strict training and operational requirements. Potentially environmentally and health related Firefighting foams were used between 2006 and 2007, in specific areas at Airport firefighting training grounds, Per and Polyfluroalkyl substances, perfluroctane sulfonic acid, (PFOS) and perfluroctanic acid (PFOA).

Table 6.8.1. Fire and Bushfire control, objectives, standards and measurement criteria.

| Objectives | Standards | Measurement criteria |
|---|---|---|
| Reduce fuel hazard to protect Resort property, staff and guests from fire<br>Reduce fuel hazard to protect threatened species and critical habitat | NTFRS Yulara, annual Fire Management Plan<br><br>NT Fire and Emergency Act<br>NT Fire and emergency Regulations | Work vehicles with fire extinguishers<br>Off-bitumen vehicles fitted with spark arrestors<br>Hazard reduction burns<br>Fire trails maintained<br>Hazards and Incidents reported through Lucidity Incident reporting system |
| Fire fighting foam to be contained within fire ground<br>Fire fighting foam contamination to be minimised | AS 4482.1, 2005. Guide to the investigation and sampling of sites with potentially contaminated soil | Soil monitoring results Airport |

Table 6.8.2. Fire and Bushfire control, Aspects and Impacts.

| Aspect | Source of risk | Potential Impact Table 6.8.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Bushfire at Resort, or on surrounding land area due to resort activities or natural phenomena e.g. lightning strike. | Unintentional fire due to guest or staff activities. Operation of plant and equipment for maintenance and refurbishment activities. Smoking in non dedicated smoking areas, (guests and staff) throwing butts into vegetation. Storage of waste or cardboard for recycling in large quantities. | 8.1a. Damage to habitat | Emergency assembly areas. Hotel staff receive fire training. Fire extinguishers in lobby areas. Emergency Plans in place including Fire Wardens and fire response directions. | All Area Managers | Disaster Response Plan, 2016 | Unlikely | Minor | Low |
| | | | Fire hose reels and detection systems on regular maintenance scheduled work program. Work vehicles have Fire extinguishers on board. | Technical Services Senior Manager | Fire and Bushfire Control Procedure | | | |
| | | | Fire drills every 6 months for hotel staff. | GM Hotels | | | | |
| | | | Operations and maintenance are conducted in accordance with Regulatory and local fire authorities requirements. | GM Technical Services | | | | |
| | | | System of interconnecting bushfire tracks around resort, maintained for access. Named and mapped and plans on Technical services files. | | | | | |
| | | | JSEA assessment includes Fire risk and control measures to be implemented. | | JSEA 2010 | | | |
| | | | Safe Operating Procedure in place for Hot Work, note that Exclusion areas apply where Hot Work Permit is required. | | SOP Hot Works, 2010 | | | |
| | | | Any slashing, welding, grinding or cutting works are undertaken following a JSEA which includes ignition sources, fire. | | JSEA 2010 | | | |

| Aspect | Source of risk | Potential Impact Table 6.8.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Bushfire at Resort, or on surrounding land area due to resort activities or natural phenomena e.g. lightning strike (cont.) | Unintentional fire due to guest or staff activities. Operation of plant and equipment for maintenance and refurbishment activities. Smoking in non dedicated smoking areas, (guests and staff) throwing butts into vegetation. Storage of waste or cardboard for recycling in large quantities (cont.) | 8.1a. Damage to habitat (cont.) | Vehicle procurement for off bitumen road vehicles is for diesel vehicles with spark arrestors to reduce the potential for spark production. | GM Technical Services | Fire and Bushfire Control Procedure | Unlikely | Minor | Low |
| | | | No off road driving is permitted on Resort land except in the case of an emergency. | All Staff/ Residents | Induction/ Housing Regulations | | | |
| | | | Cleared gravel areas are maintained around large above ground LPG storage tanks. | GM Technical Services | AS1940: Storage and handling of flammable and combustible liquids | | | |
| | | | Where flammable or combustible chemicals are stored, appropriate fire-fighting equipment is available and they are stored in accordance with AS1940: Storage and handling of flammable and combustible liquids and as per SDS. | | | | | |
| | | | NT Fire and Rescue Service work with National Parks and Air Traffic Controller on detection, hazard abatement and if necessary on Bushfire/wildfires/grassfire control. | NTFRS | NTFRS Annual Fire Management Plan | | | |
| | | | NT Fire and Rescue Service work undertake planned hazard reduction control burning program on a yearly plan based on a 5 to 10 yearly cycle within Resort land boundary. Annual plan details locations and timing of fire mitigation works. | | | | | |
| | | | All Hazard reduction burns are undertaken under controlled conditions under supervision of Officer in Charge. | | | | | |

| Aspect | Source of risk | Potential Impact Table 6.8.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Bushfire at Resort, or on surrounding land area due to resort activities or natural phenomena e.g. lightning strike (cont.). | Unintentional fire due to guest or staff activities. Operation of plant and equipment for maintenance and refurbishment activities. Smoking in non-dedicated smoking areas, (guests and staff) throwing butts into vegetation. Storage of waste or cardboard for recycling in large quantities (cont.). | 8.1a. Damage to habitat (cont.) | Notification to guests and staff of upcoming Hazard reduction burns no less than four hours prior to burn | NTFRS/ Community Services Manager | Fire and Bushfire Control Procedure | Unlikely | Minor | Low |
| | | | Vehicle procurement for off bitumen road vehicles is for diesel vehicles with spark arrestors to reduce the potential for spark production | NTFRS/ Community Services Manager | Fire and Bushfire Control Procedure | | | |
| | | | Buffel grass within the resort hotels and residential areas is strictly controlled due to both fire intensity concerns and weed issues. | Assistant Landscaping Manager | | | | |
| | | | Vegetation is maintained at lower levels, around large LPG storage tanks. | GM Technical Services | | | | |
| | | | All observed fires are reported to Triple Zero (000) regardless of whether they are caused by company activities or not. | All | Emergency Procedure | | | |
| | | | Debris from landscaping/gardening maintenance is removed for mulching and not stockpiled in a manner that would increase potential fuel loads. | Assistant Landscaping Manager | Fire and Bushfire Control Procedure | | | |
| | | | All Hazards and Incidents reported through company Incident reporting system. | All staff | Incident Procedure | | | |

Table 6.8 continued below.

| Aspect | Source of risk | Potential Impact Table 6.8.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Specialised fire-fighting training at Airport. | Fire-fighting foam used at Airside training ground when undertaking regulatory requirement scheduled Airline Fire training. | 8.2. Potential for fire-fighting foam not to be contained within fire ground. | All fire- fighting water and foam used in Airside fire- fighting training ground, (note contains small amounts of hydrocarbon accelerant) drains to central sump and then goes to three way manifold. On one of the manifolds (when foam not used) the wastewater is diverted to an underground tank, then passes through an interceptor and then to Wastewater treatment plant. The second manifold is used when foam is used, this water gravity feeds into an underground tank - foam digester, the chemicals in the foam digester neutralise the foam. Prior to discharge to the Wastewater treatment plant, water samples are sent to government laboratories for testing, once results received (BOD, COD) if levels below 500 then water is discharged through triple interceptor to the Wastewater treatment plant. The third manifold is currently not used. Once treated it is irrigated through irrigation system. Separator is cleaned by contractor quarterly who pumps it out and cleans. | Airservices Australia Yulara Operations Manager | Airservices and Airport SOP's | Unlikely | Minor | Low |
| | Fire fighting foam (PFOS, PFOA) used at Airside training ground between 2006/2008 | 8.3. Soil and/or groundwater contamination - Airport Airservices Australia training grounds. | Soil testing undertaken at Airport Air services fire fighting ground and areas where potentially PFOS fire fighting foam may have then been treated and disposed of with airport Waste water treatment treated effluent, November 2016, October 2017. | Airservices Australia | Airservices EMS | Unknown - Air Services | | |

## 6.9 Pest and Disease control

Pest species can be problematic at the hotels and resort land area for a number of reasons, including danger to guests or residents, damage/destruction of infrastructure, reduction of guest enjoyment or their ability to undertake activities, and damage/destruction of plants and gardens. The most common pest animals likely to be seen around the resort in order of priority for control are rabbits, house mouse, feral cats, dingos, camels, wild dogs, and foxes. Travel by international/national guests and residents, movement of vehicles, caravans, buses, luggage and freight, operational and maintenance contractors and equipment and machinery all have the potential to spread pests and diseases (note when speaking about diseases in this instance it only concerns those diseases likely to affect native animals, livestock or vegetation).

Pests, diseases and pathogens of note include, Fire Ants, Cane toads, Foot and mouth, Rabies, Phylloxera, and Phytophthora. Note that the latter two pathogens prefer damp moist areas, however pockets of this type of habitat are found throughout resort gardens. In the event that control measures are enforced over the area of the Resort, discussion and ongoing liaison is undertaken with regulatory authorities. Rabbits are considered a high priority for control due to their large populations causing damage to vegetation native and landscaped through grazing, damage to landforms through digging and burrowing and negative impacts on native species through competition and by supporting larger numbers of predators as a food source.

Table 6.9.1. Pest and disease control, objectives, standards and measurement criteria.

| Objectives | Standards | Measurement criteria |
|---|---|---|
| Protect native wildlife and habitat<br><br>Pests, diseases to be controlled and effects mitigated<br>Early detection of any new infestations of new or known pest plant, animal or pathogen | National Pest Animal Strategy 2017-2027 | Information signs and quarantine bins at Airport<br><br>Staff trained in pest plant and plant disease recognition<br><br>Meetings with business partners and UKTNP staff on potential disease and pest issues<br><br>Education sessions for operational and maintenance staff on hygiene arrangements<br><br>Reports of new animal pests<br><br>Annual Weed and Pest survey at Waste facility and campground |

| Objectives (cont.) | Standards | Measurement criteria |
|---|---|---|
| Protect native wildlife and habitat<br><br>Pests, diseases to be controlled and effects mitigated<br><br>Early detection of any new infestations of new or known pest plant, animal or pathogen (cont.) | National Pest Animal Strategy 2017-2027 | Pest animal control activities conducted (e.g. rabbit, fox, cat, mouse)<br><br>Rabbit control using different methods (biological control, e.g. Calici virus, fumigation of warrens, baiting), number of rabbits dealt with.<br><br>Pest Control visits (for mice)<br><br>Monthly Area Environmental Inspections for each appropriate area<br><br>Reportable incidents involving problem Camels |
| Maintain aviation safety as per CASA requirements | Ayers Rock Resort annual Wildlife hazard management plan. | Annual Wildlife hazard management surveys conducted at Airport |

Table 6.9.2. Pest and disease control, Aspects and Impacts.

| Aspect | Source of risk | Potential Impact Table 6.9.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Import and/or spread of pests, diseases, pathogens from Resort to UKTNP or other parts of NT/Australia | Movement of guests/ residents, luggage, buses, trucks, machinery and equipment. (Note that due to the arid environment, risks for some of these lessened). | 9.1. Adverse impacts on guest/resident enjoyment/activities. Impaired visual amenity. Damage to native vegetation, fauna and habitats and loss of Biodiversity. Potential for reduction in agricultural productivity and or adverse effects on livestock health if serious overseas disease was to enter via guest and disperse into Australia. | Waste bins at Airport, signage and announcements relayed regarding not bringing food, fruit into/across Australian borders. | Airport Manager | NT Quarantine Regulations | Rare | Major | Moderate |
| | | | All vehicles/buses/machinery to use and remain on dedicated roads and tracks at all times. | All / Security Manager | Pest and Disease Control Procedure | | | |
| | | | Training of Landscaping staff on recognising potential symptoms of plant diseases/pathogens prior to them spreading into resort gardens. | Assistant Landscaping Manager | | | | |
| | | | Potential diseases and pest issues discussed at management and team meetings and associated controls discussed in routine liaison and communications with business partners and UKTNP MOU meetings. | GM Technical Services | | | | |
| | | | Information on pests, diseases, pathogens and outbreaks obtained from the relevant Federal and Territory agencies and the relevant hygiene arrangements conveyed to operational and maintenance staff. | Assistant Landscaping Manager | | | | |
| | | | Pest and Weed monitoring is undertaken annually by Ecologists at the Waste facility and some parts of the campground. | Environment Officer | | | | |
| | | | Any incidences of sick native animals, potential diseases/pathogens are reported to the Assistant Landscaping Manager and Environment Officer for investigation initially. | Landscaping / Environment Officer | | | | |

| Aspect | Source of risk | Potential Impact Table 6.9.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Import and/or spread of pests, diseases, pathogens etc. (cont.) | Movement of guests/residents etc. (cont.) | 9.1. Adverse impacts on guest/resident enjoyment/activities etc. (cont.) | Maintenance/Landscaping staff are asked to report anything of a suspicious nature to their respective Manager. | GM Technical Services | Pest and Disease Control Procedure | Rare | Major | Moderate |
| Operational activities | Feral cats/Foxes numbers on Resort land. | 9.2. Impact on native wildlife, spread of diseases. | Cats are not allowed as pets at Ayers Rock Resort as per Memorandum of Understanding with UKTNP (1991) | Housing Manager | Housing Regulations | Likely | Minor | Moderate |
| | | | Feral cat trapping program in place on Resort land. | Environment Officer/ Assistant Landscaping Manager | Pest and Disease Control Procedure | | | |
| | | | Foxes are infrequently seen on Resort land and are a difficult pest to control and a controlled baiting program will be implemented if populations rise. | | | | | |
| | Mouse plagues (at times) | 9.3. At times depending on weather conditions, large numbers of mice can cause issues at the Resort | Under national Food Safety Standards requirements, mice must be controlled within areas of food storage, preparation/consumption. | GM's Hotels / Housing / Retail / Technical services | National Food Safety Standard | Likely | Minor | Moderate |
| | | | Snap traps are usually used for house mice control in kitchens, housekeeping, maintenance areas, supermarket. | GM's Hotels / Housing / Retail / Technical services | Pest and Disease Control Procedure | | | |
| | | | Poison bait stations used during mouse plague conditions, (containing poison impregnated wax) are installed by registered/licenced operator (2017 Flick). Records of Flick visits, number of bait stations kept by Technical Services. | GM Technical Services | | | | |

| Aspect | Source of risk | Potential Impact Table 6.9.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Operational activities (cont.) | Wild camels coming in too close to Resort, infrastructure, guest activities | 9.4. Damage to guests/residents accommodation, infrastructure, & activity areas. | Police may be requested to shoot Camels if they pose a risk to operations or infrastructure or guests. | GM Technical Services | Pest and Disease Control Procedure | | | |
| Damage to vegetation, change to landforms | Large Rabbits populations. | 9.5. Large populations cause damage to vegetation, native and landscaped, through grazing, damage to landforms through digging and burrowing and negative impacts on native species through competition and by supporting larger numbers of predators as a food source. | Rabbit control is undertaken in consultation with Ecologist from Alice Springs. Methods for control may vary from year to year.<br>Recommendations from Pest and Weed monitoring report also included in Annual monitoring/control program.<br>Rabbit warren survey undertaken annually. Control measures implemented annually or more frequent if required.<br>Removal of active warrens where possible. Removal of waste heaped vegetation/logs, any waste vegetative matter that will provide cover for rabbits to shelter or construct warren systems.<br>Follow up monitoring of the number of rabbits left following annual control program.<br>Any dead rabbits to be put in plastic bags and taken to the Waste facility for burial. | Assistant Landscaping Manager | Pest and Disease Control Procedure | Likely | Minor | Moderate |

| Aspect | Source of risk | Potential Impact Table 6.9.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Damage to vegetation, change to landforms | Camels grazing/walking unchecked | 9.6. Adverse impacts on guest/resident enjoyment/activities. | Camel farm camels are managed as per Business partner management plan and procedures and as per any commercial arrangements with Voyages. | GM Resort Finances (manages business partner/s contracts) | Camel Farm SOP's | Unlikely | Minor | Low |
| | | | Only Camel Farm staff are allowed in the feeding areas of the Camels. | | | | | |
| Operational activities | Vertebrate pests at Remote dining locations and around the Resort (wild dogs, dingo's, feral cats, large lizards) | 9.7. Guest/resident pest animal interaction | Discouraging the deliberate feeding of any animals at remote sites by guests and staff. | Hotel Manager, Sails in the Desert (SID) | Pest and Disease Control Procedure | Unlikely | Minor | Low |
| | | | Clean up and removal of all food scraps from dining areas. | | | | | |
| | | | Preventing water pooling after clean up at Remote sites so that fresh water does not attract pest animals. | | | | | |
| | | | Improved awareness of staff and guests on problems caused by pest animals and ultimate outcome for any animal deemed a pest. | Environment Officer | | | | |
| Import and/or spread of Fire Ants/Cane Toads, other problematic pest species. | Movement of guests in caravans, campers, trucks, machinery and equipment. (Note that due to the arid environment, risks for some of these lessened). | 9.8. Impact on guest enjoyment, danger to landscaping staff. Spread of pests into UKTNP, other areas of Australia. | Development of Fire Ant Risk Management Plan | Environment Officer | Pest and Disease Control Procedure | Possible | Major | High |
| | | | Ensure any heavy machinery brought to site is clean and free of soil debris likely to harbour pests/diseases/pathogens. | GM Technical services | | | | |
| | | | Ensure any demountable buildings brought to site are clean and free of soil debris likely to harbour pests/diseases/pathogens. | GM Technical Services / Project Manager | | | | |
| | | | Check of any amphibians reported as resembling Cane Toads by UKTNP for identification. | Assistant Landscaping Manager | | | | |

## 6.10 Cultural heritage management

Heritage sites, both natural and human made, or designated as significant are of cultural value to the community and are protected by law. The Resort land abuts the Uluru Kata Tutja National Park which was listed as a World Heritage - Cultural Landscape in 1994, to date the only one in Australia which recognises the importance of the area. Sites of cultural heritage may comprise areas, sites or items of anthropological, ethnological, scientific or environmental significance. A site sacred to Aboriginal people or of significance according to tradition can include natural features such as rock outcrops, waterholes, tree/s etc. as well as ochre sites, burial sites, rock art site and ceremonial grounds. It is an offense under the NT Aboriginal Sacred Sites (NT) Act, 1989 to enter, remain, work on or desecrate a sacred site Initially the Resort was specifically sited on land not considered of high value within the region. Cultural heritage surveys have been undertaken on the Resort land, in 2000 and prior. Two Sacred sites, are been registered on the Connellan Airport Lot 101 land. These sites are signposted, are within Airport security fencing with very limited access to the general area. Another site is located near Tali Wiru. Routine maintenance is unlikely to disturb heritage items/areas, however non routine activities have a higher likelihood of uncovering/disturbing heritage items. Any new project areas on Resort land to have Cultural heritage surveys undertaken. However these activities are rarely required and are reviewed by a archaeologist prior to excavation. All appropriate approvals are obtained prior to any activity that is likely to disturb or has the potential to disturb heritage items or sites. Local Mutijulu community members travel through parts of the Resort land to get to certain areas outside the boundaries for cultural reasons.

Table 6.10.1. Cultural heritage management, objectives, standards and measurement criteria.

| Objectives | Standards | Measurement criteria |
|---|---|---|
| Comply with NT Aboriginal Sacred Sites (NT) Act 1989 and Heritage Act 2011<br><br>Protect registered sacred sites from disturbance | Northern Territory Aboriginal Sacred Sites Act NT Heritage Act<br>Sacred site/s permit conditions:<br>• 5047-3KATATITJA:<br>• 5047-4KATATITJA<br>• 5047-6 | Reports of disturbance to sacred sites<br><br>Staff inductions<br><br>Contractor inductions<br><br>Cultural heritage surveys conducted for any new developments<br>Permits issued from Heritage Branch |

Table 6.10.2. Cultural heritage management, Aspects and Impacts.

| Aspect | Source of risk | Potential Impact Table 6.10.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Non routine operations or maintenance or unlawful entry to Airport land. | Disturbance to Registered Sacred Site/s. | 10.1. Damage to Sacred site. Breach of Legislation. | Sacred site, 5047-3KATATITJA is signposted with warning signs. The site is located Airside within the security fenced area of the Airport. Entry to this area is by permit only and visitors are escorted.<br>Sacred site 5047-4KATATITJA, the site is mainly located Airside within the security fenced area of the Airport. Entry to this area is by permit only and visitors are escorted.<br>Daily patrols of the Airport perimeter are undertaken to check fencing and security. Any entry or disturbance to the site would be reported.<br>All Contractor inductions for Airport detail areas where contractors are allowed to be, all work supervised by Airport staff as per aviation regulations.<br>Fire hazard reduction burns are undertaken on airport land outside security fenced runway area and slashing is undertaken inside fenced area to reduce vegetation cover and habitat for small mammals/reptiles which could then potentially be prey for kites, hawks and other raptors which are not encouraged within the airport land due to potential for air strikes with planes. | Airport Manager | Cultural Heritage Management Procedure | Unlikely | Minor | Low |

| Aspect | Source of risk | Potential Impact Table 6.10.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Non routine operations or maintenance or unlawful entry to Airport land (cont.) | Disturbance to Registered Sacred Site/s. | 10.1. Damage to Sacred site. Breach of Legislation (cont.) | Airport Operational personnel are aware of the location of the sites and protection measures required. | Airport Manager | Cultural Heritage Management Procedure | Unlikely | Minor | Low |
| | | | Any disturbance to the sites, is reported to the state/federal department. | EGM ARR Resort | | | | |
| Routine and non routine operations and maintenance activities. | Earthworks, vehicle movements. | 10.2. Disturbance or destruction of heritage items or sites. | Sacred site 5047-6 located near Tali Wiru remote dining site and Area 1 and 2 adjacent to road. | SID Hotel / Technical Services | Cultural Heritage Management Procedure | Unlikely | Negligible | Low |
| | | | The only known or Registered site/s on Resort land are detailed above. However any information on any new sites will be kept with Environmental Management System documentation at Technical services. | Environment Officer | | | | |
| | | | No disturbance/destruction of any heritage items shall occur except under permit arrangements with relevant state/federal departments. | GM Technical Services | | | | |
| | | | All operational activities comply with permit and reporting requirements under the relevant Federal and State heritage legislation. | | | | | |
| | | | Any new sites will be provided with physical protection such as barriers of logs/fences and appropriate signs. Physical protection measures are maintained as per the maintenance schedule. | | | | | |
| | | | Resort Engineers, Project managers are trained in heritage and cultural issues and management. | | | | | |

| Aspect | Source of risk | Potential Impact Table 6.10.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Non routine operations or maintenance or unlawful entry to Airport land (cont.) | Disturbance to Registered Sacred Site/s. | 10.1. Damage to Sacred site. Breach of Legislation (cont.) | In the event that any non-routine maintenance works during excavation, boring, etc., were to uncover burial site or artefacts within the Resort land then works in that area are to stop immediately until the relevant state and Federal departments are contacted. | Airport Manager | Cultural Heritage Management Procedure | Unlikely | Minor | Low |

## 6.11 Resort facility and Airport management

The Resort hotels and campgrounds may at full capacity contain upwards of 4,200 guests and over 1000 residents. The majority of guests, over 360,000, fly into the airport, where tour buses pick up and hire car parking is currently at both the airport and in town. Wash bays for Hire cars are currently located at IGA carpark. The residential areas for resort and Yulara essential services are close to hotels. Vegetation, shrubs are used to screen in places essential services such as the smaller LPG tanks. A network of walking tracks exist within the resort which are used by guests and residents to travel between hotels and central areas. Both guests and residents are discouraged from walking off formed tracks, lookouts or roadways due to damage to vegetation and sand dune stability issues as per Table 1. Responsibility of the Resort includes hotel and public area infrastructure, laundry, swimming pools, lighting, solar panel installations, remote dining sites, residential housing and the recreation centre and gym. The majority of the day to day maintenance is undertaken by the Technical Services group with specialist support from contractors, some living at the resort and the rest that may travel from either Alice Springs or further.

Table 6.11.1. Resort facility and airport management, objectives, standards and measurement criteria.

| Objectives | Standards | Measurement criteria |
|---|---|---|
| All maintenance conducted in accordance with related procedures<br><br>No unwarranted disturbance to guests or residents from operational or maintenance activities | Australian Standards for operation and maintenance of varied equipment and machinery on site (standards are too numerous to mention here, retained at Technical Services). | Reports of routine maintenance occurring outside business hours<br><br>Reports of work vehicles not adhering to designated roads, or accessing locked fire trails<br><br>Unauthorised entry into secured infrastructure<br>Reported complaints<br><br>Noise complaints received from guests and residents |
| Asbestos managed as per approved methods in Asbestos Management Plan | Asbestos Management Plan | Reported events |

Table 6.11.2. Resort facility and airport management aspects and impacts.

| Aspect | Source of risk | Potential Impact Table 6.11.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Guest and resident population and associated activities | Large number of people in small area, pressures on surrounding environment. Infrastructure sites within guest/residential areas. Traffic around resort and residential areas. Traffic to and from remote sites. | 11.1. Damage to surrounding environment from people walking off track, on sand dunes, over vegetation etc. | Designated walking tracks throughout resort, signposted, maps provided to guests. Designated fire tracks, with lockable entry points. Information and signage provided to keep people from walking off tracks. | GM Hotels | Resort and Airport Operations Procedure | Likely | Medium | High |
| | | 11.2. Fauna, mainly reptiles moving around Resort. | Courtesy bus runs continuously within resort area for guests and residents. | | | | | |
| | | | Snake catchers on call for Resort and residential areas 24/7 as per Table 6. All reptiles caught are relocated within Resort land. | Assistant Landscaping Manager | Snake Catching Procedure | Likely | Minor | Moderate |
| Café and Restaurant operations, remote dining sites operation | Oils and food grease from Cafes and Restaurants. Overflow or leakage of Grease arrestors or Grease traps Failure to maintain grease traps Non permitted Trade waste discharge | 11.3. Soil, ground and groundwater contamination, see 11.3a to 11.3c below | All food oils and greases are collected and disposed via dedicated labelled Grease trap waste points and stored in dedicated Grease traps. This includes all remote Dining sites. Reporting of any non- conformances with this method. | Hotel Manager/s Campground/s Manager | | See below | | |
| | | 11.3a. Hotels | Grease traps are regularly pumped out by licenced contractor and transported to the Waste facility Grease evaporation pits. When most material has evaporated, then remaining sludge is buried at depth at Waste facility. | | Grease Trap SOP | Unlikely | Minor | Low |

| Aspect | Source of risk | Potential Impact Table 6.11.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Café and Restaurant operations, remote dining sites operation | Oils and food grease from Cafes and Restaurants…. (cont) | 11.3b. Remote dining | Regular inspections when emptied and regular maintenance of Grease trap and lines to prevent leakage to soil, groundwater. Surface areas around Grease traps kept clean so that any spillage, leakage is evident. | Technical Services Senior Manager | Trade Waste Permit/s | Unlikely | Minor | Low |
| Caravan/camper van guests | Disposal of black water from caravans and campers | 11.3c. Caravans camper | Dedicated Black water dump point at Giles Street. Instructions, wash down hose, area slopes to dump point. Dump point is piped to Sewer system operated by NT Power and Water. Trade Waste Permit in place. | Technical Services Senior Manager | Trade Waste Permit/s | Unlikely | Minor | Low |
| | | | Scheduled regular inspections by Technical Services staff. | | | | | |
| Resort operations (various) | Routine maintenance and operations of hotel and public area infrastructure as per above and residential housing and recreation centre. Emergency maintenance. | 11.4. Disturbance to guests/residents from maintenance activities, patrols etc. Damage to fauna, native vegetation. | Routine maintenance is undertaken during business hours so as not to disturb guests. Security patrols are undertaken on roadways away from room or guest dining areas. | Technical Services Senior Manager / Security Manager | Resort and Airport Operations Procedure | Likely | Minor | Moderate |
| | | | All public roadways within Resort come under NT Territory controls, are signposted for speed limits. Police undertake speed checks, random breath testing and vehicle registration checks. | NT Police | NT Police Act | | | |
| | | | All maintenance and resort operations traffic use dedicated roadways, all staff who drive resort owned vehicles must have suitable licenced and all vehicles must have current registration. Blood Alcohol Content (BAC) testing may be undertaken by supervisors or managers who have concerns regarding staff or, on a random basis. | Security Manager / GM Technical Services | NT Police Act | | | |

| Aspect | Source of risk | Potential Impact Table 6.11.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Resort operations (various) | Routine maintenance and operations of hotel ….. (cont.) | 11.4…… (cont.)Damage to fauna, native vegetation. | Access to remote sites is via designated roads or formed tracks. | SID Hotel Manager | Resort procedures | Likely | Minor | Moderate |
| | | 11.5. Unauthorised access or disturbance to remote sites or infrastructure. Reduction in visual amenity | Access to sites is via designated roads and formed tracks. Roads are marked as authorised vehicles only. Infrastructure is protected by security locks, bollards, fencing, security fencing, buildings etc. to prevent unauthorised entry. Certain fire trails are locked to prevent unauthorised entry and or use. | Security Manager / GM Technical Services | Resort and Airport Operations Procedure | Unlikely | Medium | Moderate |
| | | | Infrastructure and associated facilities are kept in a clean and tidy condition for safety and visual amenity reasons. Vegetation screening is maintained for visual amenity and kept trimmed for bushfire prevention. | Technical Services Senior Manager | | | | |
| | | | Large LPG storage, 52,000L tanks are stored within security fenced compounds, checked on regular security rounds. All decanting into LPG storage and larger gas bottles is undertaken by Origin. | Technical Services Senior Manager | Technical Services SOP | | | |
| | | | Power (electricity) is supplied by NT Territory Generation who are also responsible for any infrastructure, power supply breakdowns and regular maintenance to their system. All services (transmission wires etc. ) are located underground, transformers are above ground but are within locked steel cabinets. | NT Territory Generation / Technical Services liaison | NT Territory Generation SOP's | | | |

| Aspect | Source of risk | Potential Impact Table 6.11.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Resort operations (various) | Routine maintenance and operations of hotel ….. (cont.) | 11.5. Unauthorised access or disturbance to remote sites or infrastructure. Reduction in visual amenity (cont.) | The Central Energy Plant (CEP) under the Winjiri Gallery contains both heating and chilling components of the air conditioning system. These systems are the largest single energy consumers at the Resort. Heating is undertaken by gas fired boilers while the Chillers are electricity powered. The gas fired boilers are turned off during the warmer months (October to April). The Central Energy Plant has automatic alarms for when overload or breakdown occurs and operate on a SCADA system which is checked daily by refrigeration mechanics. Maintenance is on a scheduled maintenance program undertaken by contractors. All components are housed within a locked building, combination lock on doors and Security staff undertake routine patrols. To reduce energy use, power factor correction units have been installed on the chiller power supply side. Variable speed drives are installed on hot water pumps, Cooling tower pump motors and chilled water pumps. | Technical Services Senior Manager | Technical Services SOP | Unlikely | Medium | Moderate |
| | | | Power and Water NT, are responsible for supply of potable water to Resort and treatment of wastewater, as well as all associated infrastructure. | Power and Water NT /Technical Services liasion | Power and Water NT SOP's | | | |

| Aspect | Source of risk | Potential Impact Table 6.11.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Resort operations (various) | Routine maintenance and operations of hotel ….. (cont.) | 11.5. Unauthorised access or disturbance to remote sites or infrastructure. Reduction in visual amenity (cont.) | Waste facility is located 15kms away from Resort. Signposted and locked out of business hours and is managed by a dedicated Waste Services team within Technical services. | Waste Manager | Waste Facility Procedure | Unlikely | Medium | Moderate |
| | | | Freight Services receives goods from five (5) road trains per week coming from Adelaide and Alice Springs. Freight services then deliver orders to the different departments and business groups | Freight Manager | Freight Services SOP | | | |
| | Use and storage of chemicals/ fuels, oils. | 11.6.Chemical/fuel spills, leakage, contaminating land, water, groundwater. | Chemical and fuels (not stored underground) are stored in bunded areas as per Table 4. | | | See Table 4.2 | | |
| | Unknowing or deliberate removal of asbestos containing material. | 11.7. Inappropriate disposal, lack of controls during removal - HSE risk. Soil contamination. | Asbestos Register for Resort and residential buildings including Recreation centre, Library, AEC area etc. Asbestos Management Plan prepared by Napier and Blakely available to all staff. | Technical services Senior Manager | Asbestos Register | Unlikely | Minor | Low |
| | | | Any suspected detected Asbestos is managed as per Asbestos Response procedure and Asbestos Management Plan above. | Technical services Senior Manager | Asbestos Response procedure | | | |
| | | | Any works undertaken that have the potential to expose tradespeople to asbestos containing material, provision and wearing of correct PPE is required. | | Technical Services SOP | | | |

| Aspect | Source of risk | Potential Impact Table 6.11.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| | Site lighting | 11.8. Lighting a disturbance to fauna | Lighting is in place in many parts of the Resort to allow staff to go about their work in safety as many activities are undertaken at dawn and dusk. Fauna are able to move away from the lighting at any time. | Technical services Senior Manager | Resort and Airport Operations Procedure | Possible | Minor | Moderate |
| Airport Operations | On site Sewerage Treatment Plant | 11.9. Soil, groundwater contamination | Control measures are documented extensively in Table 4 | See Table 4 | | | | |
| | | | Standard operating procedures exist for the Airport Wastewater treatment plant. Operators trained in these and health requirements. | Airport Manager | Airport Wastewater treatment plant SOP's | Unlikely | Minor | Low |
| | | | Base line monitoring undertaken prior to discharge of treated wastewater to irrigation area. If required retreated prior to further monitoring and release. | | | | | |
| | Removal of rubber from Runway tarmac | 11.10. Build up of rubber on Runway tarmac. | Rubber is removed from the Runway tarmac by specialised foam application. Final waste product is stored and then removed by Wastemaster. | Airport Manager | Airport SOP's | Airport | | |

## 6.12 Air emissions

The Resort is situated in a remote desert area of Central Australian which typically experiences high air quality, however entrained dust is evident from deposits and can be dependent on weather conditions. The main naturally occurring sources of dust are from exposed ground between vegetation, sealed and unsealed roads, and smoke from bushfires or controlled hazard reduction burns. Smoke from burning vegetation contains the particulates PM 10 and PM2.5 which can be of concern for humans and animal respiratory performance (NT EPA, 2016). Anthropogenic sources include combustion engines associated with the aviation movements at the airport, (jet engines, helicopters etc.) NT Generation diesel and gas turbines, and bus and vehicle movements. However due to the area that this occurs in there is likely to be negligible contribution to background air quality. Whirly whirlies are common and can take material high into the air. No specific air monitoring is undertaken in the local area, with the nearest data being from NT EPA Air Monitoring sites near Darwin, air monitoring as per the NEPM (Ambient Air Quality) are planned for Alice Springs. Monitoring is undertaken regularly on the Cooling Towers as per health and safety regulations.

Table 6.12.1. Air emission, objectives, standards and measurement criteria.

| Objectives | Standards | Measurement criteria |
|---|---|---|
| Reduce amount of windborne dust<br><br>Maintain ground stability, reduce soil erosion and damage to vegetation, reduction in bare sand areas | National Environment Protection (Ambient Air Quality) Measure<br><br>Environment Protection (National Pollutant Inventory) Objective | Reports of vehicles not adhering to designated roads<br><br>Speeding infringements incurred by staff travelling on Resort roads<br><br>Functioning petrol generators gas heaters and gas cookers<br><br>See all KPIs for Table 1 Ground and Sand dune stability<br><br>See KPIs for Table 3 Vegetation management and protection |
| Maintain clean quality of combustion engines | | Maintenance events conducted on all work vehicles and combustion engines |
| Controlled venting greenhouse gases from tanks | | Results of leakage detection surveys conducted by relevant business partners |

| Objectives (cont.) | Standards | Measurement criteria |
|---|---|---|
| Compliance with ARCtick licence requirements in relation to refrigerators | ARCtick Licencing | Gas collected |
| Reduce amount of grease vapour, fumes, etc. being released into air from kitchens | NT Work Health and Safety regulations | Maintenance events conducted on kitchen smog hogs |
| Comply with NTFRS annual Fire Plan | NTFRS Fire Plan (annual) | Hazard reduction burns<br>Fire related Hazards and Incidents reported through Lucidity incident reporting system |

Table 6.12.2. Air emission, aspect and impacts.

| Aspect | Source of risk | Potential Impact Table 6.12.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Unapproved clearing, trampling or death/damage of vegetation cover | Extensive areas of bare sand. Traffic to and from Resort and to and from remote sites. | 12.1. Sand can become windblown easily, impacting guest appreciation, cleaning requirements, affecting machinery, quality of life of residents. Impact native vegetation. | No unapproved removal of soil, or sub soil. Minimum width roads, tracks constructed. | All staff / GM Technical Services | Air emissions Procedure | Unlikely | Minor | Low |
| | | | All vehicles/machinery to drive on dedicated roadways, adhere to speed limits. | All staff | | | | |
| | | | Education, fencing and signposting to keep guests/residents to stay on dedicated pathways, access tracks. | All Managers / GM Technical Services | | | | |
| Routine operations, maintenance. Emergency maintenance | Combustion engines | 12.2. Decrease in air quality | All airlines undertake routine maintenance as per schedules. | Airlines / Airport Manager | Airline Maintenance schedules | Almost Certain* | Negligible | Moderate |
| | | | Routine maintenance and scheduled weekly checks on all Voyages vehicles and combustion engines. Company has undertaken a fleet upgrade in last 12 months - improvement of emissions from newer engines. | GM Technical Services | Technical Services SOP's | | | |
| | | | Petrol generators, gas for cooking and heating at remote sites. Used as per instructions, regular maintenance. | | | | | |
| | | | Periodic leakage detection surveys are undertaken to detect fugitive gas releases from underground tanks. | | | | | |

| Aspect | Source of risk | Potential Impact Table 6.12.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| | Routine/non routine venting of gases from above and below ground tanks and lines associated with fuel and LPG tanks. | 12.3. Venting to atmosphere of greenhouse gases | "Breather" lines in place on most above and underground fuel tanks. Routine checking of levels of tanks to ensure that minimum venting levels occur and to track losses to atmosphere. | Service Station Manager / Origin Driver – LPG / Fuel driver | Service Station SOP's / Origin SOP's/ Fuel delivery SOP's | Likely | Minor | Moderate |
| Routine operations, maintenance. Emergency maintenance | Legionella's disease outbreak Work Health and Safety System addresses | 12.4.Decrease is air quality, loss of reputation | All Cooling Towers have automatic chemical treatment of systems specific for Legionella contamination. Weekly reports on chemical levels of makeup water. Monthly reports from laboratory, fortnightly in summer due to temperatures. If above certain levels then decontamination and super dose of water will occur and then system dumped to sewer. Clean water installed and system restarted. | Technical Services Senior Manager | SDS for dosing chemicals. SOP Cooling Towers. Health and Safety documentation. | Unlikely | Minor | Low |
| | Kitchen exhausts | 12.6. Exhausts from kitchens containing grease vapour, fumes etc. | Kitchens are fitted with "Smog hogs" that remove kitchen air contaminants, entrained greases etc. Maintained by contractor on scheduled maintenance program. | Technical Services Senior Manager | Technical Services SOP's | Likely | Negligible | Moderate |
| | Hazard reduction burns | 12.7. Smoke, smoke haze | Refer to Table 8. | | | | | |

## 6.13 Noise emissions

Operation of equipment, machinery has the ability to generate noise on and around the Resort area. Noise emissions during normal operations are generated due to vehicle, bus and truck travelling around the Resort areas, planes, helicopters ate the Airport or flying overhead. Non-routine corrective and preventative maintenance may generate elevated noise levels, however these activities occur infrequently and only on an as needed basis. Guests/residents are notified of non routine/emergency maintenance, unusual noise levels.

Table 6.13.1. Noise emissions, objectives, standards and measurement criteria.

| Objectives | Standards | Measurement criteria |
|---|---|---|
| Minimise disturbance to guests, reduction in amenity<br>Minimise disturbance to residents on shift work.<br>All machinery, equipment complies with manufacturers stated noise levels | NT *Waste management and pollution control* Act, (this act also includes general environmental offences including environmental nuisance) | Vehicle checks by Technical Assistance recorded into Maintenance Connection<br>Noise complaints received from guests and residents |

Table 6.13.2. Noise emissions, aspects, impacts and control measures.

| Aspect | Source of risk | Potential Impact Table 6.13.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Operations and routine/non-routine maintenance activities producing excess noise levels. | Airplane and helicopter flights. Stationery plant and equipment. Vehicle, bus, truck and machinery movement. | 13.1. Disturbance to guests, reduction in amenity. Disturbance to residents on shift work. | All vehicles, buses, trucks, machinery and equipment fitted with appropriate noise abatement devices such as mufflers, silencers, screens etc., which are maintained at regular intervals. | GM Technical Services | ARR Monthly vehicle checks via MC. Housing Regulations p.6. | Likely | Minor | Moderate |
| | | | Activities likely to produce elevated noise levels are scheduled for time periods less likely to result in disturbance to guests/residents, except in event of emergency. Guests/staff notified of likelihood of elevated noise levels so can make alternate arrangements. | | Noise emission Procedure | | | |
| | | | Noise generating equipment used in non-routine maintenance activities, e.g. generators, water pumps, air compressors are located where possible are located at appropriate distances from guests/guest activity areas. | | | | | |
| | | | Any noise complaints are investigated and attended to prior to being closed out. A record of the complaint is retained as per Resort protocols. | | | | | |
| | Territory Generation plant audible during winter months at high load | 13.2. Noise complaints from guests within campground and elsewhere. | Soil mound between Territory Generation plant and Overflow area. Ongoing discussions with Territory Generation regarding noise levels. | Campground Manager / GM Hotels | Complaint procedure | Likely | Minor | Moderate |

## 6.14 Energy sustainability

The Resort utilises energy from a variety of sources, including grid electricity (generated from diesel and gas turbines), solar panels, diesel generators and LPG equipment. Solar power has been increased in recent years to reduce the reliance on fossil fuels.

Table 6.14.1. Energy sustainability, objectives, standards and measurement criteria.

| Objectives | Standards | Measurement criteria |
|---|---|---|
| Reduce energy consumption from fossil fuel sources | Renewable energy target (RET) scheme | Electricity and gas consumption (guests) at Resort<br>Fuel consumed at Resort<br>Flights taken by staff for meetings etc. and distance travelled<br>Energy produced from Tjintu Solar farm<br>Number of staff trained in energy conservation awareness<br>Resort properties with energy efficient lighting<br>New hot water heaters fitted to/with solar panels<br>Audits on energy use<br>Buildings without shading<br>Alternative fuel vehicles |

Table 6.14.2. Energy sustainability , aspects, impacts and control measures.

| Aspect | Source of risk | Potential Impact Table 6.14# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Operation of Resort | Energy requirements dependent on "fossil fuels". | 14.1. Cost increases over time.<br>Being left behind with guests choosing "eco touring or environmentally friendly holiday destinations".<br>Potential for implications in climate change. | Monthly information is collected and reported on for electricity and gas. Historical trends in energy use are compared to the ongoing monthly assessment of energy consumption across the Resort. Carbon Footprint and Trend of Operations reports are prepared monthly so that senior management are aware of total energy consumption figures and trends. Graphical representations of monthly data are compared to other years and provide information as new initiatives on energy savings come on stream. | GM Resort Finance / Environment Officer | Carbon footprint Report / Trend of Operations Report | Almost Certain* | Major | Very High |
| | | | Emu Walk and Desert Gardens have HVAC controls (including motion censor) on air conditioning/ventilation and lights, so that if no movement occurs within the room for 20 minutes then the unit will close down. Doors must be closed for air conditioner to work. This is also proposed for Sails in the Desert Hotel. | Technical Services Manger Hotels | Energy Sustainability Procedure | | | |
| | | | Solar powered lighting for pathways. | | | | | |
| | | | Energy efficient equipment, including low wattage light globes are used within all properties. | ALL | | | | |
| | | | Heating of water is generated by roof mounted solar panels at Housing and The Lost Camel. | GM Technical services | | | | |

| Aspect | Source of risk | Potential Impact Table 6.14.# | Control Measures and Mitigation | Responsibility | Documentation (protocols, procedures, forms etc.) | Residual Risk | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Likelihood | Consequence | Risk Rating |
| Operation of Resort (cont.). | Energy requirements dependent on "fossil fuels" (cont.). | 14.1. Cost increases over time.<br>Being left behind with guests choosing "eco touring or environmentally friendly holiday destinations".<br>Potential for implications in climate change (cont.). | Heating of water is generated by roof mounted solar panels at Housing and The Lost Camel.<br>Energy conservation is achieved with devises such as key tag switches, timers or motion sensors on lights, employee training and awareness of conservation measures.<br>Key tag switches in guest rooms so that lights and appliances only operate when room is occupied.<br>Use of timer and motion sensor devices for lighting.<br>Daylight (photo - electric cells) switches used for external lighting and some pathways.<br>Lighting at toilets at Function rooms and restaurants have movement sensors<br>Regular audits of energy use to identify areas of improvement.<br>Efficient building design, energy saver appliances and equipment when upgrades/renovations/refurbishments occur.<br>LED lighting used in public areas and guestrooms. | GM Technical services | Energy Sustainability Procedure | Almost Certain* | Major | Very High |