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PEMBROKE

# Olive Downs Coking Coal Project

Additional Information to the Environmental Impact Statement

## Section 17

# Waste

# 17 WASTE

***1. Provide additional information regarding the expected disposal locations for landfill, recycling, waste oil, regulated waste, black waste/sewerage/bio products.***

Pembroke has conducted a detailed analysis of the potential waste streams and disposal locations (including regulated wastes), which builds on the summary presented in Table 4-46 of the draft EIS. Table 17-1 below describes the outcome of this detailed analysis.

In most instances, where waste is proposed to be transported to a licenced landfill facility, Pembroke will arrange for this waste to be transported outside of the Isaac Regional Council LGA. This commitment will form part of the contractual arrangements currently being developed with licenced contractors.

Notwithstanding, the Waste Management Program (Appendix I) describes the waste disposal options for wastes proposed to be disposed of within the Isaac Regional Council LGA.

***2. Prepare a draft waste management strategy which ensures that preferred waste disposal options are feasible for Isaac Regional Council.***

Consistent with the commitment in Section 4.14.4 of the draft EIS, Pembroke has prepared a draft Waste Management Program for the Project. The draft Waste Management Program identifies the waste streams expected to be generated at the Project and waste management measures to be implemented, including consideration of waste disposal options. The draft Waste Management Program is provided in Appendix H.

Pembroke will provide the draft Waste Management Program to the Isaac Regional Council for comment.

## Table 17-1
## Estimated Maximum Wastes Produced by the Project (per annum)

| Waste Type/Waste Category | Form | Source | Approximate Quantity (per annum) | | Attributes that may Affect Dispersal | Risk of Causing Environmental Harm* | Management Strategies (Waste Management Hierarchy Level)^ | Proposed Disposal Location |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operations | | | | |
| ***Non-regulated*** | | | | | | | | |
| Excavated waste (i.e. overburden, interburden) | Solid | Mining activities | N/A | 12 – 300 Mbcm | Potential for erosion and saline runoff | Low | Placed within the in mined out voids of the open cut pits (when space becomes available) behind the advancing mining operations (g) or placed in out-of-pit waste rock emplacements (g). | Excavated waste would be disposed of within the approved ML areas. |
| Coal rejects (i.e. coarse and fine rejects) | Solid/Liquid | Mining activities | N/A | 0.1 – 5.5 Mt | Potential for erosion, saline runoff. Low potential for acid formation | Low | Fine rejects would be dewatered in the ILF cells (f). During the initial phase of the Project (before in-pit emplacement becomes available), coarse rejects would be disposed at out-of-pit emplacements buried by at least 10 m of waste rock and fine rejects would be temporarily stored in the ILF cells. In-pit emplacement would be utilised when space becomes available (g). | Coal rejects would be disposed of within the approved ML areas. |
| General waste (i.e. food scraps, non-Class 1 [PET], 2 [HDPE] and 5 [PP plastics]) | Solid | Kitchenettes, crib rooms, administration areas, workshop, etc. | 1,500 $m^3$ | 2,500 $m^3$ | Putrescible and attractive to fauna | Low | Stored on-site in bins for regular transport off-site by a licensed waste transport contractor to a licensed landfill (g). | General waste would be transported off-site by a licenced waste contractor to an approved landfill (excluding Dysart). |
| Recyclable waste (i.e. aluminium, steel cans, Class 1, 2 and 5 plastics, paper towels, paper and cardboard) | Solid | Kitchenettes, crib rooms, administration areas, workshop etc. | 430 $m^3$ | 1,200 $m^3$ | Small in size and light in weight | Low | Stored on-site in bins for regular transport off-site by a licensed waste transport contractor for recycling (d). Confidential papers would be segregated into locked paper bins for shredding and recycling (d). | Recyclable waste would be transported off-site by a licenced recycling contractor to an approved recycling facility outside the Isaac Regional LGA. |

**Table 17-1 (Continued)**
**Estimated Maximum Wastes Produced by the Project (per annum)**

| Waste Type/Waste Category | Form | Source | Approximate Quantity (per annum) | | Attributes that may Affect Dispersal | Risk of Causing Environmental Harm* | Management Strategies (Waste Management Hierarchy Level)^ | Proposed Disposal Location |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operations | | | | |
| Refurbishable items (i.e. pipe work and associated components and fittings, wing nuts, conveyor rollers and belt) | Solid | CHPP and workshops | <15 t | <40 t | Rust formation | Low | Items would be stockpiled within a designated area. If condition is acceptable, items would be reused directly (c). Where items are at the end of their life, they would be collected and disposed of as appropriate (g). Where items are contaminated with hydrocarbons, they would be managed as regulated waste. | If disposal off-site is required, refurbishable items would be disposed of by a licenced waste contractor to an approved waste facillity. |
| Green waste (i.e. grass, cleared timber and weeds) | Solid | Clearing of vegetation | 210 ha# | 210 ha# | Attractive to fauna | Low | Mulched and/or placed in timber stacks for reuse on-site during rehabilitation (c). Waste vegetation would be burned where appropriate (g). | Green waste would be disposed of within the approved ML areas. |
| Scrap metal (i.e. stainless steel, aluminium and any item considered to be metal [ferrous or non-ferrous] including machine and vehicle parts) | Solid | Construction activities, infrastructure maintenance and workshops | 150 $m^3$ | 200 $m^3$ | Rust formation | Low | Smaller items would be placed in scrap metal skips for collection by a licensed contractor. Larger items would be left in an accessible location where specific collection arrangements can be made. All grease and oils are to be removed prior to placement in skips. A licensed contractor would remove all scrap metals for segregation at a licensed recycling facility (d). | Scrap metal would be disposed of by a licensed contractor to an approved recycling facility. |
| PPE and other small items (i.e. gloves, hard hats, safety glasses and face masks) | Solid | Bathhouse and contractor facilities | <60 kg | <120 kg | Light weight and small in size | Low | Equipment that is not deemed damaged would be reused (c). Only sufficiently used/damaged PPE would be disposed of (g). | Where PPE is required to be disposed of, it would be transported off-site by a licenced waste contractor to an approved landfill (excluding Dysart). |

**Table 17-1 (Continued)**
**Estimated Maximum Wastes Produced by the Project (per annum)**

| Waste Type/Waste Category | Form | Source | Approximate Quantity (per annum) | | Attributes that may Affect Dispersal | Risk of Causing Environmental Harm* | Management Strategies (Waste Management Hierarchy Level)^ | Proposed Disposal Location |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operations | | | | |
| Air filters (i.e. engine air filters) | Solid | Vehicle and machinery maintenance at workshops | <2 t | <2 t | N/A | Low | Air filters would be temporarily stored in the appropriate air filter skip/bin. Final disposal would be off-site (g). | Air filters would be transported off-site by a licenced waste contractor to an approved landfill (excluding Dysart). |
| Timber/wooden pallets (i.e. reusable pallets) | Solid | Workshop and administration areas | <2 t | <2 t | N/A | Low | Pallets that are reusable would be returned to the supplier (c). The remainder would be sent to general waste (g). | Pallets that are not re-usable would be transported off-site by a licenced waste contractor to an approved landfill (excluding Dysart). |
| Mine affected water | Liquid | Any water that has been used or potentially contaminated by mining operations, including mine runoff water, groundwater seepage into pit, or water that has been used at the CHPP | Refer to Appendix E of the draft EIS for mine affected water volumes. | Refer to Appendix E of the draft EIS for mine affected water volumes. | Liquid | Low | Mine affected water would be reused (c) for dust suppression and construction and/or road maintenance around the Project. Discharge to the Isaac River would be subject to meeting water quality release limits specified in an EA for the Project. Further water management strategies are discussed in Sections 4.2, 4.3 and Appendix E of the draft EIS. | N/A |
| ***Regulated*** | | | | | | | | |
| Waste oils | Liquid | Machinery and vehicle maintenance and workshop | 400 kL | 1,400 kL | Liquid | Medium | Collection and storage for transport by a licensed regulated waste contractor to a regulated waste receiver for reuse (c) or recycling (d). | Waste oils would be recycled by a licenced regulated waste contractor. |

**Table 17-1 (Continued)**
**Estimated Maximum Wastes Produced by the Project (per annum)**

| Waste Type/Waste Category | Form | Source | Approximate Quantity (per annum) | | Attributes that may Affect Dispersal | Risk of Causing Environmental Harm* | Management Strategies (Waste Management Hierarchy Level)^ | Proposed Disposal Location |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operations | | | | |
| Engine oil/fuel filters | Solid/Liquid | Vehicle and machinery maintenance at workshop | 4,000 | 12,000 | Liquid contents | Medium | Collection and storage in sealed oil filter disposal pod. Transportation by a licensed regulated waste contractor to a licensed regulated waste receiver for treatment (solvent wash) to recover oil (c) or recycling (d). | Engine oil/fuel filters would be recycled by a licenced regulated waste contractor. |
| Waste grease (i.e. from machinery) | Liquid | Workshop, large machinery maintenance | <100 kL | <200 kL | Liquid | Medium | Stored in tanks or appropriately sealed containers in a designated bunded area. Transported by a licensed regulated waste contractor to a licensed regulated waste receiver for, recycling (d). | Waste grease would be recycled by a licenced regulated waste contractor. |
| Sewage | Liquid | Offices and workshops | <100 kL | <120 kL | Liquid | Medium | During construction there would be temporary ablution blocks which would not be connected to a sewage system and would require pumping out by licensed contractor. Once the sewage treatment plants are operational, within the mine infrastructure areas, the effluent would be treated by a package sewage treatment plant (f) and disposed via irrigation or reused within the site water management system. | Sewage would be transported off-site by a licenced contractor to disposal at a licenced facility during construction. Once the Project is operational, sewage would be treated and disposed in the designated effluent irrigation areas (Figure 3-1). |
| Empty waste oil containers | Solid | Workshop | <4 t | <10 t | N/A | Medium | All drums would be segregated and sealed prior to collection by a licensed regulated waste contractor and transported to a licensed waste receiver where drums and containers would be rinsed and recycled (d). | Empty waste oil containers would be recycled by a licenced regulated waste contractor. |

**Table 17-1 (Continued)**
**Estimated Maximum Wastes Produced by the Project (per annum)**

| Waste Type/Waste Category | Form | Source | Approximate Quantity (per annum) | | Attributes that may Affect Dispersal | Risk of Causing Environmental Harm* | Management Strategies (Waste Management Hierarchy Level)^ | Proposed Disposal Location |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operations | | | | |
| Paints (i.e. general paint, air dried insulating varnish) | Liquid/Gas | Industrial area infrastructure and workshop | <1 t | <1 t | Liquid | Medium | Transported to a designated sealed and bunded area for collection by a licensed regulated waste contractor and transported to a licensed regulated waste receiver for treatment (f) and disposal (g). | Empty waste oil containers would be recycled by a licenced regulated waste contractor. |
| Hydrocarbon contaminated material (i.e. oily rags) | Solid/Liquid | Workshop servicing trucks and light/heavy vehicles | <4 t | 12 t | Liquid contents | Medium | Collection and storage in regulated sealed disposal bin. Transported by a licensed regulated waste contractor to a licensed regulated waste receiver for appropriate disposal (g). | Hydrocarbon contaminated materials would be disposed off-site by a licenced regulated waste contractor to an approved licenced facility. |
| Miscellaneous chemicals (i.e. engine coolant, solvents, sealants, etc.) | Liquid/Gas | Workshop and administration | 20 kL | 50 kL | Liquid | Medium | Transported to a designated sealed and bunded area for collection by a licensed regulated waste contractor and transported to a licensed regulated waste receiver for treatment and disposal (g). | Miscellaneous chemicals would be disposed off-site by a licenced regulated waste contractor to an approved licenced facility. |
| Batteries (i.e. dry cell, gel cell, lead acid) | Solid | Operation of portable electrical equipment (radios, phones, etc.) within the workshop and other areas | <1 t | <1 t | Liquid contents | Medium | Segregation and storage within dedicated containers in battery storage area for collection by a licensed regulated waste transport contractor to a licensed regulated waste facility for recycling (d) or disposal (g). | Batteries would be disposed off-site by a licenced regulated waste contractor to an approved licenced facility. |

**Table 17-1 (Continued)**
**Estimated Maximum Wastes Produced by the Project (per annum)**

| Waste Type/Waste Category | Form | Source | Approximate Quantity (per annum) | | Attributes that may Affect Dispersal | Risk of Causing Environmental Harm* | Management Strategies (Waste Management Hierarchy Level)^ | Proposed Disposal Location |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operations | | | | |
| Ozone depleting substance (i.e. refrigerants and air conditioning substances) | Liquid/Gas | Air conditioning units, fridges and cars throughout site | 200 kg | 800 kg | Liquid/Fumes | High | Ozone depleting substances would be contained at the source in cylinders and returned to the supplier for reuse and recycling (c)(d). | Ozone depleting substances would be recycled by a licenced regulated waste contractor. |
| Tyres (i.e. light and heavy vehicle tyres) | Solid | Tyres from light and heavy vehicles | 180 | 280 | N/A | Low | Segregation and storage in a designated area with no grass or other flammable material within a 10 m radius. Tyres would be transported off-site to a supplier for re-treading where practicable (c) or disposed on-site in a designated tyre disposal area in the backfilled pit (g). | Tyres would be disposed of within the approved ML areas. |

* In consideration of potential hazards, toxicity and dispersal mechanisms.

^ Waste Management Hierarchy as defined in section 9 of the WRR Act: (c) waste reuse; (d) waste recycling; (f) treat waste before disposal; (g) waste disposal. The measures identified above will be implemented only once waste avoidance and reduction measures have been exhausted.

# The average annual disturbance of land (i.e. green waste) assuming the life of the Project is 79 years.