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## 8. LAND CONTAMINATION

This section addresses Section 3.2.5 of the TOR. It describes the relevant State and Federal regulatory frameworks, the identified potentially contaminated sites within the Project area, the impacts of the Project in relation to these matters, and mitigation measures to manage potential impacts.

### 8.1. Description of environmental situation

#### 8.1.1. Regulatory framework

Legislative requirements covering contaminated land in Queensland are primarily contained in the *Environmental Protection Act 1994* (EP Act) and subordinate policies and regulations. The methodology used in this assessment is based largely on the following guidelines:

- The National Environment Protection (Assessment of Site Contamination) Measure, National Environment Protection Council 1999 ("the NEPM Guidelines"); and
- Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland, Department of Environment, 1998 ("the Draft Guidelines").

These guidelines provide a framework for assessing and managing contaminated soil and/or groundwater based on an evaluation of three components in the risk chain, identified below. Each of these components must be present and form a pollutant linkage for a risk to exist:

- a) contamination (source): Soil and/or groundwater contamination must be present. Contamination is the release of a hazardous contaminant into the environment that is likely to cause serious or material environmental harm because of its physical, chemical, infectious characteristics or concentration.
- b) receptors: Humans and/or a receiving environment must be present and be potentially impacted by the identified contaminants.
- c) pathways: The contamination must be able to contact receptors by means such as:
  - humans – e.g. ingestion, skin contact, inhalation; and
  - environment – e.g. seepage into waterways, wind-blown deposition on plants, root uptake, ingestion, skin contact and inhalation by various life forms.

#### 8.1.2. Methodology

A desktop study was undertaken to identify, where possible, sites within the Project area with the potential for contamination and included a review of:

- DERM's Environmental Management Register (EMR) and Contaminated Land Register (CLR);
- aerial photography;
- residual Unexploded Ordnance (UXO) potential; and
- a roadside inspection of the dam and surrounds and preliminary pipeline route was also undertaken.

Following the desktop study, a qualitative risk assessment was undertaken to establish the need for further investigation, and identify appropriate mitigation measures. A schedule of further investigation, as required, has been developed and is described in **Section 8.2**.

Further detail on the methodology undertaken is provided in the following sections.

#### **8.1.2.1. EMR/CLR review**

The principal source of land-use planning data for contaminated land in Queensland is the EMR/CLR database administered by DERM. The EMR is a land-use planning and management register for land that has been or is being used for a notifiable activity, or has a hazardous contaminant. Notifiable activities are those that are considered by DERM as likely to cause contamination.

The CLR is a register of 'risk' properties which have been identified (through scientific investigation) as contaminated land which is causing or may cause serious environmental harm (Section 17 of the EP Act). Land is recorded on the CLR when scientific investigation shows it is contaminated and action is required to remediate or manage the land.

It is important to note that the EMR does not provide a definitive list of contaminated or potentially contaminated properties. Thus, the absence of a property from the EMR does not necessarily mean that the property has not been used for a notifiable activity or another activity, which may result in contamination or is in fact contaminated. Conversely, being listed on the EMR does not necessarily mean that the property is contaminated.

#### **8.1.2.2. Historical aerial photograph review**

A review of historical aerial photography was undertaken to identify, where possible, potential land uses within the dam and surrounds and the pipeline route with the potential to cause contamination. Post 1957 historical aerial photography from several photo runs was available for the dam and surrounds, and post 1966 historical aerial photography was available for the pipeline route. A review was also undertaken of recent aerial photography on Google Earth™ (October, 2008).

Land parcels were identified based on specific information observed in the photography, including but not limited to:

- the presence of stockyards. If identified on a land parcel, it was assumed that the land parcel has the potential for livestock dip or spray race operation to be present, on the basis that the land parcel is being used for grazing activities;
- the presence of farm buildings (e.g. large sheds, buildings, and farm houses). If identified on a land parcel, it was assumed that the land parcel had a high probability of containing chemical and or fuel storage and a septic tank (It should be noted that septic tanks are not a notifiable activity listed in the environmental protection legislation. Septic tanks are considered a public health aspect, and are regulated under the *Public Health Act 2005*);
- the presence of large disturbed areas. If evident on a land parcel, it was assumed that the land parcel had a high probability of a landfill, farm dump, quarry or mining activities occurring on the property; and
- railway corridors/land.

### ***8.1.2.3. Review of residual unexploded ordnance potential***

Land parcels which are known or suspected of having been used for military activity are categorised according to the assessed potential for UXO on that site. The Department of Defence maintain a webpage ([http://www.defence.gov.au/uxo/UXO\\_Website/index.htm](http://www.defence.gov.au/uxo/UXO_Website/index.htm)) that provides information on land parcels with the potential for UXO.

### ***8.1.2.4. Site inspection***

A site inspection of the dam and surrounds and preliminary pipeline route was conducted on October 10, 2008.

The pipeline route had not been finalised at the time of inspection, therefore inspection did not verify findings from the historical review.

No additional potentially-contaminated sites were observed in the dam and surrounds or along the pipeline route that were not observed during the review of historical aerial photography.

## **8.1.3. Dam and surrounds**

### ***8.1.3.1. EMR/CLR review***

Search results for the nine land parcels within the dam and surrounds found that:

- no land parcels were listed on the EMR; and
- no land parcels were listed on the CLR.

### ***8.1.3.2. Historical aerial photograph review***

Four livestock dip or spray race operations were observed within or near (within 350 m of) the water storage area. None are located within any of the construction works areas.

A fifth livestock dip or spray race operation was identified on a land parcel located approximately 2 km west of the water storage area.

The presence of farm buildings was also identified on four of the five land parcels where livestock dip or spray race operations were identified. No evidence of large disturbed areas was observed.

No potentially notifiable activities were observed within the dam construction area.

### ***8.1.3.3. Review of residual unexploded ordnance potential***

No potential for UXO was identified from the Defence web page, within the dam and surrounds.

### ***8.1.3.4. Summary of dam and surrounds***

Table 8-1 provides a summary of results for each of the land parcels within the dam and surrounds. The locations of the potentially contaminated sites are presented in Figure 8-1.

Table 8-1 Summary of historical review for the dam and surrounds

Key	Land Parcel	Listed on EMR/CLR	Potential Notifiable Activity	Location of Potential Notifiable Activity
1	Lot 1 Plan KL155	No	Livestock dip or spray race operation / chemical storage / petroleum product or oil storage / septic tank	Approximately 2 km west of water storage area
2	Lot 6 Plan KL194	No	Livestock dip or spray race operation	Approximately 20 m from water storage area (not in construction area)
3	Lot 4974 Plan PH1462	No	Livestock dip or spray race operation / chemical storage / petroleum product or oil storage / septic tank	Within water storage area (not in construction area)
4	Lot 10 Plan SP112044	No	Livestock dip or spray race operation / chemical storage / petroleum product or oil storage / septic tank	Within water storage area (not in construction area)
5	Lot 4 Plan KL209	No	Livestock dip or spray race operation / chemical storage / petroleum product or oil storage / septic tank	Approximately 350 m from water storage area



## 8.1.4. Pipeline

### 8.1.4.1. EMR/CLR review

A search of the EMR/CLR register was undertaken on 36 of 57 land parcels intersected by the pipeline route but not on the remainder because these land parcels are under lease, and lot numbers or base parcel information was not available at the time of undertaking the EIS.

The search results (Table 8-2) found that eight land parcels were listed on the EMR for one or more of the following notifiable activities:

- chemical storage (4 land parcels);
- mine wastes (4 land parcels);
- petroleum product or oil storage (4 land parcels);
- waste storage, treatment or disposal (4 land parcels);
- gun, pistol or rifle range (2 land parcels); and
- no land parcels were listed on the CLR.

Table 8-2 DERM information relating to EMR listed sites

Key	Land Parcel	Date Listed on EMR	Notifiable Activity	DERM Information
1	Lot 1 Plan SP158697	20/01/2004	Chemical storage / mine wastes / petroleum product or oil storage / waste storage, treatment or disposal	Chemical storage (MIBC storage at CHPP - a single 25,000 L (approx 20.5 tonne) storage facility, 2 x 150,000 L a/g fuel tanks, 1 x 30,000 L waste oil tank, tyre storage areas in mine industrial area, future tyre dumps in pit. Referral agency letter dated 31/07/06 states that the land is used for a mining activity or petroleum activity.
2	Lot 1 Plan SP187962	17/01/2007	Mine wastes / petroleum product or oil storage / waste storage, treatment or disposal	No information
3	Lot 2 Plan SP187962			
4	Lot 15 Plan GV133	27/06/1998	Chemical storage	No information
5	Lot 16 Plan GV133			
6	Lot 20 Plan SP102355	27/06/1998	Gun, pistol or rifle range	Both relate to base parcel Lot 19 CP866487, which is listed on the EMR for the Notifiable Activity, Gun, Pistol or Rifle Range. Letter from council stated "It is understood that the listing on the EMR is due to the pistol club activities at the end of Sarchedon Drive. The Pistol Club is still operating and therefore, the listing should remain..."
7	Lot 23 Plan SP158749			
8	Lot 24 Plan SP162593	21/01/07	Chemical storage / mine wastes /	No information

Key	Land Parcel	Date Listed on EMR	Notifiable Activity	DERM Information
			petroleum product or oil storage / waste storage, treatment or disposal	

**8.1.4.2. Historical aerial photograph review**

The following activities, which may be indicative of a potential for contamination, were observed on the properties listed on the EMR:

- quarrying, large sheds and buildings, and ponds on Lot 1 Plan SP178697. These activities are located more than 6 km from the pipeline route;
- quarrying and large sheds and buildings on Lot 1 Plan SP187962. These activities are located more than 1 km from the pipeline route;
- disturbed land intersected by the pipeline route, and an above ground tank located approximately 50 m from the pipeline route on Lot 2 Plan SP187962. The tank is a balancing storage tank associated with the Eungella Eastern Extension Pipeline (owned by SunWater);
- sheds and other infrastructure on Lots 15 and 16 Plan GV133. These activities are located more than 250 m north from the pipeline route; and
- disturbed land and ponds located approximately 150 m from the pipeline route, and sheds located more than 1 km from the pipeline route. These activities are located on Lot 24 Plan SP162593.

In addition to the aforementioned activities, cattle yards and farm buildings were observed at multiple locations along the pipeline route on properties which are not listed on the EMR. This included properties for which a search of the registers could not be undertaken. These activities are located more than 60 m from the pipeline route.

Three disturbed areas which intersect the pipeline route were observed on properties not listed on the EMR. Two of these disturbed areas appear to be lay down or service areas for the Peak Downs Highway road corridor. The type of activities which have occurred within the disturbed areas could not be determined from the aerial photographs.

**8.1.4.3. Review of residual unexploded ordnance potential**

No potential for UXO was identified from the Defence web page, along or within 1.5 km of the pipeline route.

**8.1.4.4. Summary of pipeline**

Table 8-3 provides a summary of results for the pipeline route. The locations of the potentially contaminated sites are presented in Figure 8-2.

Table 8-3 Summary of historical review for the pipeline

Key	Land Parcel	Listed on EMR/CLR	Notifiable Activity	Location of Notifiable Activity
1	Lot 1 Plan SP158697	Yes	Chemical storage / mine wastes / petroleum product or oil storage / waste storage, treatment or disposal	Mining activities identified >6 km south from where pipeline route passes through a small portion of this land parcel
2	Lot 1 Plan SP187962	Yes	Mine wastes / petroleum product or oil storage / waste storage, treatment or disposal	Mining activity identifies >2 km from pipeline route on south west corner of the land parcel
3	Lot 2 Plan SP187962	Yes	Mine wastes / petroleum product or oil storage / waste storage, treatment or disposal	Disturbed land intersected by pipeline route along the north western boundary of the land parcel. Above ground tank approx. 50 m from pipeline.
4	Lot 15 Plan GV133	Yes	Chemical storage	Sheds and other site infrastructure >250 m north of pipeline route
5	Lot 16 Plan GV133	Yes	Chemical storage	
6	Lot 20 Plan SP102355	Yes	Gun, pistol or rifle range	Pistol club located > 250 m from pipeline route on opposite side of Goonyella Rd
7	Lot 23 Plan SP158749	Yes	Gun, pistol or rifle range	
8	Lot 24 Plan SP162593	Yes	Chemical storage / mine wastes / petroleum product or oil storage / waste storage, treatment or disposal	Disturbed land located approximately 150 m from pipeline route and possible mining infrastructure (sheds) >1 km from pipeline route
9	Attached to road corridor	No	Disturbed land	Intersected by pipeline route
10	Attached to road corridor	No	Disturbed land	Intersected by pipeline route
11	Lot 36 Plan KL811178	No	Disturbed land	Intersected by pipeline route



### 8.1.5. Associated infrastructure

Areas relevant to associated infrastructure are within the areas already investigated for the dams and surrounds and the pipeline route.

No potentially notifiable activities were observed within the associated infrastructure construction areas.

## 8.2. Potential impacts and mitigation measures

Potential contaminated land impacts fall into three categories. These include:

- 1) potential impacts to construction workers from exposure to contaminated materials during construction;
- 2) potential impacts to human health and/or the environment from the accidental release of substances during construction or operation; and
- 3) potential impacts to dam water quality and aquatic organisms from pollutant linkages with contaminated sites during operation.

A qualitative risk assessment of the potential impacts was undertaken, and is described in **Section 8.2.4**. The following provides a summary of the potential impacts and mitigations measures associated with the Project for the dam and surrounds, pipeline route and associated infrastructure.

### 8.2.1. Dam and surrounds

#### 8.2.1.1. Impacts

No potentially notifiable activities were identified within the dam construction area. Therefore contaminated land is not likely to be encountered during the construction of the dam.

Activities with the potential to cause contamination which were identified within the water storage area include cattle dips, and to a lesser extent chemical storage, fuel storage, and septic tanks in association with farm buildings. The potential risk posed by these sites to the environment is assessed.

#### Cattle dips

Cattle dip sites within and near to the water storage area have the potential to impact on the aquatic organisms and water quality. Potential contaminants associated with the operation of cattle dips include:

- arsenic (As);
- organochlorine pesticides (OCPs, e.g. DDT);
- organophosphate pesticides (OPPs); and
- to a lesser extent synthetic pyrethroids, and carbamates.

Of these As, OCPs, and OPPs are considered to be the key contaminants of concern on the basis that they were more commonly used, and are more persistent in the environment.

Cattle dip sites which are located outside the water storage area also have the potential to impact on water quality and aquatic organisms within the dam. Impacts could be potentially associated with the erosion and deposition of contaminated sediments into the dam, or the leaching and migration of contaminants in groundwater into the dam. This risk will be influenced by a range of factors including:

- the distance from the site to FSL;
- the erosion potential of the site (ground cover and soil stability); and
- the leaching potential of contaminants and groundwater conditions at the site.

Other impacts associated with contaminated sites outside the water storage area (within the land acquisition boundary) include potential limitations on land use due to human health risk.

The locations of the cattle dip sites within the dam and surrounds include:

- two sites within the water storage area;
- one site approximately 20 m from the water storage area;
- one site approximately 350 m from the water storage area; and
- one site approximately 2 km from the water storage area.

None of these were within the dam construction area.

#### **Farm buildings**

Potential contaminants of concern that may be associated with chemicals and petroleum products include:

- petroleum hydrocarbons, including total petroleum hydrocarbons (TPH) and benzene, toluene, ethyl benzene and xylene (BTEX);
- polychlorinated biphenyls (PCBs);
- polycyclic aromatic hydrocarbons (PAH);
- phenolic compounds;
- OCPs and OPPs; and
- metals such as arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc.

Buildings may also contain asbestos.

The locations of the rural properties with farm buildings within the dam and surrounds include:

- two properties within the water storage area;
- one property approximately 350 m from the water storage area; and
- one property approximately 2 km from the water storage area.

### ***8.2.1.2. Mitigation measures***

Further investigations will be undertaken at the five potentially contaminated sites within the dam and surrounds based on the requirements of the Draft Guidelines. Identified properties will be listed on the EMR in accordance with the EP Act.

An appropriate remediation strategy for the identified contaminated sites will be developed following the completion of further investigations.

There are a number of options for how contaminated sites could be managed. These include:

- do nothing if the site investigation and assessment of risk determines that no action is necessary;
- on-site treatment/remediation to reduce contamination;
- capping of contaminated sites;
- excavation and off-site disposal to an off-site landfill; and
- excavation and on-site disposal to a suitable location within the Project area, with appropriate engineered controls (e.g. liner, cap).

A decision on an appropriate remediation strategy will be made following further investigation of the sites. A disposal permit may be required for the offsite disposal of construction spoil originating from land parcels listed on the EMR. Disposal permits will be obtained from DERM. Remediation may not include removal of the sites from the EMR.

## **8.2.2. Pipeline**

### ***8.2.2.1. Impacts***

Aerial photography indicates that while listed land parcels are intersected by the pipeline route, the notifiable activities are not located near the pipeline route.

The pipeline route was also identified to intersect with disturbed land on three other sites that are not listed on the EMR. The nature of these sites could not be confirmed through the aerial photograph review.

Contaminated soil, if encountered at the sites, has the potential to impact on persons involved with pipeline construction (e.g. through dermal contact, ingestion, and inhalation).

### ***8.2.2.2. Mitigation measures***

An EMR/CLR search will be undertaken on the 21 properties intersected by the pipeline route which could not be searched at the time of undertaking the EIS. The EMR/CLR search will be undertaken once lot and plan information for these properties is available.

An inspection of the pipeline route will be undertaken to ground-truth the findings of the EMR/CLR search and historical aerial photograph review. Should the site inspection identify potentially contaminated sites, these will

be investigated based on the requirements of the Draft Guidelines. Identified properties will be listed on the EMR in accordance with the EP Act.

An appropriate remediation strategy will be prepared and implemented if contamination is found. Remediation would most likely involve the off-site disposal of excavated spoil to an appropriate disposal facility. Remediation may not include removal of the sites from the EMR.

### 8.2.3. Unforeseen contamination and prevention of contamination

Should land contamination be encountered or occur as a result of the construction or operation of the Project, appropriate procedures and measures will be put in place for the notification, mitigation, investigation, remediation, and validation of the contaminated land. The procedures are documented in the Draft Environmental Management Plan (EMP) for construction and operation and are provided in **Section 29**. The procedures will be detailed in the construction EMP to be prepared by the construction contractor and operational EMP to be prepared by SunWater.

During the construction and operation of the Project there is potential for land contamination to occur, for example from the accidental spillage of hazardous materials. These materials will be stored appropriately to minimise the risk of environmental impact. Chemical storage will comply with Australian Standards and Material Safety Data Sheets (MSDS) requirements. All such documentation will be readily available to employees and contractors.

Smaller quantities of chemicals, fuels and oils will be stored in self-bunded pallets, within a bunded area in the workshop, or in a bunded container on the site. Bulk quantities of diesel will also be kept in double skinned tanks (self-bunding) or within an appropriately bunded area.

Waste products, (e.g. oil/water separator waste, sludges and residues), will be contained within weatherproofed, sealed and bunded areas to ensure stability of the waste containment receptacles and prevent any leakages or spills causing environmental harm to soils, surface water or groundwater. Regular inspections will be carried out of the tanks, bunds and storage areas to ensure integrity.

It should be noted that storage of hydrocarbons and/ or large quantities of chemicals associated with construction and operation of the Project may result in the site being listed on the EMR.

The following provides an outline of the mitigation measures that will be undertaken during the construction phase of the Project:

- preparation of a Construction Occupational Health and Safety Plan (OH&S Plan) by the construction Contractor which includes measures to manage exposure of construction workers to potential contaminants in soil and/or water; for example through the wearing of personal protective equipment and the control of dust during construction; and
- preparation of a Contaminated Land Management Procedure prior to the commencement of construction which includes, but is not limited to:
  - identification of the likely forms of contamination that could occur during the Project (fuels, oils, paints etc.)

- procedures for appropriate storage of hazardous materials in compliance with relevant standards;
- the prevention of land contamination during construction;
- the identification, investigation and management of unforeseen contamination;
- spill response and remediation;
- listing properties on the EMR in accordance with the EP Act.
- the management, remediation and disposal of contaminated soil and/or spoil generated from properties listed on the EMR/CLR;
- post construction management and/or monitoring requirements; and
- as required, approval and disposal permits will be obtained from DERM for the removal of contaminated soil in accordance with the EP Act.

#### 8.2.4. Impact assessment and residual risks

This section provides a qualitative assessment of the potential risk from contaminated land, and the mitigation measures proposed to minimise those risks.

The methodology used for risk assessment and management is discussed in **Section 1.8**.

Unmitigated consequence and likelihood ratings for the identified hazards are shown with explanatory notes in **Table 8-4**. The risk assessment is of the Project as described in **Section 2**, in which SunWater has already incorporated a range of risk reduction and mitigation measures.

**Table 8-5** presents the assessment of residual risks after mitigation.

Based on this assessment, the following conclusions can be made:

- while potentially contaminated sites within or near (within 350 m of) the water storage area have the potential to impact on water quality within the dam and aquatic organisms, an appropriate schedule of further investigations and remediation/management activities at these sites will reduce the risk to Low (as low as reasonably practicable);
- while the construction and operation of the Project will use products and produce wastes that pose a potential risk to the environment, appropriate management of these materials will reduce the risk to Low (as low as reasonably practicable);
- feasible management actions to minimise contamination risks are described and these will be reflected in the Construction EMP (**Section 29**) and/or the Proponent commitments (**Appendix F**); and
- based on this risk assessment, the impacts to the environment from potentially contaminated land can be effectively managed and the residual risk is acceptable.

**Table 8-4 Unmitigated consequence and likelihood ratings**

Hazard	Consequence	Comments	Likelihood	Comments
<b>Construction</b>				
Contact/exposure to potentially contaminated material.	Moderate	Persons involved with construction have the potential to be exposed to contaminants in disturbed soil.	Unlikely	Notifiable activities have not been identified within construction areas.
Soil, groundwater and surface water contamination from spillage or on-site disposal of contaminants during dam and pipeline construction.	Minor	Contamination is likely to be limited in extent in areas where spillage/leakage is likely to occur (e.g. machinery workshops and storage sheds).	Likely	While hazardous materials will be managed (transported, stored, disposed, etc.) in accordance with Australian Standards and Guidelines, accidental spillage is still likely to occur during completion of the Project.
<b>Operation</b>				
Contamination of dam water supply following inundation.	Minor	Contamination at identified potentially contaminated sites would not pose a significant risk to the environment.	Unlikely	Potentially contaminated sites will be investigated and managed if necessary prior to inundation.
Limitation to land use surrounding the dam.	Minor	Contamination at identified potentially contaminated sites would not be widespread. Contamination is unlikely to affect land use.	Likely	Potentially contaminated sites have been identified outside the water storage area (within the land purchase boundary).

Table 8-5 Risk assessment results

Hazard	Factors	Impacts	Initial Risk	Mitigation Measures	Mitigation Effectiveness	Residual Risk	As low as reasonably practical?
<b>Construction</b>							
Contact/exposure to potentially contaminated material.	Potentially contaminated sites within construction areas.	Risk to human health.	Moderate x Unlikely = Medium	<p>Ensure the OH&amp;S Plan contains procedures for potential worker exposure protection including ingestion of soil and inhalation of dust.</p> <p>Ensure the EMP contains procedures for the correct disposal of any potentially contaminated soil, if encountered, during excavation activities.</p> <p>Where potentially contaminated soil is encountered, materials will be managed in accordance with the Draft Guidelines and in consultation with DERM.</p>	Significant	Low	Yes
Soil, groundwater and surface water contamination from spillage of contaminants during construction.	Transportation, storage, use and disposal of contaminants (fuel, chemicals, etc) required for construction of the Project.	Soil and water contamination.	Minor x Likely = Medium	<p>Management of hazardous materials will be in accordance with Australian Standards and guidelines (e.g. DERM Guidelines and MSDS).</p> <p>Should a significant spill occur, DERM will be notified, and the site will be investigated and appropriately managed in accordance with the EP Act 1994.</p> <p>Wastewater from areas potentially transporting contaminants (e.g. washdown and workshop areas), will be contained and directed to</p>	Significant	Low	Yes

Hazard	Factors	Impacts	Initial Risk	Mitigation Measures	Mitigation Effectiveness	Residual Risk	As low as reasonably practical?
				detention ponds.			
<b>Operation</b>							
Contamination of dam water supply following inundation.	Potentially contaminated sites within or near the water storage area.	Risk to human health and aquatic organisms.	Minor x Unlikely = Low	Schedule of further investigation and remediation/management activities that will be conducted through staged approach based on the Draft Guidelines and in consultation with DERM.	Significant	Low	Yes
Limitation to land use surrounding the dam.	Potentially contaminated sites within land purchase boundary.	Risk to human health and the environment.	Minor x Likely = Medium	Schedule of further investigation and remediation/management activities that will be conducted through staged approach based on the Draft Guidelines and in consultation with DERM.	Significant	Low	Yes

### 8.3. Summary

The EIS identified five potential cattle dip sites and four groups of farm buildings within the dam and surrounds with the potential for contamination. Further investigation of these sites will be undertaken to establish the extent and significance of contamination, and remediation requirements. None of these sites were located within the dam construction area or the water storage area or listed on the EMR.

The pipeline route intersects eight land parcels listed on the EMR for notifiable activities including:

- chemical storage;
- mine wastes;
- petroleum product or oil storage;
- waste storage, treatment or disposal; and
- gun, pistol or rifle range.

Aerial photography indicates that the notifiable activities are not located near the pipeline route. Therefore contaminated land is not likely to be encountered during the construction of the pipeline.

An EMR search will be undertaken on properties intersected by the pipeline route which could not be searched at the time of undertaking the EIS. An inspection of the pipeline route will also be undertaken to confirm that the pipeline route does not intersect notifiable activities or other activities with the potential to cause contamination. If an activity with the potential to cause contamination is identified following the site inspection, the site will be investigated further to establish the extent and significance of contamination, and remediation requirements.

Identified properties will be listed on the EMR in accordance with the EP Act.

If required, remediation of contaminated sites will be undertaken prior to inundation of the water storage area or construction of the pipeline. Remediation may not include removal of the sites from the EMR.

If required, disposal permits will be obtained from DERM for the removal of contaminated soil in accordance with the EP Act.

A Draft EMP has been prepared which includes measures to prevent the contamination of land and water, and the management of unforeseen contamination. A construction health and safety plan will be prepared to manage exposure to potentially contaminated sites during construction.