16.1 Background

The proposed method of separating the heavy minerals from the mined sands is a physical (centrifugal) process, and chemicals are not used. Therefore there are no large quantities of chemicals required to be shipped, trucked and stored for mineral processing use. Chemical usage will be limited to those used for domestic cleaning and hygienic purposes in the camp.

Hydrocarbons, such as fuels and oils, will be used for the excavator, trucks and other mobile plant, and for the generators used to power pumps and other operational equipment, as well as for the camp facilities.

16.2 Existing conditions

Matilda has developed procedures for the storage and handling of hydrocarbons, including diesel fuel, oils, greases, chemicals and explosives associated with exploration activities. These procedures outline the manner in which bulk and small containers of these substances should be stored and handled on-site, and also assign responsibilities for the handling and storage of these substances.

Existing fuel storage facilities are located at PenSyl facilities at the port as well as Sylvatech's workshops at Maxwell Creek. Matilda proposes to use these facilities for storage of fuels, servicing and fuelling of haul trucks for proposed sand mining operations. Thus no additional fuel storage facilities will be required, other than at the mine sites.

16.3 Objectives and Standards

Matilda's procedures for the handling and storage of hazardous goods will be consistent with the requirements of Australian Standards for the storage and handling of flammable and combustible liquids (AS 1940 – 1993) and the Australian Standards for the storage and handling of corrosive substances (AS 3780 – 1994).

Fuel delivery services to the Islands will be sourced through Australian Fuel Distributors (AFD) which has a proven level of environmental and safety performance.

Matilda will maintain an inventory of all receivables and dispatches of hydrocarbon and chemical products, including supplier, quantities, types and storage location of hydrocarbons, chemical products and associated products.

Relevant legislation, standards and policies

The relevant legislation, standards and policy are:

- Matilda's Hydrocarbon and Chemical Management Procedures

- *Dangerous Goods Act 1981*
- *Waste Management and Pollution Control Act 1998*
- Australian Standards for the storage and handling of flammable and combustible liquids (AS 1940 – 1993)
- Australian Standards for the storage and handling of corrosive substances (AS 3780 – 1994)

16.4 Definition of issues and impacts

It is proposed that ADF will supply Matilda with diesel fuel. As described earlier, existing Sylvatech and PenSyl facilities will be used to store fuel and hydrocarbons at the port and for servicing of haul trucks. Additionally there will be bulk fuel storage facilities located at the proposed mine sites, which will utilise isotainers of capacity 26,000 L. These facilities will supply all fuel requirements for mining, processing, power supply and light vehicles.

The anticipated annual fuel consumption is detailed in Section 2.4, and the fuel use is listed in Table 2.1. This table is reproduced here (Table 16.1). The total fuel usage is estimated to be 3,099 kL per annum. As discussed in Section 2.4, the average fuel usage is estimated to be equivalent to 2.3 fuel isotainers per week. It is anticipated that a maximum of five fuel isotainers (130 kL of fuel), sufficient for approximately two weeks' operation, will be stored at the mine site at any one time.

Table 16.1: Annual fuel consumption

Equipment	kL/annum	Hrs/day/year	Usage
Generators , five units, total 820 kW	1,796	24/7/365	0.25 L/kWh
Mining loader	330	24/7/365	38 L/hr
Concentrate loader	83	6/7/365	38 L/hr
Excavator	120	11/7/365	30 L/hr
Dump trucks x 2	240	11/7/365	30 L/hr/each
Grader	92	11/7/365	23 L/hr
Road train x 4 trips/24hr	432	24/7/300	1.5 L/km
Light vehicles	6	4/7/365	8 L/hr
Total fuel/year	**3,099 kL**		

As with any hydrocarbon storage system, there is a potential for spill or leaks of hydrocarbons and contamination of the local environment.

Oily waste will be produced from generators and vehicles, including waste oil, oily rags, oil filters and other disposable parts during operations. It is anticipated that Matilda will produce approximately 7,000 L of waste oil per year.

As noted above, the processing of the ore is a chemical-free process. Therefore no large quantities of chemicals will be required to be shipped, trucked and stored for mineral processing use. General chemicals, used for hygiene and other related purposes, will be stored as per the manufacturer's specifications. All chemicals will be shipped to the island via the Tiwi Barge Service. Chemicals will be trucked from the port to camp along the haul road.

16.5 Management

The Draft Hydrocarbons and Hazardous Substances Environmental Management Plan presented in Section 25.6 addresses hydrocarbon and hazardous goods management issues.

All hazardous and dangerous goods will be handled and stored according to:

- Information provided on the Material Safety Data Sheets (MSDS) provided by the manufacturer;
- The Australian Standards for the storage and handling of flammable and combustible liquids (AS 1940 – 1993); and
- The Australian Standards for the storage and handling of corrosive substances (AS 3780 – 1994).

It will be the Site Manager's responsibility to maintain an inventory of all receivables and dispatches of hydrocarbon and chemical products, including supplier, quantities, types and storage location of hydrocarbons, chemical products and associated products.

Diesel fuel will be trucked to the mine site in 26 kL fuel isotainers, which will be stored in the workshop area (Figure 2.1). The isotainers would comprise a fuel storage tank contained within a sealed isotainer, which would provide secondary containment.

The proposed placement of hydrocarbon storage facilities on the escarpment rather than in the mining operational areas has been decided on the basis of consideration of potential events that could lead to a spill, with consequent soil contamination. The placement on the escarpment will minimise the risk of soil contamination in event of a spill, as the mining areas are characterised by sandier (more porous) soils. In addition the placement on the escarpment will also minimise the risk of spill arising from storm surge events (Section 6).

Appropriate bunded storage areas for dangerous goods and for refuelling will be provided. Lubricating oils and greases for vehicles and generators will be stored under cover, in drums in a bunded dangerous goods area, as per Matilda's Hydrocarbon Management Guidelines. Any minor quantities of chemicals would also be stored in this area. The fuel and chemical storage and handling facilities will be inspected on a regular basis, and maintained to ensure compliance with Australian Standards.

Waste oil would be collected in 205 L drums identified as waste oil. Other oily wastes including oil filters and rags would also be placed in 205 L drums identified as oily wastes. These wastes would be stored within the dangerous goods bund. Waste oils will be collected by AFD, for storage at the oily waste storage facility at Port Melville before shipping to the mainland for appropriate disposal. Matilda will produce approximately 7,000 L of waste oil a year. A waste tracking form system will be used to track movements of this material.

Matilda personnel will have access to safety equipment required for the correct handling of hazardous goods, and also access to strategically placed spill stations equipped with the necessary equipment for clean up of any spills. Matilda has procedures for clean-up and reporting, in the event of a spill. Any spills will be cleaned up immediately. Contaminated runoff and contaminated soil will be collected and remediated on site, or transported to a suitable facility for disposal on the mainland.

A close-out procedure is used in event of spills, to assess whether any change to procedures, equipment or responsibility is required, to minimise the future likelihood of recurrence of events.

16.6 Commitments

Matilda commits to storing and handling flammable and combustible liquids, and corrosive substances as per the relevant Australian Standards (AS 1940 – 1993 and AS 3780 – 1994) (Section 16.2).

Matilda commits to maintaining an inventory of all receivables and dispatches of hydrocarbon and chemical products, including supplier, quantities, types and storage location of hydrocarbons, chemical products and associated products (Section 16.2).

Matilda commits to storing hydrocarbons and hazardous substances in appropriate bunded storage areas (Section 16.4).

Matilda commits to storing and transporting hydrocarbons and hazardous substances as per the recommendations made on the material safety data sheets (Section 16.4).