Western Rail Coal Unloader

ENVIRONMENTAL ASSESSMENT

CHAPTER 6 – ASSESSMENT OF OTHER ISSUES

- April 2007

Contents

6. Assessment of Other Issues

Chapter 5 addressed the key environmental issues identified in the Environmental Assessment Requirements issued by the Director-General of Planning. This chapter address other potential environmental impacts and mitigation measures required to manage those impacts are described.

6.1 Environmental Risk Analysis

An environmental risk analysis was undertaken to identify potential environmental impacts (other than the key issues described in Chapter 5) associated with the project. Proposed mitigation measures and potentially significant residual environmental impacts after the application of those mitigation measures are discussed. The issues addressed are:

- Hazard and risk associated with the operation of the proposed rail loop, coal unloader and associated areas;
- Traffic management in terms of traffic generation on the road network and access to the site via an at-grade rail level crossing;
- The generation and disposal or reuse of waste materials; and
- Social issues associated with perceived changes in amenity and land values.

6.2 Hazard and Risk Assessment

This section of the environmental assessment provides a review of the hazards and risks associated with the operation of the proposed rail loop, coal unloader and associated locomotive provisioning (refuelling) area and maintenance work areas.

The refuelling station would consist of a diesel fuel tank and associated train fuelling facilities. The tank would be filled by a “B-Double” road tanker that would gain access to the fuel storage facility from Pipers Flat Road, being the road to the south of the rail loop. The fuel storage facility is located in the triangle of land between the road and the railway line. Without the necessity to cross the rail line, the tanker would draw alongside the storage facility filling point and connection would be gained using a flexible hose and dry-break API coupling. The fixed “B-Double” unloading pump set would transfer the fuel to the storage tank, under the control of the tanker driver. The fixed tank control system would monitor the fuel level in the tank as the filling process continued. Once the tanker is empty, the driver would cease the filling operation, disconnect the flexible connection and leave the filling point directly to Pipers Creek Road. Should the driver attempt to overfill the storage tank, the storage tank control system would automatically close the inlet valve on the tank and emit a warning alarm.

The fuel transfer from the storage facility to the train, at the Provisioning Shed, would be by a transfer pump, pipeline and flexible line and dry break coupling. The pipeline would be double walled petroleum resistant poly-ethylene (PE) piping buried between the storage facility and the Provisioning Shed. A flexible bowser style hose would be located in the provisioning facility and will be used to fuel the trains as required. The train driver would locate the train locomotive adjacent to the fuelling point in the provisioning facility. The driver would couple the fuelling nozzle in the locomotive fuel tank filling point adaptor and start the remotely located transfer pump. The fuelling operation of the locomotive would then continue until the locomotive tank was full. The fuel transfer would then cease (i.e. automatically stop the pump) by means of tank full detection in the locomotive coupling and adaptor.

The diesel fuel storage facility (at the site adjacent to Pipers Flat Road) and fuelling area (at the Provisioning Shed) would be fitted with a number of safety features, including:

- Double walls on the tank to prevent tank leaks escaping to the environment;
- Leak detection in the space between the two tank shells with leak alarm;
- High level alarm to indicate high level in the tank (alarm repeated in main control room at the power station);
- Bunded road tanker fuel transfer point (to collect any spills that may occur during storage tank filling operations);
- Dry-break couplings at the “B-Douple” unloading point;
- Bunded diesel unloading pump set;
- Bunded fuel transfer pump (i.e. locomotive fuelling pump);
- Bunded refuelling area for the trains (at the provisioning facility);
- Oil separator treating released water from the train fuelling station; and
- Automatic and dry-break coupling on the locomotive and loading hose.

A review of the hazards and risks associated with the operation of the rail sidings has been conducted in the following sections.

6.2.1 Hazard Identification

The operation of the coal unloading rail siding could result in a number of incidents that would lead to impact to the environmental and/or personnel. A review of the operations has identified a number of scenarios that require assessment of the potential hazards and whether the proposed safeguards are adequate to prevent adverse impacts. The review has been conducted for each section of the rail siding in the following sections.

Coal Unloading Area

The coal unloading area would consist of a hopper located under the rail track over which the rail wagons will travel and deposit the coal into the hopper from underside doors on the rail wagons. Spills of coal could occur in the event the doors of the wagons did not open correctly or all of the coal did not fully discharge from the wagons. In this case coal would fall to the sides of the hopper and onto the areas at the side of the track. During dry conditions (i.e. no rain) the coal can be readily cleaned up and manually placed in the hopper, eliminating the potential for any environmental damage. In the event of rain, there is a potential for the coal to be washed into drainage channels and escape to the environment. However, the unloading station is covered with a steel framed, sheet steel covered shed, which prevents rain water washing away spilled coal. Further, any minor coal spills beyond the shed may be washed away by rain, but this will be collected in a stormwater basin where drains from the coal unloading area will discharge and coal would sediment out into the basin for later recovery.

It is noted that the coal would be wet on delivery to the coal unloader and the risk of an incident involving coal ignition (and fire) would have a very low likelihood. As the coal unloader would be well clear of site boundaries (over 500m from the main rail line and adjacent sites to the south), the potential for offsite impact from such incidents is negligible.

Based on the above hazard assessment of the coal unloading area, it is considered that the proposed safeguards are adequate to maintain the risks in the as low as reasonably practicable (ALARP) range and, therefore, Incidents involving the coal unloading area have not, therefore, been carried forward for further analysis (i.e. consequence /frequency /risk).

Maintenance Area

The maintenance area on site will be used for repair of rail wagons. The area would contain a maintenance building that would house the maintenance equipment and workshop for the repair of equipment in the area. There may be some hazardous and dangerous goods stored in the area and the potential for incidents that could result in impacts offsite is limited. The main hazardous material stored would be lubricating oil, which will be stored in 205 litre drums in a bunded storage in the workshop. Spills of oil from drums will be retained in the bunded storage and there will be no release offsite. Minor spills may occur as a result of maintenance work and it would be necessary to ensure these are cleaned up as soon as possible to prevent potential spills being carried offsite in rainwater.

Oil spill kits would be procured and located in areas where oil transfers and replacement is carried out. Site emergency plans should also contain oil spill response to ensure appropriate clean-up is undertaken.

Notwithstanding the potential for oil spills to contaminate rainwater in areas around the rail siding, there is a potential for the contaminated water to escape to the environment. Hence, the area around the maintenance workshops and equipment containing oil would be drained to a first flush pond and any contamination retained in the pond. Therefore, there will be no release offsite in the event of spills and rainwater contamination around oil containing equipment at the site.

Lubricating oil, in NSW, is no longer classified as a Dangerous Good under the NSW *Occupational Health and Safety (Dangerous Goods Amendment) Regulation (2005)*. This is due to the fact that oil has a high flash point and is not considered a serious fire hazard. Ignition of oil is difficult, due to the high flash point and the risk of fires in the operating equipment and storages area would have a very low likelihood. Further, the maintenance area is a significant distance from the boundary and there would be no impact offsite as a result of incidents involving oil (ie fires) at the proposed facility.

Based on the above hazard assessment of the maintenance area, it is considered that the proposed safeguards are adequate to maintain the risks in the ALARP range and, therefore, incidents at the maintenance area or in areas around the proposed facility have not been carried forward for further assessment (i.e. consequence/frequency/risk).

Rail Loop

The primary use of the rail loop is for the unloading of coal from rail wagons. Trains will enter the loop from the north east and travel at low speed around the loop, allowing the wagons to be unloaded. There is a potential for trains to derail on the loop, resulting in wagons falling over and spilling contents to the areas at the side of the track. However, at speeds of 10kph or less, the potential for a train to derail and roll over is negligible. Whilst it is recognised that a train may leave the track, the potential for roll over at low speed is very low and the risk is considered ALARP. No further assessment of this incident is considered.

Notwithstanding this assessment, it would be prudent to be prepared for incidents of this kind and develop emergency response procedures for inclusion in the site emergency plan. Delta will develop an emergency plan for response to train derailment and the potential for spill of coal. The plan would include methods of coal containment and prevention of contaminated water reaching the environment outside the site.

Train Refuelling Facilities

The train fuelling facility consists of two main areas; the fuel storage facility and the train fuelling point (Provisioning Shed). The fuel storage area would be located at a site off Pipers Flat Road, south of the existing rail line and would have a capacity of 106,000 litres.

There are a number of incidents that could occur with the fuelling facilities that could lead to impacts to the environment and adjacent areas to the site. Hence, each section of the fuelling system has been assessed separately.

- **Fuel Tank Filling** – Diesel fuel is transferred to the fuel storage tank from a “B-Double” road tanker. The “B-Double” road tanker, which carries about 52,000 litres of diesel fuel, would approach the transfer point from the road to the south of the rail loop and park alongside the fuel tank (which is a self bunded tank). The tanker driver would (after first determining the storage tank had sufficient space to receive the load) attach a flexible hose (which is fitted with a dry-break coupling) to the tanker and commence transfer using the fixed unloading pump set. Once the load has been fully discharged the control system associated with the tank would sequentially shut down the transfer. The flexible line would remain full, but de-pressured. The tanker driver would then disconnect the line from the tanker and stow it in the fixed pump set bunded compartment. The truck will then leave the site via the loop road directly onto Pipers Flat Road, south of the rail loop. Diesel fuel transferred from the "B-Double" road tanker would not contain water, as this would be removed at the terminal to ensure the correct delivery specification is met.

The ingress of water into the diesel fuel system has the potential to induce corrosion in pipelines and storage facilities. However, as there is no water introduced to the system, corrosion can considered to be of low risk. In addition to the potential for the introduction of water to the system, there is also a potential for flexible line failure, such as leak or rupture. This is very unlikely as the hoses would be inspected on a regular basis and tested annually in accordance with AS2683 (required by the Australian Dangerous Goods Code). Further, the hose is under suction, and not pressure, during the fuel transfer operation. In the unlikely event of a transfer hose failure (leak or rupture) the fuel release could lead to the development of a pool of diesel which could escape to the environment or be ignited resulting in a pool fire at the filling point. The ignition of diesel is highly unlikely, as diesel is classified as combustible and not flammable (ref: Australian Dangerous Goods Code and AS1940-2004). Combustible liquids have a flash point well above ambient temperature and, in the case of diesel fuel well in excess of 63^{o}C. Hence, vaporisation of the diesel is minimal and ignition, even from naked flames is very unlikely. The filling connection is via a dry-break coupling to contain any spills and the diesel fuel tanker driver will be present to respond immediately to the spill, isolating the delivery pump and preventing further spill. Additionally, the self bunded tank will be fitted with an overfill control system which would shut down the flow (i.e. stop the transfer pumps) in the event of a driver attempting to overfill the tank by error.

Minor drips from the tanker during transfer and fuelling are unlikely due to the installation of a dry-break coupling on the hose connecting the tanker to the storage tank. However, in the unlikely event small drips did occur, there is a potential to contamination of rain water with a light "sheen" in the surface of the water similar to that observed on normal trafficable roads. Due to the remote location of the storage tank and the dry-break coupling, plus the overfill prevention controls, the risk of spill to the environment is considered low and, therefore, the installation of special water treatment facilities are not necessary.

In the unlikely event of a diesel spill and immediate ignition, a pool fire would result in the tank fuelling area. As the tanker driver will be present during all fuel transfer operations, he/she can respond immediately with fire extinguishers. However, the driver would be alone and assistance may be required should the incident be uncontrollable. The unloading point would be fitted with ESD buttons as part of the load controller, which would upon actuation cease flow from the tanker and alert the power station control room. In addition, the load controller would be fitted with a "dead-man" button to ensure the driver stays in attendance at all times during the fuel transfer operation. For additional safety, the fuel storage area and tanker unloading point would be fitted with a closed circuit television (CCTV) camera with repeating viewing screens in the main control room at the power station and in the provisioning facility. It is noted that the proposed location of the fuel storage area is well clear of any adjacent facilities (e.g. wagon repair, provisioning facility and coal unloader. The closest residence is over 500m from the site, hence there will be no impact from incidents at the fuel storage area and the bunded facilities around the pump sets will prevent loss to the environment in the event of spills (the tank would be self bunded). With the installation of an emergency shut-down system and CCTV, the risks are considered ALARP and no further assessment has been performed (i.e. consequence/ likelihood/risk).

- **Diesel Storage Area** – In the unlikely event water build up occurs over time (ie through condensation build up from tank "breathing"), there is a potential for corrosion to occur in the inner tank of the storage (noting that the tank is double walled). To avoid this the tank would be internally lined with epoxy to minimise the potential for corrosion. Further, the tank will be fitted with a low point drain to allow regular draining of any build up of water either from "wet" fuel or atmospheric breathing. The internal lining will minimise the potential for a leak occurring into the space between the two tanks. In the event a leak does occur, the storage tank is fitted with a detection system that would alert the power station control room that the tank is leaking between the shells (and not to the environment). There would be no release to the environment and no potential for ignition of the release, as the diesel would be contained in a sealed area. Hence, the potential for leaks to the environment from this incident are considered to be negligible and the incident has not been considered further in the analysis.

- **Fuel Transfer (Storage to Train Fuelling Point)** – the fuel would be transferred from the storage area to the fuelling point (at the Provisioning Shed) using a pump and transfer pipeline. The fuelling point at the Provisioning Shed will be located about 700m to the north east of the diesel storage tank area and, hence, train fuelling will be remote from the tank/pump location. The diesel transfer pump will be located in a sheltered bund, as part of the Collins House diesel storage tank facility, and a double containment fuel resistant PE fuel pipeline (DN100) will be installed between the storage and fuelling point. Joints and flanges will be located inside the bunded areas at each end of the fuel line, hence, there would be no fuel leak points outside the bunded area. The interstitial space between the double walled pipe will be fitted with a sensor and connection to alarm the power station should a leak occur from the primary pipe. The risk of release to the environment from diesel transfer between the fuel storage area and the fuelling point (Provisioning Shed) is low.

Notwithstanding the above, there is a potential for leaks at joints and pump seals resulting in a release of diesel to the sheltered bunded area at the fuel storage area. Whilst there would be no environmental impact, due to the bund around the tank/pump sets, there is a remote potential for ignition of the release leading to pool fire. The site will have warning signs (re: naked flames and unloading will only take place by a highly trained and accredited tanker drivers). As there will be no personnel present at the storage area, during the train fuelling operation, there will be no potential for impact to personnel, other than the “B-Double” driver who may be at the storage area delivering/transferring fuel. Fires in this area could result in localised equipment damage or impact to areas surrounding the storage. However, there are no facilities located adjacent to the proposed diesel storage and the closest residential property of over 500m to the south. Hence, there will be no impact to adjacent facilities.

Notwithstanding the above, the recommendation for installing a CCTV at the site is further reinforced by the potential for fire incidents at the storage whilst the area is unattended. In the event of a leak and fire, there would be no method for detecting the fire without CCTV viewing of the storage area.

- **Train Fuelling Area** – The train fuelling point would be located within the provisioning building and under cover. Once the locomotive is positioned alongside the train fuelling point (within the provisioning building) the train driver would connect the flexible (bowser style) hose, fitted with a dry-break coupling/adaptor to the train and start the diesel transfer pump (remotely). The driver would then monitor the delivery of the diesel fuel into the locomotive via a local read out on the loading metre. Control of the fuel fuelling of the train is carried out by an electronic load controller, which ensures only the prescribed quantity of fuel is delivered to the locomotive. In the event an error was made, and a driver attempted to fill overfill the locomotive, the fuelling operation will automatically cease by virtue of the self sealing coupling on the hose and locomotive. In the event of flexible hose leak there is a potential for the diesel fuel to escape to the environment. However, the train fuelling point would be located in a bunded area and leaks or spills would be contained in the immediate vicinity of the train. Hence, there would be no release to the environment. As the fuelling point is within the provisioning building, there would be no potential for rain to fill the bund and therefore no potential for carrying fuel with rainwater into the environment. The potential for environmental impact from these incidents are low and therefore they have not been carried forward for further analysis.

In the event of an ignition of a diesel spill in the fuelling area, a pool fire would result. This would impact the area immediately surrounding the train and fuelling point. However, it is noted that the train driver is in attendance throughout the fuelling operation and can respond immediately to incidents in the area. To ensure effective response it would be necessary to provide fire fighting equipment in the immediate area of the fuelling point. Hence, a dry chemical powder extinguisher and a hose reel (with foam generating attachment and 20 litres of foam concentrate solution) would be installed adjacent to the fuelling point. Notwithstanding this, it is important to ensure that the fire fighting equipment is located a sufficient distance from the fuelling point so that an initial fire does not impede access to the extinguisher/hose reel. Hence, this incident has been carried forward for consequence analysis to determine the impact distance from the initial fire so that an effective separation distance can be specified between the fuelling point and fire fighting equipment.

6.2.2 Consequence Analysis

Only one incident was carried forward from the hazard analysis to the consequence analysis, this was the potential for a fire at the fuelling point leading to impact on fire fighting equipment rendering the extinguisher and hose reel inaccessible. This incident has been assessed for consequence in the following sections.

Flexible Fuel Filling Line Rupture and Fire

In the event the incident occurs as described above (i.e. fuelling hose failure, diesel release and fire), the provision of a retention bund around the fuelling point would prevent release to the environment. However, ignition of the release could lead to heat radiation impact to the areas surrounding the fuelling point resulting in potential to block access to the fire fighting equipment on site.

Assuming an operator is within the fuelling area and can initiate emergency pump shut down (i.e. within a short period of the hose failure) a spill of 100 litres would be a conservative estimate of a spill occurring within the containment area around the fuelling point. The spill would spread across the surface of the area to a depth of 5mm. The spill diameter is estimated by:

$$D = (4/\pi \times 0.1/0.005)^{0.5} = 5\text{m}$$

If the spill was then ignited, a pool fire would result. The fire would behave as a cylinder of flame with the heat radiating of the surface of the flame into the area around the fire. A heat radiation analysis was conducted using the view factor method, using a flame tilt angle of 30 degrees. The surface emissive power of the flame was selected as 85.9kW/m^2. **Table 6-1** presents a summary of the heat radiation impact at specific distances from the fire.

A review of the acceptable heat radiation consequence criteria at fire fighting equipment, published by the Department of Planning (1992) indicates that the acceptable level of heat radiation would be $4.7kW/m^2$. A review of Table 6.1 above indicates that at a level of $4.7kW/m^2$, the distance from the fuelling point fire would be 18m. Hence, the fire fighting equipment would be located no closer than 18m to the fuelling point. Whilst it would be prudent to install an extinguisher directly adjacent to the "bowser" location, the hose reel and additional extinguishers would be located no closer than 18m to the fuelling point.

- **Table 6-1 Heat Radiation Impact from a Fire at the Fuelling Point**

Heat Radiation Level (kW/m2)	Distance to Selected Heat Radiation Level (m)
35	8.8
23	9.6
15	11.4
12.5	12.2
8	14.5
4.7	18
2	26

Fire incidents at the diesel storage have therefore not been carried forward for further analysis.

6.2.3 Conclusions

The proposed design and operation of the rail siding would result in hazards and risks that do not exceed the accepted criteria issued by the NSW Department of Planning (i.e. Hazardous Industry Planning Advisory Paper No.4, Risk Criteria for Land Use Safety Planning). Hence, the operation of the rail siding is within the acceptable land use criteria for the facility and there is a low residual risk to the environment from the project.

Notwithstanding the above conclusion, a number of recommendations are made to ensure the facility is operated with risks that are within the as low as reasonably expected (ALARP) range. These are:

- It was identified that oil spills could occur around the conveyor areas and diesel fuelling point. These could result in environmental impact, hence, it is proposed that oil spill kits would be procured and located in areas where oil transfers and replacements are carried out. Site emergency plans would also contain oil spill response to ensure appropriate clean-up is undertaken;
- It was identified that train derailment could occur, resulting in spillage of coal alongside the rail loop. Whilst this is recognised to be a very low likelihood event, it is intended that an emergency plan for response to train derailment and the potential for spill of coal be developed. The plan would include methods of coal containment and prevention of contaminated water reaching the environment outside the site;

- It was identified that the road tanker driver would be transferring fuel from the road tanker to the storage tank in an isolated location (i.e. alone). An incident could result in the driver being alone and incapable of responding by himself. Hence, to address this issue, the fuel storage area and tanker unloading point would be fitted with a system to alert the power station that a transfer is taking place, and a closed circuit television (CCTV) camera with repeating viewing screens in the main control room at the power station and in the provisioning facility.
- It was identified that in the event of a diesel fuel leak at the train fuelling point, there will be a requirement for the train driver to respond to the incident using first attack fire fighting equipment. Hence, a dry chemical powder extinguisher and a hose reel (with foam generating attachment and 20 litres of foam concentrate solution) would be installed adjacent to the fuelling point.
- It was identified that the flexible hose use to fill the diesel locomotive could rupture, leading to diesel release, ignition and fire. The heat radiation as a result of such fires could render the fire fighting equipment inaccessible. The analysis identified that heat radiation could impact up to 18m, outside which the equipment would be accessible. Hence, the fire fighting equipment (hose reel and extinguishers) would be located no closer than 18m to the fuelling point.

6.3 Traffic

6.3.1 Existing Environment

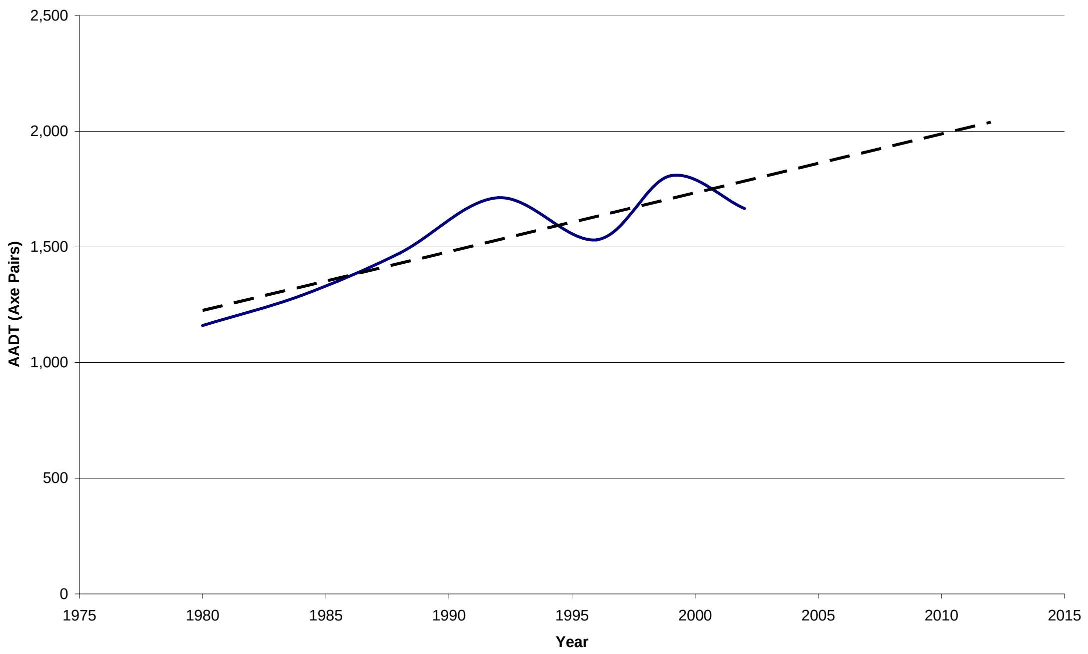
The proposed rail unloader is located adjacent to Pipers Flat Road, mid-way between Wallerawang and Portland. Pipers Flat Road is designated by the NSW Roads and Traffic Authority (RTA) as Main Road 531, connecting Wallerawang and Cullen Bullen via Portland.

Adjacent to the proposed coal unloader, Pipers Flat Road has 2 lanes (1 per direction) and a speed limit of 100 km/h. The road has edge lines marked but no sealed shoulders. Overtaking is generally permitted, except where sight distance is restricted by the undulating terrain.

Pipers Flat Road is only lightly trafficked. **Figure 6-1** shows the growth in Average Annual Daily Traffic (AADT) volumes between 1980 and 2002, with a forecast to 2011 based on the linear trend of the observed data. Based on this trend, the current (2006) average daily volume is approximately 1,900 axle pairs[1]. The number of vehicles will be slightly less than this, taking into account the greater number of axles of trucks compared with cars.

[1] A passenger car is equivalent to one axle pair. A 3-axle truck is equivalent to 1.5 axle pairs.

- **Figure 6-1 Annual Average Daily Traffic Volumes on Pipers Flat Road**



Source: NSW Roads and Traffic Authority Traffic Volume Data for Western Region

The primary measure of performance for rural roads is the peak hour volume / capacity ratio. Austroads specifies theoretical two-way capacities for rural roads, taking into account terrain, shoulder width and traffic composition. The capacity of Pipers Flat Road is in the order of 1,500 vehicles per hour. The peak hour volume on Pipers Flat Road is significantly less than this figure, and therefore is operating below its nominal capacity.

6.3.2 Assessment of Impacts

During operation of the coal loader, there is expected to be limited use of vehicles accessing the site off Pipers Flat Road. However, an access point is proposed for maintenance vehicles, and would also be used during construction. The site of access is at the site of the existing access occupational access to the site, 150m west of Thompsons Creek Road, which meets Pipers Flat Road at a T-junction, on a straight stretch of road.

A new level crossing of the rail line would be constructed at the access point. The nature of this crossing would be considered in more detail during subsequent stages of the assessment process. There would be sufficient space between the rail line and Pipers Flat Road to allow vehicles to stand clear of both the rail line and the road.

A fuel storage facility is proposed for the site near the existing dwelling on the southern side of the main line, opposite the site of the proposed wagon maintenance area. The storage capacity (about 106,000 litres) and the refuelling rate (about 32,000 litres per locomotive each second day) would result in about 1 B-double per every second day (capacity 52,000 litres) bringing fuel to the storage facility initially. This would increase to 1 per day as the rate of coal transport increases in the medium to longer term. The access to the fuel storage facility would be designed according to RTA guidelines to allow safe movement of the vehicles to and from Pipers Flat Road.

The traffic generated by the proposal is anticipated to be higher during construction than during operation. Although most fill material is expected to be brought to the site via an existing private haulage road between the site and spoil sites adjacent to the power station, there would be some construction vehicle activity that uses Pipers Flat Road. For this reason, provision would be made at the site access intersection for auxiliary lanes to allow trucks to decelerate before entering the site, and to allow following cars to overtake turning trucks. This may require widening of the road seal at the intersection.

Should the transport of fill via the private haulage road not be possible, then an average of 176 trucks per day would be required to use Pipers Flat Road. Although this volume would not cause the nominal capacity of the Pipers Flat Road to be exceeded, the effect on road capacity and amenity through towns like Wallerawang, and the impacts of increased truck numbers on road surface condition, would be assessed before this level of truck activity on public roads is considered.

The operation of the intersection during the construction period is not expected to result in delays for through traffic on Pipers Flat Road, which would have priority over site traffic. The estimated 176 trucks per day using the access, should it eventuate, would mean one truck leaving approximately every 4 minutes, which is unlikely to result in queues forming across the rail line.

6.3.3 Mitigation of Impacts

A construction traffic management plan would be prepared during the detailed design phase. It would comprise:

- A detailed traffic study to confirm the appropriateness of the site access and determine the need for auxillary lanes to allow trucks to decelerate before entering the site, and to allow following cars to overtake turning trucks. The study will review the accident history on the road to determine if there are potential problems which need to be addressed in the access design;
- A detailed design of the site access intersection;
- An assessment of the implications of the use of spoil trucks on the road network. More details would be available by then on the prospect of the need for on road haulage.

6.4 Waste Management

The development of the rail coal unloader has the potential to generate moderate quantities of liquid and non-liquid wastes. The key waste streams identified include:

- Construction waste (packaging material, scrap metal, timber formwork, pallets, plastic wrapping and cardboard); and
- General waste from operation of the facility (waste water, packaging materials and office wastes).

Detail on each of these waste streams is provided below.

6.4.1 Statutory Framework for Waste Management

The main legislation and guidelines that govern the management of waste for the proposal are:

- *Waste Avoidance and Resource Recovery Act, 2001;*
- *Protection of the Environment Operations Act, 1997;*
- *Protection of the Environment Operations (Waste) Regulation, 1996;*
- NSW Waste Reduction and Purchasing Policy (WRAPP) (EPA, 1999);

The principles of waste avoidance, waste reduction, waste re-use or waste recycling would be adopted during the construction and operation phases of the project, in accordance with the following legislation and policies that provide the statutory framework for waste management in NSW.

The objectives of the *Waste Avoidance and Resource Recovery Act, 2001* (WARR Act) are to encourage the most efficient use of resources, to reduce environmental harm, and to provide for the continual reduction in waste generation in line with the principles of Ecologically Sustainable Development (ESD). To meet the objectives of the Act, waste management options are considered against a hierarchy, comprising:

- Avoiding unnecessary resource consumption;
- Recovering resources through the re-use and recycling of waste; and
- Disposal (as a last resort).

The Act sets the framework for waste management and planning, based on the following objectives:

- To provide for the continual reduction in waste generation;
- To minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the re-use and recycling of waste;
- Ensure that industry shares with the community the responsibilities for reducing and dealing with waste;
- Ensure the efficient funding of waste and resource management, planning and programs and service delivery; and

- Achieve integrated waste and resource management, planning and programs and service delivery on a State-wide basis to assist in the achievement of the objectives of the *Protection of the Environment Operations Act, 1997.*

The *Protection of the Environment Operations Act, 1997* (POEO Act) incorporates the major regulatory and enforcement provisions of the former *Waste Minimisation and Management Act, 1995* (WMM Act). In effect, the POEO Act merges pollution control approvals and pollution control licences into a single process, or one Environment Protection Licence (EPL). EPLs are required for development or activities listed in Schedule 1 of the POEO Act and would incorporate provisions relating to water pollution, noise pollution, air pollution and waste management.

The need for an EPL under the POEO Act was considered with regard to waste, either as waste activity or the site as a waste facility. As the proposed development will not generate or store hazardous waste, industrial waste or Group A waste as defined in the POEO Act it is therefore not considered a waste activity and a licence would not be required under Schedule 1 of the POEO Act.

In 1999, the NSW EPA adopted the NSW Waste Reduction and Purchasing Policy (WRAPP). The aim of WRAPP is to ensure that all NSW Government agencies contribute to the achievement of the State's aim to reduce waste to landfill. WRAPP requires that all state government agencies and state owned corporations develop and implement Waste Reduction and Purchasing Plans aimed at reducing waste in the following four areas:

- Paper products (general office paper, magazines, newspaper, cardboard, packaging);
- Office equipment (toner cartridges and printer ribbons);
- Vegetation material (tree clippings, leaves and prunings); and
- Construction and demolition material (concrete, excavated rocks and earth and drainage materials).

Waste Reduction and Purchasing Plans must also give priority to purchasing materials with recycled content. In developing their WRAPP, Delta Electricity applies the principles of resource management across its entire operations. As part of WRAPP, Delta is required to report to DEC every two years on the progress of their Waste Reduction and Purchasing Plan. The main areas of concern for Delta include:

- Re-use and recycling of construction waste at any new development;
- Reduction of and proper disposal of wastes from power station operations; and
- Reduction, re-use, recycling and purchasing of recycled office products.

With regard to the proposed development, Delta's WRAPP requires that it investigates all available re-use opportunities for excess materials and other resources existing on site. The WRAPP would ensure priorities are given to avoid, reduce, re-use or recycle wastes during both construction and operation phases of the proposal.

6.4.2 Potential Wastes Generated from Proposal

The two distinct construction and operational phases of the proposal would generate different amounts and types of wastes according to the activity undertaken. A summary of the expected waste streams generated from either phase is outlined below.

Spoil Generation

As noted in Chapter 3 there will be a need for the import of fill to provide the embankments for the rail loop on the site. Any spoil generated from excavation on the site would be reused on site and there would be no requirement to dispose of spoil generated during construction.

Green Waste

It is also expected that during the earthworks a small amount of green waste would be generated from the removal of vegetation mostly comprising weeds.

Construction

Building wastes include such items as timber, masonry, scrap metal, packaging materials and plastics would be generated during construction. In addition, a small quantity of waste (sewage and domestic rubbish) would be generated from the construction compound.

Operational Waste

Waste generated from the wagon servicing and repairs and ancillary office uses. These activities are likely to result in the following wastes generated:

- Wastes sewage and other waste water;
- Metals associated with wagon repair activities;
- Used oils, tyres, rags, packaging, oil drums and discarded components associated with on-site vehicle and rail track maintenance;
- Clean up materials used in accordance with emergency response procedures for accidental spillages; and
- Paper and associated stationery waste associated with office activity.

6.4.3 Waste Management

A Waste Management Plan (WMP) would be developed for the construction phase of the proposal for incorporation in the Construction Environmental Management Plan (CEMP). The plan would be prepared in accordance with *Waste Avoidance and Resource Recovery Act,* 2001, *Protection of the Environment Operations Act, 1997,* NSW *Waste Reduction and Purchasing Policy* (EPA, 1999) and

Environmental Guidelines: Assessment, Classification and Management of Non-Liquid and Liquid Waste (EPA, 1999).

The WMP would detail any procedures for the management of construction wastes from the site. In addition, the plan would contain an inventory of all waste types anticipated and the preferred options for re-use, recycling or disposal, and would seek to ensure that all waste generation and its fate is recorded such that waste minimisation can be achieved.

Waste management would be a component of the Operational EMP for the operational phase of the facility. It would ensure that initiatives for the sustainable management of waste are given consideration.

6.4.4 Mitigation Measures

Mitigation measures for wastes generated by the proposal are discussed below.

Construction Materials

- Ensure the correct quantities are ordered and delivered to the site;
- Investigate the use of recycled materials, including concrete, roadbase, asphalt and other construction materials;
- Collect and transport steel scraps and other metals to a recycling facility or reuse where suitable.

Excavated Soils

- Excavated spoil material would be used as construction fill; and
- Excavated material not suitable for re-use as fill would be re-used for landscaping where practicable.

Hazardous Materials

- Contaminated material from fuel or oil spills would be collected and disposed of in accordance relevant NSW legislation; and
- Empty oil and fuel drums to be collected in suitably designated areas and removed by a licensed waste contractor.

Green Wastes

- Native vegetation cleared during construction would be chipped and re-used as mulched material for revegetation;
- All noxious weeds and exotic plant species removed would be bagged and disposed of at a licensed landfill facility; and
- Vegetation not re-used on site and green waste from landscape maintenance would be transferred to green waste facility.

Paper / Packaging

- Strategies would be adopted to encourage reduction and recycling for plastics, paper and packaging products.

Sewage and Water

- Provide portable toilet facilities during construction phase, which would be regularly maintained and ensure wastes are disposed of by a licensed waste contractor in accordance with DEC requirements;
- Operational facilities would utilise water efficient technology and discharge to an aerated sewage system (Envirocycle or similar). The effluent would be used for irrigation of landscaping on the site.
- Water from wash down and dust mitigation would be treated in sedimentation basins and used for irrigation or discharged to Pipers Creek.

Domestic Wastes

- Recycling facilities would be provided to encourage the separation and recycling of all paper, aluminium, glass, and plastic products used during construction and operation of the site; and
- All domestic waste would be collected regularly and disposed of at licensed facilities as appropriate.

6.4.5 Conclusions

Waste management arrangements would be put in place during the construction phase of the site to maximise the reduction, recycling, and re-use of waste materials. This would be achieved through the implementation of a Waste Management Plan (WMP) during construction. The WMP would be developed and implemented in accordance with the requirements of relevant waste management legislation and policies and incorporated into the Construction EMP for the site.

Waste management requirements for the operational phase would be incorporated into the Operational EMP for the site.

The implementation of the waste management requirements during construction and operation will ensure there would be low residual risk to the environment from waste management practices.

6.5 Social Issues

The Director-General's requirements required the Environmental Assessment to address impacts associated with air quality, noise and visual perception. These three issues have a social amenity component, and that is discussed below. Other issues raised at community forums and by correspondence are also addressed.

6.5.1 Impact Identification

Assessment of Impacts During Construction

The construction stage which is anticipated to commence in 2007 is to be undertaken in stages over an 18 month period. The potential impacts would vary depending on the construction stage.

All construction work would be undertaken:

- Monday to Friday 7am to 6pm;
- Saturday 8am to 1pm; and
- No construction work is to take place on Sundays or Public Holidays.

Community

It is anticipated that individuals from throughout the central west could be attracted to the site to work. It is unlikely that workers would permanently relocate for this purpose and most likely would commute from their usual place of residence. An influx of workers, which has the potential to alter the population stability and community dynamics is not anticipated, and there are no significant impacts envisaged.

Employment

An important social and economic benefit of the construction stage of the proposal is the substantial number of jobs that would be created. It is anticipated that up to about 150 jobs would be maintained throughout the life of the construction works.

Land Use and Property Effects

The surrounding area is predominantly rural, with some residences within a reasonable distance of the site. Construction activities would be undertaken away from the residences along the southern side of Pipers Flat Road, although the noise assessment in Section 5.5 indicated the construction noise criteria would be exceeded as some of these properties. Appropriate mitigation measures would be required to manage the noise impact.

Construction compounds and all construction work would be undertaken within the site boundary and no direct impacts on surrounding land use would occur.

The Construction Environmental Management Plan (CEMP) and Traffic Management Plans would ensure that all construction traffic coming to or departing from the site would utilise the existing regional road and all construction and employee vehicles park on the site. No schools or other community facilities would be directly impacted upon by construction.

Access and Movement

The traffic study concluded that there would be no significant impact on local and regional road networks from construction traffic. The main routes used for the movement of key materials from the site would be Pipers Flat Road. Plans would be prepared to manage any impacts during each construction stage to prevent heavy vehicles from using local streets in Wallerawang and to provide construction and employee vehicle parking on site.

Lifestyle and Character

Construction activities can potentially affect the character of an area and amenity through impacts on air quality, noise and traffic and by changing the view from local residences.

Construction vehicles and equipment could cause negative impacts on local amenity, particularly for residents along the southern side of Pipers Flat Road. Only long distance views are available for residences along the road and a limited number of construction vehicles would gain access to the site from Pipers Flat Road. Most spoil trucks would use an internal haul road from an area next to the Mt Piper Power Station.

Noise levels at any receiver would vary significantly over the total construction program due to the transient nature and the range of plant and equipment in possible use. Noise associated with construction traffic and construction activities on the site has the potential to impact on local residents both as direct noise impacts and indirect impacts on amenity. A range of mitigation measures are proposed to include ‘at source’ noise minimisation. Further details are provided in Section 5-5.

The air quality assessment identified that the NSW Department of Environment and Conservation (DEC) air quality criteria for particulate matter would not be exceeded even by worst case, high intensity construction activities. Further details are provided in Section 5-4.

The proposed unloader has the potential for some temporary impacts on lifestyle and character through the construction period. Mitigation and management measures have been developed to avoid or minimise these impacts which would be managed through the CEMP.

Health and Psychological Effect

In terms of actual health impacts, air quality modelling has shown that by providing dust control measures no significant air quality impacts are expected from dust deposition.

Noise has the potential to cause interrupted sleep and stress and construction activities would therefore be restricted to day time hours. The time control and other mitigation measures would ensure that noise would not significantly affect the surrounding locality. Noise and air quality impacts during the construction stage would be managed through the CEMP.

Increased construction traffic in the local area, disturbance to current lifestyle and perceived risks associated with the construction stage, have the potential to cause stress or anxiety to sensitive individuals. In order to minimise these potential impacts and to continue good community relations Delta intends to ensure residents are informed of the activities being undertaken and to provide a means for community feedback. A comprehensive and inclusive community relations approach will need to be put in place for this purpose.

Assessment of Impacts During Operation

Community

During site operation there would be a number of workers visiting the site, with most employees likely to commute from their usual place of residence and impacts associated with community stability and population dynamics are considered to be minimal.

Employment

Operation of the proposed rail unloader would create a total of 10-15 jobs, including site operators, maintenance and train drivers. Although limited in number, the provision of skilled opportunities during operation would be of direct benefit to the community.

Land Use and Property Effects

Local residents raised concerns that the development of the proposed rail unloader would have negative implications for property values. Given the limited impacts predicted from the proposal and the appropriate management of those impacts, there are no reasons why the proposal would affect local property prices.

Access and Movement

Traffic volumes wishing to gain access to the site would be limited to workers, maintenance crew and occasional deliveries of goods via light vehicles. Increased traffic volumes on Pipers Flat Road would be negligible in the context of existing volumes (discussed in Section 6- 3)

Lifestyle and Character

Noise from site operations could potentially affect a number of residences south of Pipers Flat Road. Noise during the operational stage would be managed through an Environmental Management Plan that would focus on noise reduction processes to be agreed in consultation with residents potentially affected.

Feedback from community consultation identified that the impact of train noise along the freight line was a concern for some residents in Portland. The proposal would contribute from 2 to 6 extra trains per day along an existing freight line and the operators would be required to operate within the requirements of the licence already in place for the line.

The visual impact of the proposed railway loop, coal unloader and coal conveyor would be high for one property and for users of the Pipers Flat Road, as these receivers would experience changes to the visual environment in the foreground. Other properties to the south of Pipers Flat Road would generally have limited views of the coal unloader, due to screening by topography or vegetation. The selection of colour schemes used for structures associated with the facilities and landscape planting proposed for the rail embankments and for site buildings and screening vegetation along the southern site boundary would assist with minimising any visual impacts.

Health and Psychological Effect

The findings of the community consultation process have identified community concerns regarding air quality, noise and risk of accidents which may have an impact on health. These issues have been reviewed in technical studies to identify the likely impacts and to develop management or mitigation measures. Concerns about the potential risks, real or perceived, could impact on health through anxiety or stress. The potential for psychological health impacts varies from individual to individual.

Air quality studies have shown that there will be no exceedances of air quality guidelines from the site.

Noise resulting from the site operations concerned many residents so potential noise impacts at night were considered in the noise investigations. The noise mitigation measures proposed include actions to reduce noise at source and to consult with the community over means by which noise can be managed, as detailed in Section 5-5.

Stress and anxiety associated with perceived risks can be reduced through communication with the community to inform individuals about the management measures employed to minimise risks and to provide opportunities for feedback.

6.5.2 Conclusions

The local government area of Lithgow has a high dependence on industries associated with coal mining and power generation. The key benefit provided by the proposed site for the local community is the continued supply of coal to and the operation of the power stations, as well as employment opportunities created during both the construction and operation phases. There are, however, a number of issues that concern members of the local community. These are mainly focused on actual or perceived impacts associated with air quality, noise and visual amenity, as well as changes to the area resulting in negative effects on existing property values. Overall it is considered that the visual, air quality and noise impacts would be effectively managed and as a consequence, there is no reason to expect any change in property values in the area.