4. EXISTING ENVIRONMENT, POTENTIAL IMPACTS AND ENVIRONMENTAL SAFEGUARDS

4.1. Preliminary

	Comments from submissions
EPA 02 Comments	**Field Surveys** The PER is not clear about the field survey work that was carried out specifically for this pipeline project. It is apparent that some broadscale field assessments were carried out during selection of the pipeline route; however, the PER is reliant mostly on desktop studies and data collected for the Trans Territory Pipeline project. The Supplement needs to clarify the surveys that were undertaken specifically for the BGP project.
EPA 04 Comments	**Reinstatement** With regard to reinstatement of vegetation and banks around trenched river/creek crossings, will the 6m-wide cleared corridor be maintained to the waterway's edge or will bank vegetation be encouraged to rehabilitate? During operation, how will any ground-based inspections be conducted at these crossings ie will vehicles cross the waterways at that point or will they move back along the corridor to the nearest access road?
EPA 12 Comments	With respect to the Water Mouse (*Xeromys myoides*), it is important that every effort is made to avoid any potential habitat of this species that could inadvertently be disturbed during river/creek crossings or through water extraction for hydrotesting.
EPA 13 Comments	Further protection for species such as the Masked Owl and other significant arboreal species that may nest in tree hollows could be afforded by checking the 30m pipeline corridor ahead of the clearing crew and marking potential habitat trees to ensure that these species are avoided where possible.
EPA 31 Comments	The Supplement needs to clearly explain how the construction contractor will own the EMP and any commitments made in the proponent's assessment documentation. Where will the ultimate responsibility for the project lie? The Supplement should be clear with regards to representation on the pipeline team of a dedicated environmental person/s.

EPA 02 – This is not correct. Field surveys were conducted of almost the entire route for the purposes of the Bonaparte Gas Pipeline in 2006, as reported in Appendix E *Flora and Fauna Studies and Ecological Field Survey Results*. In that report, it was stated that 115 ecological sites were recorded by professional ecologists, which produced an average site frequency of 2.5kms along the pipeline route. Data on each of these sites were provided in tables in the appendices of this report. In addition, Appendix G *Report on Archaeology and Historic Heritage* reported in detail the methods and results of the archaeological field work which was conducted concurrently. During the Bonaparte Gas Pipeline route survey, there were always two ecologists and two archaeologists on the team. We did not rely on the Trans Territory Pipeline route surveys for any section except where they were absolutely concurrent with the Bonaparte Gas Pipeline route.

EPA 04 – This was addressed in section 1.2 and section 2.2.18 above.

EPA 12 – As stated within the management measures in Section 4.4.3 of the PER, every effort will be made to ensure construction activities disturb only the minimum area of vegetation necessary to enable safe construction of the pipeline. Crew leaders and superintendents will follow Alignment Sheets that are populated with information relating to known environmental aspects (including riparian areas and other habitats of conservation significance). In general, the riparian habitats vital to the Water Mouse are critical in many respects and mitigation of potential impacts in these areas has been a focus of both the PER and the CEMP.

EPA 13 – Large trees have been avoided wherever possible, but some will inevitably be knocked down due to physical restrictions on where the pipeline can go. Large trees were identified in the field during the pipeline surveys in 2006, and the route selected where possible to avoid them. Where large trees can be retained, they will be retained so that they can survive, which will include, in most instances, the surface roots and shrubs around their bases.

EPA 31 - APT will be ultimately responsible for the implementation of the CEMP. APT places high importance on the ability of the Consruction Contractor to deliver good enviornmental performance and this is being recognised in the tender selection criteria. APT will require its Construction Contractor to undertake construction in accordance with the requirements of the CEMP. APT will also monitor the Construction Contractor's performance against the stated objectives and commitments under the CEMP through routine inspections and audits, and where improvements or non-conformances are required APT will require its Construction Contractor to address. See also Section 2.1.2.

4.2. Landform Features

4.2.1. Baseline

	Comments from submissions
ECNT 13 Comments	Limestone features/karst sink holes must be given a high level of protection

ECNT 13 - Limestone features, especially Karst sink holes will be avoided where they are known. They provide safety hazards, increased construction costs, are generally unsuitable for laying pipe and have environmental significance. There was only one short section of the pipeline route which traversed a surface exposure of limestone, and no excavations of this site were conducted.

4.2.2. Potential impacts

	Comments from submissions
ECNT 09 Comments	Erosion could be a significant issue if not monitored correctly, including river access
NLC 24 Comments	Blasting The statement is far too broad. During field survey, at locations where APT indicated that blasting may be required, it is unlikely that any Indigenous values will be seriously impacted". Blasting is an issue that will command the attention of traditional owners wherever it may be proposed to occur along the route.

ECNT 09 – As mentioned within the CEMP (Appendix B); "post construction audits will be conducted to evaluate effectiveness of erosion and soil stability management". Erosion is one of the focal issues addressed in mitigation measures within the CEMP.

NLC 24 – This issue was addressed in section 2.2.15 above. Consultation with Traditional Owners in the field prior to construction will be conducted in accordance with the Land Access Agreement between NLC and APT.

4.2.3. Management

	Comments from submissions
NRETA 07 Comments	As indicated by the proponents at the Environment Protection Agency meeting dated 13 April 2007, the proposed pipeline will traverse approximately 34 minor or incidental creek and riparian corridors. The

	Comments from submissions
	proposal involves comprehensively clearing a 30m wide corridor through the riparian habitat at stream side and through the watercourse. At the meeting dated 13 April 2007, the proponent indicated, in contradiction to the undertaking in the Table of Commitments within the Executive Summary page XXVIII, that they are not proposing any erosion control measures during construction (due to the dry season scope of works) and that they are unlikely to undertake any revegetation works at these locations beyond re-spreading top soil and rock once the pipeline works are completed. The Department of Natural Resources, Environment and the Arts has concerns as to the degree of erosion and sediment control works that will be established and maintained at these sites which carry a significant risk of scouring and causing degradation to the bank slopes and sedimentation of the waterway, particularly where re-establishment does not occur before the onset of the wet season. The Department of Natural Resources, Environment and the Arts requests that the proponent develop and provide detailed plans of: all riparian crossing construction erosion control principles and works: maintenance and monitoring: and remediation and contingency plans where erosion and soil movement is found to occur. Initial compliance with this request should be sought through any subsequent PER supplement. Without this additional information there can be only limited assurance that the clearing lines will not lead to significant damage to multiple riparian environments along the pipeline easement.

NRETA 07 – Erosion control measures will take place progressively during the dry season and Section 4.2.3 of the PER states that: *Reinstatement will be completed prior to the first storms of the wet season.* This is also listed as a commitment in the Executive Summary. In practice, the reinstatement will be conducted following burial of the pipeline (i.e. backfilling), using a reinstatement crew who will work behind the construction crew with some of the same equipment.

Surveyed cross sections and photos of all watercourse crossings are provided as Supplementary Appendix 2. Long term erosion control structures are planned to be installed and maintained for 2 years under the CEMP and then ongoing erosion monitoring and action will be performed according to the Operational Environmental Management Plan.

Drainage line restoration will include replacement or, in some cases, importation of a surface layer of coarse gravels, generally extending 2m up the bank from the toe and across the creek bed, to prevent scouring. Contour banks and possibly sediment fences will be installed to prevent possible erosion from surface flow down the pipeline alignment and into the stream.

Revegetation of watercourse crossings is not planned however sterile grass may be utilised to stabilise banks where deemed necessary by the Construction Environment Manager.

APT is aware of the need to ensure the ground is stabilised, particularly around watercourses, prior to the onset of the wet season. Due to the highly constrained construction period during the 2008 dry season, APT recognises that there is limited potential for extensive revegetation of the entire construction corridor to have occurred. The measures set out in the CEMP (revised) are aimed at ensuring the areas are left in a stable condition in preparation for the wet season.

4.3. Water

4.3.1. Baseline

	Comments from submissions
EPA 07 Comments	**Water supplies** Turkey's nests may be required to retain adequate volumes of bore water to rapidly fill the pipe during hydrotesting. What issues might be associated with construction of these dams? Will they be constructed within the 100m-surveyed corridor?
NRETA 01 Comments	**Beneficial Use declaration** There are at present no declared beneficial uses or water allocation plans within the Daly Catchment. Current NT water allocation policy outside water allocation plans allows for licensing for consumptive purposes of up to 20% of the instantaneous flow of any river or creek.
NRETA 02 Comments	**Water Supply Comment** Water proposed to be sourced for construction camps is minimal and as such obtaining a licence to extract surface water (within the Daly Catchment) for this purpose is not likely to be an issue. In order to assess this requirement properly from an allocation perspective (and consequently to issue a licence to extract surface water) the source of extraction needs to be established as well as the monthly maximum water requirements proposed to be extracted at these locations.
NRETA 03 Comments	**Water Supply Comment** The only concern from a hydrographic prospective is the Daly River crossing, which based on the very poor map supplied, looks like it crosses the Daly River very close to the Department of Natural Resources, Environment and the Arts gauging station at Mt Nancar. The pipeline must remain well clear of the bluff that the gauging station is located on, however if it is in the vicinity the Department would stipulate: that no earthworks or equipment impact on the cross section of the river banks within 200m of the Mt Nancar gauging station and associated control pool. The gauging station site is located at 13 deg 49 min 47 sec South and 130 deg 44 min 7 sec East.
NRETA 05 Comments	**Water Allocation Comment** It is impossible to assess the impact of water extraction for construction (and therefore to pre-empt any licence being issued) because of the long timeframe associated with this use and that extraction is spread over various sources. Once again the location of extraction needs to be established and maximum requirements need to be quantified before the impact of this extraction can be properly assessed and a surface water extraction licence can be issued. Although information specific to water extraction from source and maximum extraction rates has not been detailed it is likely that sufficient water will be available at locations with the Daly River catchment to support this proposal. These locations may not always be the most convenient from an operational perspective.
NLC 25 Comments	**Bores Located Close to the Proposed Construction Corridor** The first point to be made is that the PER seems to be saying that this is just a subset of water sources that may be used, that is, that other sources may also be used. The second point is that none of these locations were identified as locations requiring access for the purposes of construction during survey and thus have not been cleared in terms of sites and no approval for access on Aboriginal land for purposes of obtaining water has been given. APT have been advised that RN0282388 is located at a sacred site (men's ceremony ground) and that the use of existing access track for purposes of obtaining water for construction will not be given. APT appear to have

	Comments from submissions
	ignored this in the PER. Table 4-6: Summary of Key Bores within Close Proximity of the Pipeline, p80, refers to: o Approximate KP (distance in km from Blacktip Gas Plant). The distances are confusing as they are not references to KP points along the pipe route but appear to be references to straight line distances from the Blacktip plant. o Bore Owner – Replete with assumptions rather than real information...e.g. Thamurrurr Regional Council has nothing to do with Papangala country. The actual water requirements will be much more substantial than has been identified in the PER because the PER does not address dust suppression needs with the Daly/Wadeye main road. Irrespective of all of the above, identification by APT of their water source requirements will be necessary and consultations and negotiation of access will need to be scheduled into 2007 dry season activity otherwise 2008 construction timelines will be compromised. Where creeks are proposed for use and no flow data exists then assessment needs to be scheduled as well.

EPA 07 – Turkey's nest dams will be constructed only with agreement from the landholders, on land adjacent to bores where the supply is intended to be extracted. They are likely to be retained by the landholders for their own future use. Construction will be subject to requirements under the Water Act.

NRETA 01 – Noted.

NRETA 02 – This was recognised in the PER. See also Section 2.1.4.

NRETA 03 – As stated on page 78 of the PER, Mt Nancar gauging station is located 1.8km downstream from where the pipeline is proposed to traverse the river.

NRETA 05 – These issues were recognised in the PER and were discussed with Water Resources personnel in NRETA, and will be addressed by the Construction Contractor and APT closer to the period when water is required.

NLC 25 – The information provided on water sources was obtained from published data in order to provide reliable information on the options available for water extraction. It was not meant to be definitive in terms of the actual sources of water and the volumes required from each. These decisions will need to be made by the Construction Contractor, based on more detailed analysis of requirements. The use of these waters will then have to be negotiated with the owners of the water sources and licences obtained where necessary from the Water Resources division of NRETA. Negotiations with Traditional Owners will be in accordance with the terms of the Land Access Agreemen between the NLC and APT..

The issue of dust suppression is discussed in section 2.2.13 of this supplement.

The reference to Thamarrurr Regional Council being the owner of the Papangala bore was obtained from NT Government records, so it may require correction.

4.3.2. Potential impacts

	Comments from submissions
EPA 05 Comments	**Hydrostatic pressure testing** The proponent has indicated that the likelihood of biocide addition is very low; however, decisions on hydrotest water recycling and treatment will not be made until detailed design and construction, therefore management measures and

	Comments from submissions
	contingencies need to be well covered in the EMP.
EPA 06 Comments	**Hydrostatic pressure testing** Hydrotest water would be settled and filtered prior to discharge. What is the purpose of this treatment, to remove particulate material?
ECNT 11 Comments	Impact of the pipeline on watercourses needs to be carefully monitored and reported to Government agencies. o HDD should be the preferred option for all crossings. Especially significant wetlands such as along the Moyle River. o More detail and justification is required for all proposed non-HDD crossings.
NLC 01 Comment	No consultations have been had with traditional owners of Dee Creek, Anophelese Creek, Moyle River, Kurrowa Creek or Tom Turners Creek in the Daly/Port Keats Land Trust regarding any proposed use of waters from theses water bodies for the purposes of construction of the proposed pipeline.
NLC 02 Comments	No consultations have been had with traditional owners regarding any proposed use of waters from bores or water bodies in the Daly/Port Keats land trust area.
NLC 26 Comments	The fourth main component of water demand for pipeline construction will be demand for water for dust suppression on the Daly to Wadeye main road. The PER needs to identify what this level of demand for water will be in relation to a detailed description of proposed management of dust suppression associated with BGP road use (and including the additional road use associated with Eni's Blacktip Gas Plant construction).
NLC 27 Comments	Dee Creek, Anopheles Creek, Moyle River, Kurrowa Creek and Tom Turners Creek are all on land trust land and as such, besides any licensing required from the NTG, traditional owner approval for any proposed use will also be required. No reference to such potential requirement was made at the time of route survey. Further, as the PER fails to identify and quantify the amount of water required for dust suppression on the Daly/Wadeye main road, any proposed use of water from these locations will need to take into account quantities associated with all proposed uses. The fact that the NT Roads Division reports regular use of these water sources for road maintenance does not mean that they would necessarily be available for the purposes of pipeline construction (including dust suppression of the Daly/Wadeye road). There is potential for impact on sacred sites associated with at least one of the above reported creeks.
NLC 28 Comments	Use of any bores on Land Trust land will require traditional owner approval for any proposed use. Given that a number of the 'key bores' are the water supply for particular small communities somewhat distant from the pipeline, not only would approval be required but potential impact on community requirements would be a paramount consideration. Similarly, access to these bores from the pipeline corridor and construction access tracks remains to be identified and negotiated.
NLC 29 Comments	The impacts of hydrotest waters on natural vegetation that are a supply of indigenous food sources (i.e. bush tucker) has not been considered. If this water is capable of causing damage to crops, it may also be capable of potential harm to natural vegetation. Until chemical types and concentrations within the hydrotest waters have been specified and the full extent of their potential impact (even if it is over a 'matter of days at most') assessed their safety must remain suspect. Acute impacts as well as chronic impacts should be considered.
NLC 30 Comments	The owners of the bores on land trust land are the traditional owners and use of bores on land trust land can only occur with traditional owner approval negotiated through the NLC.
NLC 31 Comments Table 4-12	The table is incorrect and presents a significant underestimate of water consumption because no account has been made for water consumption associated with dust suppression and road maintenance of the Daly/Wadeye main road.

EPA 05 – Biocides – p90 PER
Biocides are sometimes (but rarely) used in oil and gas operations to limit the activity of bacteria that can cause biological corrosion to equipment. Selection of clean water sources is important in eliminating the need for biocides (CMIT 2005). In hydrostatic testing, their application is rarely necessary due to the limited residence time (CMIT 2005), and it is not intended to use biocides for the proposed BGP. Elimination of suspended particles, scale and cleaning of the pipe by scrubbing and flushing is often sufficient to reduce the potential habitats and bacterial proliferation (CMIT 2005).
Amend Table of Commitments in the Executive Summary to add an additional line to the Hydrotest procedures as follows:

Table ES-3: Table of Commitments

Subject	Commitment/Safeguard	Primary Section Reference in PER
Hydrotest	Hydrotest water will be treated and disposed of in accordance with a Hydrotest Management Plan.	**4.4.3**
	The geofabric which contains the residue from each flush will be disposed of to a landfill.	**4.3.3**
	The disposal water will be released under pressure to aerate and manage soil erosion.	**4.3.3**
	Disposal water from the hydrotesting will be irrigated to land, in accordance with the recommendations of the CMIT (2005) report.	**4.3.3**
	Flush water will be disposed to land, well-separated from any water bodies.	**4.3.3**
	The flush water will be treated in accordance with the recommendations of the CMIT (2005) report on hydrotests.	**4.3.3**
	Should biocides be necessary, APT will submit a detailed proposal on the use and disposal of waters containing biocides.	**4.3.2** Supplementary

The use of biocides for hydrotesting the pipeline will depend largely on the quality of the source water, and treatment and disposal will be in accordance with the recommendations made in the CMIT (2005) report on hydrotests. Decisions on the use of biocides, while considered to be a very low probability, will be made closer to the time of construction. Should biocides be necessary, APT will submit a detailed proposal on the use and disposal of waters containing biocides.

In conclusion, the contaminants in the flushing or disposal water for new pipelines are a combination of the contaminants present in the source water and contaminants added by oxidised steel, rust/mill scale, traces of weld flux and chemical additives (CMIT 2005).

Treatment and management of the disposal water is discussed in Section 4.3.3.

EPA 06 - The purpose of settling and filtration were discussed on page 87 of section 4.3.2 of the PER, and in section 4.3.3. Treatment was based on the CMIT Report (2005) on hydrotest water disposal, which was provided to the NT EPA and NRETA personnel on 14th March 2007.

ECNT 11 - There are a number of factors taken into consideration when deciding whether to cross a particular watercourse using HDD methods or open cut methods. Of greatest concern are the volumes of water passing the crossing and the nature of the banks and vegetation at the crossing. Large volumes of flowing water which would require significant effort to divert, and steep banks with dense/mature vegetation which would be difficult for

construction and difficult for rehabilitation are all indicators for an HDD crossing preference. Watercourses which carry little or no flowing water and have gradual bank slopes without dense vegetation can be crossed by open cut methods without significant disturbance and siltation of the water, and gradual banks which are not naturally densely vegetated can be rehabilitated back to their normal state with success. Regardless, where a relatively simple watercourse is shown to have particular environmental sensitivities, then an HDD crossing may be considered. This has all been taken into consideration during the environmental assessment process.

NLC 01; NLC 02; NLC 27; NLC 28; NLC 30 – The use of water is discussed above in supplement section 4.3.1, under NLC 25.

NLC 26 – See response in 2.2.13

NLC 29 – The CMIT (2005) report considered the impacts of hydrotest water on crops. The conclusion was that the short term nature of the discharge and the types of additives used in hydrotest water were unlikely to cause detriment to crops, which means it is unlikely to cause detriment to bush tucker.

The CMIT findings on irrigation were summarised on page 62 of the report, which is cited here:

> *When water is used for irrigation, the impact of the contaminants is reduced as water is transported through the soil and further absorbed by the roots of plants. The soil conditions affect the speciation of the contaminants and their availability to plants and, as a result, the allowable contaminant values can be higher than for aquatic ecosystems.*
> *The guideline values for irrigation are the long–term trigger value (LTV), the short–term trigger value (STV) and cumulative contaminant loading (CCL). These guidelines were developed to reduce the build up of contaminants on surface soils and to avoid direct toxicity to crops (ANZECC/ARMCANZ 2000). The values are based on the assumptions that:*
> *• The annual application of water is 1000 mm.*
> *• Inorganic contaminants are retained in the top 150 mm of soil.*
> *• Irrigation occurs on an annual basis for a maximum of 100 years.*
> *• The soil bulk density is 1300 kg/m^3.*
>
> *LTV is the maximum concentration of contaminant that can be allowed in the irrigation water based on 100 years irrigation under the loading conditions previously mentioned.*
> *STV is the maximum concentration of contaminant that can be allowed in the irrigation water based on 20 years irrigation assuming the same maximum annual irrigation loading to soil as the LTV.*
> *However, the most significant guideline value for disposal of test waters is CCL. CCL is the maximum cumulative contaminant loading that can be added to the soil, above which a site specific risk assessment has to be undertaken to continue application. The CCL calculation also considers the background contaminant load already present in Australian agricultural soils. It is expressed in kg/ha, which is equivalent to kg/10,000 m^2.*
> *Based on the guideline values for metals, the disposal waters were suitable for irrigation provided the Fe content is reduced (Table 29 and Table 30), and for sample T3 further evaluation would be required for Mn bioavailability. The STV value for Fe was set to avoid phytotoxicity of plants, whilst the LTV value was set to minimise blemishes on plant foliage during irrigation, and blockage of irrigation equipment.*

The full report from CMIT (2005) is available on request to the Australian Pipeline Industry Association (APIA).

NLC 31 – See response in 2.2.13

4.3.3. Management

	Comments from submissions
ECNT 04 Comments	Use and supply of water for camps, construction and dust control. Need to reassess supply in response to water availability immediately prior to usage. Monitoring for impacts, particularly on sensitive fauna from water abstraction and river access. Monitoring and remedial action required after water disposal of any sort in case of proliferation of weeds and/or contamination event.
NLC 32 Comments	In relation to any proposed extraction from water bodies or bores on Land Trust Land an agreement with the Land Trust for extraction will also be required and may contain its own conditions for monitoring and extraction.
NLC 33 Comments	Although APT does not intend to use biocide or other chemicals in the water streams, they have not been ruled out. For example, dyes are also often used when hydrotesting pipes. The concentrations and types of dyes, biocides and oxygen scavengers have not been identified in the PER, making it impossible to fully assess potential impacts of this water on the surrounding vegetation. Although 5 potential oxygen scavengers are listed, LD_{50} value is provided for only one. LD_{50} values should be provided for all tabled oxygen scavengers. APT should also identify the oxygen scavenger that it intends to use along with its likely concentration in hydrotest water. Dissolved oxygen concentrations required may be sufficiently high to warrant concentrations in excess of LD_{50} being used. Although excess oxygen scavenger will be destroyed on contact with air, the reaction is not instantaneous and a rapid acute environmental effect could be observed. It is reasonable to assume that total chemical loads in hydrotest water are expected to be quite significant, given the volume of water to be irrigated (4Ml) quickly over presumably a small area of land. If this water pools or is maintained for any length of time on land, the chemicals or their by-products may have detrimental effects upon flora and fauna with which they contact. We apply similar concerns to the flush water to be used.

ECNT 04 – These matters are addressed in 4.3.1 and 4.3.2 above.

NLC 32 – This is recognised and has been discussed above in 4.3.1 and 4.3.2.

NLC 33 - The information requested cannot be provided until after every source of hydrotest water has been identified, formal agreements put in place for the use of that water, and laboratory analyses conducted to determine the extent to which, if any, chemicals are required. This will take place during early 2008. Dyes are not "often used" in hydrotest, but have been used on rare occasions when a hydrotest leak occurs that is difficult to locate accurately. In the unlikely event that a dye was required it would be selected on the basis of being environmentally acceptable. Circumstances which might suggest the use of dyes are highly unlikely to occur on the Project given the dry season construction.

The LD50 assessment was based on the report published by CMIT (2005). The other chemicals listed generally have similar LD50 characteristics, from the MSDS information available for them. The LD50 for the oxygen scavenger which is chosen by the Construction Contractor for hydrotesting will be reported in the MSDS for that particular manufacturer's oxygen scavenger. The CMIT report reviewed the treatment of a range of chemicals which had been used in pipeline hydrotesting, and concluded from the tests that simple aeration and irrigation are sufficient to treat the hydrotest water, provided that biocides were not added (CMIT 2005).

4.4. Ecology

4.4.1. Baseline

	Comments from submissions
EPA 09 Comments	There appear to be some inconsistencies in the information provided. For example, the flora map indicates that the dominant vegetation type along the BGP is open woodland consisting of Eucalyptus tectifica and Corymbia spp. Table 4-17 indicates that the Brushtail Phascogale (and other species such as the Partridge pigeon) is likely to be found as "a large part of the BGP runs through its preferred habitat". The phascogale's preferred habitat, however, is indicated to be E. miniata and E. tetrodonta, which, according to the PER only makes up a very small proportion of the vegetation types along the pipeline route
EPA 10 Comments	Another apparent inconsistency relates to the Gouldian finch. The PER initially states, "The BGP also traverses a small patch of Eucalyptus tintinnans woodland, which is important habitat for the endangered Gouldian Finch (refer Section 7.2 of this report)". According to the vegetation map and text, the E. tintinnans 'patch' is located between KP170 and 180 (very low resolution map so may not resolve the fine scale habitats); however, further in the text, the field studies for the potential finch habitat are to be carried out in the "only area that has been identified as potential finch habitat…KP246 – 255". Additionally, Section 7.2 referred to above is actually the Emergency Management section of the PER and quite rightly does not contain reference to the Gouldian Finch or its habitat. There is also a discrepancy in the percentage of the route covered by E. tintinnans; 3.5% in Table 4-14 and 6% in the text on page 115. This is the difference between clearing 30ha and 50ha respectively of preferred habitat for the finch.
EPA 11 Comments	The PER relies heavily on desktop studies (NT fauna atlas) for fauna descriptions as detailed field studies have not been undertaken. The proponent has committed to complete fauna surveys of particular habitat types this dry season (2007) but due to the approval timeframes the data collected is unlikely to be included in the Supplement. This will have implications for the timing of the assessment, particularly with respect to decisions on NES matters under the bilateral agreement. It is unfortunate that the PER was lodged prior to the availability of this data as the general public has been denied the opportunity to comment on this information.
EPA 14 Comments	Table 4-29 (sic) indicates areas of riparian and monsoon vine forest elements that the BGP will pass through. Will all these patches be directly impacted on? The text is not clear on this.
EPA 15 Comments	The BGP traverses the upper extremities of the Moyle floodplain and Hyland Bay wetland of National Significance (RAMSAR) within its boundaries. Are there any extra measures that will be put in place to ensure that this area is not impacted? For example, the implementation of a medium-term monitoring program to ensure no down-gradient impacts from the pipeline corridor is experienced. There should be no other facilities planned for this area i.e. MLV, cathodic protection, turn-around, borrow pits, etc. Access to the pipeline corridor in this area should only be via the corridor itself.
MAGNT 02 Comments	One major problem with this PER is a lack of fauna surveys dedicated to the pipeline corridor and its reliance on Northern Territory Fauna Atlas records to identify species of conservation significance. Fauna Atlas records are useful for baseline information, but are insufficient to fully assess the presence and status of resident species. The PER acknowledges this problem and states that fauna surveys will be undertaken during 2007.

	Comments from submissions
MAGNT 03 Comments	Besides being numerically and ecologically significant components of the fauna in the terrestrial and aquatic habitats planned to be traversed by the gas pipeline, invertebrates are not mentioned in the PER (except for one species of aquatic hemipteran and the introduced Yellow Crazy Ant *Anoplolepis gracilipes*). MAGNT was not consulted with regard to survey methods, information, or collection data for invertebrates. Therefore, invertebrates represent a major knowledge gap for the fauna for this project as a whole. This should be acknowledged, if not remedied, by a survey. Limited-range invertebrates are already known from the direct pipeline route (such as the recently described freshwater mussel, *Lortiella opertanea*), whose populations could be impacted by the earthworks associated with laying the pipeline under the Daly River. Similarly, many invertebrates have limited dispersal capabilities and the route of the pipeline will fragment their ranges. The Table of Commitments in the Executive Summary (at least) should indicate what impacts the project will have on invertebrates.
MAGNT 07 Comments	The intention is to maintain a cover of grass over the pipeline track and the gas pipeline itself after burial (Executive Summary, page xii, paragraph 6) so that the Gouldian Finch's "preferred grasses and nesting trees will naturally grow back along the constructed pipeline, so impacts are expected to be low." (Executive Summary, p. xiii, Para. 5). The PER should state if there is any evidence that the finch's preferred grasses do in fact recolonise disturbed habitats.
NRETA 08 Comments	**Vegetation Comment** Native vegetation clearing on freehold, crown and Aboriginal land tenures is controlled under the *Planning Act.* Native vegetation clearing on pastoral leases is controlled under the *Pastoral Land Act.* The new NT Planning Scheme was introduced on 1 February 2007 and provides for the following general exemption, unless specified, this Scheme does not prevent any of the following the construction, alteration, repair or maintenance of: facilities for the reticulation of water, sewerage, gas or electricity. Clause 10.2 also refers, however this clause does not apply if the clearing of native vegetation is required or controlled under any Act in force in the Territory, in this instance the *Energy Pipelines Act*. The proposed pipeline easement is exempt from current native vegetation clearing controls under Clause 10.2 of the NT Planning Scheme by virtue of being for the reticulation of gas.
NRETA 09 Comments	**Vegetation Comment** The Land Clearing Guidelines 2006 updated version still apply to the proposed development and impacts on riparian vegetation and sensitive vegetation communities such as rainforest and seasonal wetlands should be minimised as much as practicable. Many species occurring in these environments may be protected under the provisions of the *Territory Parks and Wildlife Conservation Act.* The Land Clearing Guidelines 2006 also highlight that exposing large areas of soil through clearing close to the wet season has the potential to cause considerable soil loss and should be avoided wherever possible.
NRETA 10 Comments	**Vegetation Comment** Clearing controls under the *Pastoral Land Act* apply to the lessee and not prescribed purposes such as a gas pipeline. Where additional developments for non pastoral uses are proposed outside of the pipeline easement, approval may be required. In the case of freehold, Crown or Aboriginal land, any proposed works, outside the area approved under the *Energy Pipelines Act* which require the clearing of native vegetation and where that clearing would result in the aggregate area cleared on the property exceeding 1ha, consent would be required.
NRETA 11 Comments	**Vegetation Comment** The majority of the proposed clearing falls within the Victoria

	Comments from submissions
	Bonaparte and Daly Basin Bioregions with a lesser extent occurring in the Darwin Coastal Bioregion adjacent to Wadeye. Based on the 2005 assessments of total native vegetation clearing, 10.9% of the Daly Basin Bioregion, 0.44% of the Victoria Bonaparte Bioregion and 4.46% of the Darwin Coastal Bioregion has already been cleared. This proposal would not make a significant change to the total percentage extent of native vegetation clearing in each of these bioregions.
NRETA 13 Comments	**Biodiversity *Comment*** Consideration of specific biodiversity issues: EcOz Environmental Services were contracted by Australian Pipeline Trust to undertake both desktop and field surveys in relation to the sighting of the pipeline and potential impacts on biodiversity. EcOz identified a range of biodiversity issues which the Biodiversity Conservation Division would agree with including: *Eucalyptus tintinnans* is present on 6.3% of the proposed pipeline route and is an important habitat for the Endangered Gouldian Finch. Fauna records for the proposed pipeline route are based on a desktop study (mainly though interrogation of the flora and fauna databases compiled and maintained by the Biodiversity Conservation Division) and identified a number of species whose preferred habitat is traversed by the proposed pipeline route including: Northern Quoll - *Dasyurus hallucatus* (TPWC Act - Critically Endangered; Endangered - EPBC Act) Partridge Pigeon - *Geophaps smithii* (TWPC Act - Vulnerable; EPBC Act - Vulnerable) Red-cheeked - *Dunnart Sminthopsis virginiae* (locally rare under IUCN criteria) Hooded Parrot - *Psephotus dissimilis* (TWPC Act - Near Threatened) Beach Thick-knee - *Escacus magnirostris* (Near Threatened – IUCN criteria) Masked Owl - *Tyto novaehollandiae kimberli* (TPWC Act - Vulnerable; EPBC Act Vulnerable) Brushtailed Phascogale - *Phascogale pirata* (TPWC Act - Vulnerable) Gouldian Finch - *Erythrura gouldiae* (TWPC Act – Endangered; EPBC Act - Endangered)
NRETA 14 Comments	**Biodiversity Comment** For consistency, other species recognised as being of conservation significance under NT legislation should have been included. These species, which are highly likely to occur in the project area are: Pale Field-rat - *Rattus tunneyi* (NT = Near Threatened) Western Chestnut Mouse - *Pseudomys nanus nanus* (NT = Near Threatened) Black-footed Tree-rat - *Mesembriomys gouldii* (NT = Near Threatened) Northern Nailtail wallaby - *Onychogalea unguifera* (NT = Near Threatened) Bush Stone-curlew - *Burhinus grallarius* (NT = Near Threatened) Chameleon Dragon - *Chelosania brunnea* (NT = Near Threatened) Additional species of conservation significance include two recently reclassified reptiles: Northern Death Adder - *Acanthophis praelongus* (NT = Near Threatened) Yellow-spotted Monitor - *Varanus panoptes* (NT = Near Threatened)
NRETA 15 Comments	**Biodiversity Comment** Thirteen species of plants with a conservation status were identified as potentially occurring within the region of the proposed pipeline route. Four of these have NT or EPBC Act conservation status but were not recorded during EcOz field surveys. One species of plant is listed as being of conservation significance, *Cycas armstrongii*, and is known to

	Comments from submissions
	occur within the corridor. There are no estimates of the number of these slow-growing species that are proposed to be destroyed. It should be noted that the "Endangered" orchid *Nervilia plicata* also occurs in Melaleuca woodland on drainage floors (Appendix E, Table 5) and so may occur in the pipeline corridor.
NRETA 17 Comments	**Biodiversity Comment** The option to consider further route alignments is currently constrained by limited basic ecological information gathering within a 100m wide corridor. This lack of detailed information means there are no opportunities to consider minor realignments of the pipeline route to avoid sensitive areas. For example, through slight readjustments of the pipeline route during construction, it may be possible to avoid *Eucalyptus tintinnans* woodlands, an important habitat for the Endangered Gouldian Finch.
NRETA 19 Comments	**Biodiversity Comment** The Biodiversity Conservation Division has previously recommended to EcOz that fauna trapping be carried-out at targeted locations along the proposed pipeline route before construction begins. Such surveys help clarify/identify important areas and possibly protect fauna of conservation significance. Detailed fauna surveys are proposed to be carried out at five sites in the 2007 dry season. The proposed surveys should take place in the early dry season as opposed to the late dry season inspection (to detect annual herbs and other species that may have been difficult to detect following fire). Results from this survey should be included in a supplementary PER.
DEWR 01 Comments	Page 96 of the PER states that 'The BGP also traverses a small patch of ***Eucalyptus tintinnans*** woodland, which is important habitat for the endangered Gouldian Finch (refer Section 7.2 of this PER).' However, section 7.2 details the Emergency Management Plan for the project. The correct section should be identified.
DEWR 02 Comments	Table 4- 14 on page 98 of the PER states that 3.5% of the route is covered by ***Eucalyptus tintinnans*** low woodland with ***Sarga*** spp. Grassland understorey. However on page 1 17 the PER states that 6.3% of the pipeline route passes through ***E. tintinnans*** dominated woodland. This discrepancy needs to be clarified. We also require that detailed maps be provided of ***E. tintinnans*** vegetation as it occurs along the pipeline and in the surrounding areas.
DEWR 03 Comments	Page 107 of the PER discusses 'Further Planned Field Studies'. We recommend that: o Reasons be provided for the selection of the five targeted fauna survey sites chosen i.e. what fauna is being targeted? o The total survey area in relation to the total project area be provided o Timing of the surveys be stated with an explanation of the timings o Confirmation be provided that all targeted fauna surveys will be conducted within the proposed pipeline corridor, or a detailed explanation as to why any alternative approach is considered necessary and acceptable o Confirmation be provided that all EPBC listed species likely to occur in the area are being targeted by these surveys.
DEWR 05 Comments	Page 116- 117 of the PER discusses individual species listed under the EPBC Act. The discussion in these sections could be usefully expanded. We also suggest that a summary table could be used to display information, i.e. which species are likely to occur, what the potential impacts might be, how the impacts will be mitigated, and a statement as to whether the expected impact after mitigation is considered acceptable.

EPA 09 – When considering potential habitat for species of conservation significance, a precautionary approach was taken. Desktop studies (Australian Tropical Savannas Vegetation Map) indicated that the percentage of the route dominated by *Eucalyptus tetrodonta* and *E. miniata* woodland was quite small, however the field surveys recorded these species (though they may not have been the dominant species) at a large proportion of the survey sites. For the purpose of the PER impacts section, if the vegetation structure (i.e. open woodland) was the same, and if the required dominant species were at least present at the site, then it was considered 'preferred habitat', with the possibility that Brush-tailed Phascogales could occur in these areas.

EPA 10, DEWR 02 – The mapped extent of *Eucalyptus tintinnans* (Salmon Gum) vegetation type was interpreted from the *Vegetation of the Australian Tropical Savannas* map produced by Qld EPA 2006, and published at a scale of 1:2,000,000 (but based on 1:1,000,000 scale map *Vegetation survey of the Northern Territory*). The section of the pipeline which traverses this mapped vegetation types extends from KP170 - KP180, as stated. The apparently contrary statement that the "only area that has been identified as potential finch habitat…KP246 – 255" could have been explained better. Field surveys revealed that this latter section was vegetated with mature *Eucalyptus tintinnans* trees which appeared to provide what could be suitable habitat for Gouldian Finches, and that the section KP170 - 180 was less suitable, being rocky and shrubby ground cover. KP246 - KP255 does not show as potential habitat on the Tropical Savannas Vegetation Map.

The 6% of potentially cleared habitat is the sum of the 3.5% mapped area (KP170 - 180) and the approximately 2.8% of field identified habitat (KP246 - 255) which actually totals about 6.3%. The percentages were rounded off in the PER.

E. tintinnans were also observed in some other places along the pipeline route, but these were more scattered and would not normally be considered as good quality Gouldian Finch habitat in Ecoz' experience, and from the published material on Gouldian Finches (e.g. Dostine *et al.* 2001; O'Malley 2007; PWCNT 1994, 2001; Woinarski & Tidemann 1991, 1992).

The area to be cleared initially of *E. tintinnans* woodland (i.e. 10km from KP170-KP180 and 9km from KP246-KP255) will be in the order of 60ha in a narrow linear corridor, but only about 12 ha of this will remain cleared in a very narrow 6m wide corridor as the construction corridor will be rehabilitated for all but 6m for the access track.

NRETA 17 - Options to re-align the route were considered in the field by competent ecologists at the time of survey. Every opportunity was taken in the field to avoid stands of significant vegetation and features such as waterholes and wide, dense riparian habitat, although other constraints also had to be considered in the field. These latter included sacred sites, archaeological sites, trees and other vegetation important to Indigenous people (Traditional Owners) who undertook the survey with the survey team, topographical and soils limitations, particularly at creek and watercourse crossings, and engineering constraints. No *E. tintinnans* woodlandwas encountered which could have been considered high value habitat was encountered on the route, although it is acknowledged that this is imprecisely defined and that currently it is 'not possible to map habitat critical for the species' survival' (O'Malley 2007, p2). The mapped distribution, and field observations of *E. tintinnans* woodland demonstrate that it is not possible to avoid this vegetation type as it actually transversely crosses the alignment of the pipeline route, mostly running in a north-southerly direction where it is found within the vicinity of the pipeline.

The 100m survey corridor was originally determined based on desktop studies and work carried out for the TTP. The route was further refined by aerial surveys and ground reconnaissance. Based on further desktop analysis after the aerial and ground work, the BGP study team determined a 100m wide corridor within which it was considered feasible to

construct the pipeline. This 100m corridor was then presented to the Traditional Owners for approval for field surveys. The Project was then permitted, by agreement with a number of parties including the NLC and landholders, to survey within this 100m wide pre-selected alignment, in order to define a 30m pipeline route. The two ecologists who surveyed the route on the ground recorded ecological data at 115 sites within the selected 30m route, giving an average spacing of 2.5km. The data were tabulated and provided in the appendix to the *BGP Flora and Fauna Studies & Ecological Field Survey Results*, as Appendix E to the PER.

MAGNT 07 - Despite literature reviews it has not been possible to identify any references which document that the finch's preferred grasses do recolonise disturbed habitats, but in our experience and observations over many years, and in discussion with Milton Lewis and others after the NT railway construction crew cleared some prime Gouldian Finch habitat some years ago, it seems that the grasses do, in fact, recover adequately, given protection from further disturbance. We have addressed reinstatement of the pipeline in many sections, and have stated in several places that the bulk of the root stock along the route during the clear and grade activities will be left in the ground. We have also addressed the matter of weed control and quarantine so that weeds are not spread to and introduced to areas such as habitat suitable for Gouldian Finches.

EPA 10, DEWR 01 - The cross reference to Gouldian Finch habitat on page 96, which says 'refer Section 7.2 of this report' should have read 'refer to Section 4.4.2 of this report'. Section 4.4.2 documents Potential Impacts, and discusses potential impacts on *Eucalyptus tintinnans* woodland as habitat for Gouldian Finches.

NRETA 13 - The threatened species listed in this comment were listed in the PER. We inadvertently deleted the reciprocal listings under complementary legislation. This did not change the status of any species as the PER listed the highest threat status. We note the correction.

NRETA 14 - We acknowledge the additions of Near Threatened species.

DEWR 05 - Table 4-17, which addressed the issue of species listed under the EPBC Act has been expanded below in Table Supp. 4.1and additional explanation of the assessments of threatened species has been included following the table. The CEMP and the Alignment Sheets (Appendix H of the PER) address the mitigation and management of impacts in some detail. Monitoring of the whole construction activity will be undertaken by an environmental team on the pipeline, including fauna handlers for the pipeline trench, and environmental managers for the clear-and-grade, reinstatement and monitoring of success and further rehabilitation works required. These were outlined in the PER and the Draft CEMP.

Table 4-17: EPBC listed Threatened Terrestrial Fauna Species and Potential Impacts

Species name and Description	Status	Preferred Habitat and Known Distribution	Likelihood of Occurrence	Potential impacts	Mitigation and other factors likely to minimise impacts	Expected impact after mitigation
Bare-rumped Sheathtail Bat (*Saccolaimus saccolaimus nudicluniatus)*	Critically Endangered (*EPBC Act 1999)*	Coastal open woodland, known to roost in *Eucalyptus alba.*	Unlikely – no records in the area. This species has been rarely sighted over the past 23 years.	One of the threatening processes to this species is destruction of roosting sites in tree hollows through clearing.	• There have been no records of this species anywhere near the BGP region, and none in Australia for many years. • *Eucalyptus alba* are recognised as roosting trees for this bat but there were no observations with this tree during extensive field surveys of the whole pipeline route. • When clearing for campsites is necessary, the contractors will be advised to avoid mature trees (which are more likely to contain tree hollows) where possible.	Risk of impact after mitigating factors is considered to be extremely low.
Northern Quoll (*Dasyurus hallucatus*)	Endangered (*EPBC Act 1999)* Critically endangered *(TPWC Act 2006)*	Rocky escarpment, open forest and open woodland.	Probable – there have been several recordings of the Quoll within the BGP surveyed area where the availability of its habitat is widespread. Once common across Northern Australia, this species' range has contracted by > 75%.	The quoll could be affected through vegetation clearing reducing cover and affecting hunting.	• The quoll is associated with rocky escarpments, which were infrequently crossed by the BGP route. • The quoll's preferred vegetation type; open forest and woodland, is widespread within the region.	Risk of impact after mitigating factors is considered to be negligible.
Gouldian Finch (*Erythrura gouldiae*)	Endangered *(EPBC Act 1999; TPWC Act)*	Open tropical woodland that has a grassy understorey, often in hilly areas.	Likely, although the nearest recorded sighting to the BGP is approximately 109km away. Some of its preferred habitat occurs within the vicinity of the pipeline, although its habitat is not likely to be significantly affected by the construction due to the scale of construction activity, and its duration.	Approximately 6.3% of the BGP route traverses scattered *E. tintinnans* woodland, which is preferred Gouldian habitat. Clearing of this habitat could substantially reduce available habitat and feeding grounds for this endangered bird.	• From the extensive field surveys of the route, the *E. tintinnans* woodlands traversed by the pipeline route, about 20km - 25km in total, exhibited relatively sparsely scattered trees. • The Finch's preferred grasses will naturally grow back along the corridor post construction as the disturbance is short term and reinstatement will be immediate and monitoring will be implemented to ensure regrowth..	Risk of impact after mitigating factors is considered to be very low.
Water Mouse **(***Xeromys myoides)*	Vulnerable *(EPBC Act 1999)*	Freshwater swamps, riversides, sedgelands and	Formerly known as the False Water Rat, the range and biology of this species are poorly known, having only been recorded in a few	The water mouse has been recorded twice within 10km of the proposed corridor. The proposed BGP	• The alignment of the pipeline has been chosen specifically to avoid the swamps, sedge lands and mangroves that constitute the preferred habitat of this species.	Risk of impact after mitigating factors are considered to be low.

Species name and Description	Status	Preferred Habitat and Known Distribution	Likelihood of Occurrence	Potential impacts	Mitigation and other factors likely to minimise impacts	Expected impact after mitigation
		mangroves in the Northern Territory.	localities, two of which lie within 10km of the BGP, according to the NT Fauna Atlas. It is unlikely to occur within the construction corridor due to its specific habitat requirements.	alignment does encounter riversides, which the mouse may inhabit.	• When it is necessary for the pipeline to cross rivers, the construction will be carefully monitored in order to minimise impacts, and reinstatement of the riparian zone will be undertaken immediately after construction and monitored to ensure the riparian vegetation recovers properly.	
Partridge Pigeon (*Geophaps smithii smithii*)	Vulnerable *(EPBC Act 1999; TPWC Act)*	Open forest and woodland dominated by *Eucalyptus tetrodonta* and *Eucalyptus miniata* with a structurally diverse understorey.	19 atlas records for this species fall within the BGP surveyed area, particularly in the northern end. BGP runs through its preferred habitat. This habitat type is widely available.	The major habitat type traversed by the proposed pipeline (open forest and woodland) is preferred habitat of the partridge pigeon. Impacts could occur if permanent fragmentation of habitat were to occur, but this will not happen.	• The pigeon's preferred habitat is widely available within the region. • The narrow, linear nature of the works reduces the impact of vegetation clearing. • The species is highly mobile. • Understorey vegetation, which is particularly important to the pigeon, will quickly regenerate post construction.	Risk of impact after mitigating factors is considered to be negligible.
Masked Owl (northern) (*Tyto novaehollandiae kimberli*)	Vulnerable *(EPBC Act 1999; TPWC Act)*	Forests, woodlands and caves. Tree hollows are also considered to be important to this species.	Few records exist for this species - it has been recorded within the BGP surveyed area, one within about 5km (Brocks Ck) and one within about 9km (Daly R) of the pipeline.	.	• Few records of this species exist, and very few occur within the study corridor of 10km.	Risk of impact after mitigating factors is considered to be very low.

The Gouldian Finch occupies a wide range across northern Australia including the Northern Territory, preferring habitat of Salmon Gums *Eucalyptus tintinnans,* and the grasses associated with these trees. The Gouldian Finch has been studied for over two decades and a number of scientific papers and reports have been published, and action plans for the recovery of the species have been implemented (Dostine 1998; Dostine *et al.* 2001; Franklin 1999; Franklin *et al.* 2005; O'Malley 2007; PWCNT 1994, 2001; Woinarski & Tidemann 1991, 1992; Woinarski *et al.* 2005).

All records of the Gouldian Finch's occurrence in the Northern Territory were obtained from the NT Fauna Atlas and plotted onto the GIS used for the Project. The nearest known record of Gouldian Finches was 109km from the general alignment. While it is possible that Gouldian Finches will traverse the pipeline route, and may occupy it from time to time, the route does not traverse any known colonies of the species. This is important as the known colonies of Gouldian Finches as reported in the Draft Recovery Plan for the Gouldian Finch 2007-2011 (O'Malley 2007) will not be affected by this pipeline construction.

The Water Mouse *Xeromys myoides* (syn. False Water Rat) has been recorded twice within 10km of the BGP pipeline route. The alignment of the pipeline has been chosen to mostly avoid the swamps, sedgelands and mangroves that constitute its preferred habitat types. The Water Mouse can also be found on riversides. The Water Mouse prime habitat is mud flats in mangrove habitat and evidence of its presence is given by distinctive holes in the mud, usually associated with fine remnants of crab shell, and in areas of high crab density. The recorded locations near the pipeline were both on the Daly River floodplain, kilometres north of the pipeline route(Woinarski 2006a; Woinarski *et al.* 2000). Mangrove areas near Yelcherr beach near Wadeye were surveyed in 2004 for the Blacktip Gas Project for evidence of the Water Mouse *Xeromys myoides* but failed to find any evidence of the animal (EcOz 2004).

The Bare-rumped Sheathtail Bat *Saccolaimus saccolaimus* has been recorded in only the lowlands of Kakadu National Park (Milne & Woinarski 2006), and although it was identified in the EPBC search of threatened species, it is highly unlikely to be found within the region of the pipeline. The Northern Territory wildlife experts consider that the status of the species in the Northern Territory is very difficult to assign, given the remarkably few records (just one specimen currently exists in the N.T Museum). One problem is that there is no record of a diagnostic call assigned to this species that can be used for detection. In the Northern Territory, there is no information from which to consider trends in status, and no obvious threatening process. While the known range is currently very limited, this largely may reflect sampling problems. Given this lack of critical information, the taxon is best considered Data Deficient.

The Northern Quoll The following text has been extracted from the NT Government's Threatened Species Information Sheet on Northern Quolls (Woinarski 2006b).

> *The northern quoll is a generalist predator, consuming a wide range of invertebrates and small vertebrate prey. It dens in hollow logs, rock crevices and caves, and in tree hollows. Most foraging is on the ground, but it is also an adept climber. It occurs in a wide range of habitats, but the most suitable habitats appear to be rocky areas. It is also common in many eucalypt open forests. Northern quolls typically have an annual life cycle, with almost all males living for only one year (Oakwood 2000, 2002). Young are born in the mid dry season (June), and attain independence in the early wet season (November). Mating is highly synchronised, occurring in late May/early June. Males then*

die. During the non-breeding season, home ranges are about 35 ha, but this increases to about 100 ha for males in the breeding season (Oakwood 2002).

Conservation assessment

Broad-scale decline of the northern quoll was described by Braithwaite and Griffiths (Braithwaite & Griffiths 1994), but the extent and rate of this decline did not quite reach the relevant threshold values for IUCN threatened status. Since that review, several studies (e.g. Oakwood 2004; Watson & Woinarski 2003) have suggested rapid collapse to local extinction of northern quoll populations in those parts of Kakadu National Park recently invaded by cane toads Bufo marinus. It is likely that cane toads will occur across all of the mainland Top End within the next few years. A similar pattern of decline to that encountered in Kakadu will probably occur elsewhere as cane toads invade new areas. The exact extent of the decline is difficult to estimate and the security of island populations is uncertain. The northern quoll has been classified as Critically Endangered (under criterion A3ce) based on an estimated population size reduction of >80% projected for the next 10 years).

Threatening processes

Quolls appear to have been declining in the Northern Territory for at least several decades (Braithwaite & Griffiths 1994; Woinarski et al. 2001), possibly because of impacts from feral cats, disease or changed fire regimes. However, the spread of cane toads adds a far more catastrophic threat (van Dam et al. 2002). Quolls appear to be particularly susceptible to the poison of cane toads, and are killed when they attempt to kill or consume the toads. Major declines to regional extinction have been reported for quolls following cane toad invasion on Cape York Peninsula (Burnett 1997).

Conservation objectives and management

There is no current recovery or management plan for this species, however a Recovery Plan is being prepared for 2007. In the short to medium term, it is unlikely that any broad-scale control mechanism can be imposed on cane toads, the primary threat to quolls. Given this outlook, the management priority is to secure the existing island populations from colonisation by cane toads.

A fauna study undertaken by EcOz in 2004 for the Trans Territory Pipeline recorded Northern Quolls at one site on the Moyle River, about 75km west of the coast, in the vicinity of the proposed BGP route. The locations of the study sites where the Northern Quoll was recorded from during the fauna survey of 2004 (EcOz 2004) are provided in the following table and shown on the Map in Supplement Appendix 5.

Locations of Northern Quolls from EcOz 2004 survey at Moyle River

Survey Area	Vegetation structure of survey site	Site no.	Latitude	Longitude
Moyle River (Palumpa to Moyle River including Moyle floodplain and western edge of Wingate Mountains)	Open Forest	6A1	-14.26847	130.07248
	Open Woodland	6B1	-14.26938	130.07256
	Open Woodland	6B2	-14.26146	130.06763

Its preferred vegetation type, open forest and open woodland, is widespread within the region, and the small amount of clearing necessary for the proposed construction corridor is not likely to have any more than negligible impacts on the Quoll in the short or long term.

Of great concern is the rate of spread of the Cane Toad *Bufo marinus* as poisoning from the Cane Toad has been identified as a key threatening process for the Northern Quoll (Maxwell *et al*. 1996). Where Northern Quolls were recorded in the pipeline corridor in 2004 near the Moyle River, the area had not yet been affected by Cane Toads. It is unlikely that cane toads will be prevented from spreading (Woinarski 2006b) to this area in the near future. The Project will implement quarantine, cleaning and inspection process for the prevention of accidental spread of the Cane Toad, and other pests, as detailed in the CEMP, but this activity alone will not prevent the spread of the cane toad to the area.

Partridge Pigeons are likely to occur within the construction corridor. The main threatening processes are possibly introduced cats, but more importantly changed fire regimes from changed fire management practices and from the effects of introduced grasses which change the nature of fires in the savannas (Woinarski 2006c). Partridge pigeons occur principally in tall eucalypt open forest, and their population will be reduced wherever these areas are cleared. This habitat is that currently most subjected to conversion for horticulture or forest plantation (Woinarski 2006c). Due to the widespread availability of their preferred habitat, however, and the narrow, linear nature of the works and the regeneration of the vegetation along the BGP construction corridor, the short and long term effects on the Partridge Pigeons are likely to be negligible. Weed control through quarantine, cleaning, and inspections as described in the CEMP will prevent the spread of the exotic grasses which change the fire regimes which appear to threaten Partridge Pigeons.

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EPA 11; MAGNT 02; NRETA 19 – Fauna were not able to be surveyed prior to submission of the PER due to access constraints, timeframes and logistical limitations. They will not be completed prior to submission of the Supplement due to extremely tight time constraints for the Project as a whole. The data and reports will be submitted to the Biodiversity Conservation Division of NRETA, to MAGNT, and to DEWR when they are completed. Targeted fauna surveys for species of national, regional and local significance were required in the Guidelines for the PER, and these were identified in Section 4.4.1 page 107 of the PER. The proposed surveys are discussed further below in relation to DEWR 03 queries.

DEWR 03 –

- *Reasons be provided for the selection of the five targeted fauna survey sites chosen i.e. what fauna is being targeted?*

  Locations were selected in consultation with the NT PWSNT most senior wildlife scientists, Dr John Woinarski and Dr Owen Price. They were identified as being habitats of interest during thorough field investigations and/or areas where little knowledge of fauna existed.

  Two sites have potential target species.
  - In route selection, we avoided all sites we determined as being valuable Gouldian Finch habitat, particularly known colonies, however we propose to pass through some marginal habitat and therefore plan to survey this site, and
  - the rocky range to the west of the Daly River crossing is likely habitat for the rare pebble mound mouse.

- *The total survey area in relation to the total project area be provided*

  The fauna surveys undertaken prior to the Project commencement will cover an area of approximately 25ha. The total Project footprint is approximately 900ha.

  The area surveyed during construction will cover all 285km of the route as a thorough trench monitoring program is planned.

- *Timing of the surveys be stated with an explanation of the timings*

  Fauna surveys will be undertaken as soon as possible in the early dry season of 2007. The Project is constrained by access limitations, including permission to access other people's property, and physical limitations of trafficability, as most of the route has no existing vehicle access.

- *Confirmation be provided that all targeted fauna surveys will be conducted within the proposed pipeline corridor, or a detailed explanation as to why any alternative approach is considered necessary and acceptable*

  All surveys are required, by the landowners to be conducted within the pipeline corridor route that they have approved.

- *Confirmation be provided that all EPBC listed species likely to occur in the area are being targeted by these surveys.*

  Bare-rumped Sheathtail Bat - Anabat surveys will be undertaken at all sites.

  Northern Quoll - All survey sites may potentially provide evidence of the Northern Quoll. The recent incursion of Cane Toads into the area may result in there numbers being dramatically reduced.

  Gouldian Finch – see above

Water Mouse – the survey proposed for the eastern side of the Daly River may uncover the Water Mouse.

Partridge Pigeon – could be encountered at 3 of the 5 sites.

The **Northern Masked Owl** could possibly be seen in one of the woodland area surveys.

EPA 14 –Table 4-20 lists all of the riparian and monsoon habitat patches identified during the field surveys that would be impacted by construction of the proposed BGP. There are other areas of riparian vegetation (i.e. at the Daly River and Tom Turners Creek) that were not listed in this table due to the fact that these areas would be Horizontally Direct Drilled (HDD), and therefore not impacted upon. The inclusion of Green Ant Creek in this table was incorrect as it is one of the areas that will be traversed by HDD. Table 4-20 has therefore been amended to remove Green Ant Creek.

Table 4-20: Riparian and Monsoon Vine Forest Elements

KP	Location	Description
KP12	Sandfly Creek	Limited riparian vegetation on upper reaches
KP78 and KP84	Moyle River	Three small patches of riparian vegetation along tributaries
KP151	Small creek	Small patch of riparian vegetation
KP186, and KP209	Limestone karst	Two patches of monsoon vine thicket vegetation elements
KP254	Two small creeks	Relatively narrow riparian zone

EPA 15 – The importance of this issue is acknowledged, and it should have been expanded upon further within the PER. As it is highly unlikely that there will be down-gradient impacts from the pipeline construction on the extremities of the Moyle Floodplain and Hyland Bay wetland, specific and separate monitoring was not considered necessary although a monitoring program and commitments are provided in the Draft CEMP and the Commitments in the PER. The lack of down-gradient impacts is primarily due to the fact that:

- all works will be conducted during the dry season;
- the alignment was chosen to avoid permanent floodplain wetlands; and
- though they are not likely to be in flow; all precautions will be taken to minimise impact at Anopheles and Chalanyi Creeks (refer CEMP, Appendix B).

As it stands, there are several potential access routes to the corridor coming in from the north (the wetland system is to the south), however these are only 'potential', and may not be used.

MAGNT 03 – The Guidelines to the PER did not require invertebrates to be assessed specifically. The NT Fauna Atlas was searched and data obtained on all species, including threatened species. No invertebrates were identified in the data supplied, so the Project assumed that there were no threatened invertebrates within the survey area. The *Parks & Wildlife Conservation Act* under section 43 protects animals in parks and reserves, and vertebrates outside parks and reserves, so it was assumed that invertebrates generally had no specific protection, although some are listed as Threatened (as recorded at

http://www.nt.gov.au/nreta/wildlife/animals/animalsnt/pdf/inverts.pdf on the NT Government website) and are therefore protected by Territory Wildlife Regulations 2004.

It is not feasible to survey 285km of pipeline route for vertebrates, and the fauna surveys were targeted at the species which held conservation status under either the *TPWC Act* or the *EPBC Act*. The Daly River traverse is planned to be by HDD, so the freshwater mussel is not likely to be affected at all.

NRETA 08 - Noted.

NRETA 09 – Noted. The Draft CEMP addresses these issues.

NRETA 10 – Noted.

NRETA 11 – Noted.

NRETA 15 – Noted, it should have been emphasised within the PER that *Cycas armstrongii* was not sighted at all throughout the thorough field surveys of the proposed BGP 30m corridor. Although there are 5 records from the NT herbarium database of *Cycas armstrongii* within the BGP region, we are confident from our field results that the only cycad species present within the corridor at the time of survey were *Cycas maconochiei* and *Cycas canalis canalis.* During the clear-and-grade operation of the construction, an environmental scientist will identify any *Cycas* species and have them removed for the horticulture trade. The Draft CEMP will be amended to reflect this commitment.

4.4.2. Potential impacts

	Comments from submissions
EPA 08 Comments	**Ecology** There is the potential for stock to fall in the open trench and this will need to be managed in conjunction with landholders. The proponent has indicated that the trench will be opened for up to 70km at any one time. What is the likelihood that the wildlife teams will be able to check the full length of the trench each day?
MAGNT 01 Comments	… This PER, from a terrestrial fauna perspective, appears to address all major issues that may have an impact on biological communities and provides proposed mitigating /preventative measures. The magnitude of the project indicates that adverse impacts will be significant. For example, the pipeline will affect fauna by dividing the home ranges of large species and will disrupt community structures by dividing populations of smaller taxa. Over time, these impacts will be mitigated, to a large extent, by fauna being able to transverse the pipeline corridor as it re-vegetates. The major habitats/landforms to be affected by the pipeline corridor are widespread through the region, indicating that the overall impact will not cause critical conservation issues. The main impact on terrestrial fauna will result from the open pipeline trench. The proposed preventative measures (leaving the trench open only for a minimum period, placement of escape ramps and temporary refuges at regular intervals along the trench and daily inspection of the trench by qualified wildlife handlers) should reduce this impact.
NRETA 16 Comments	**Biodiversity Comment** Appendix B, the "Draft Construction Environmental Management Plan" outlines control measures for identified disturbances. Potential impacts on biodiversity have been outlined in the Public Environmental Report Appendix E "Flora and Fauna Studies and Ecological Field Survey Results".

	Comments from submissions
	Adequate assessment of potential impacts of the proposal is made difficult due to the lack of detail provided. The proposed route is shown on a single A4 sized map (effectively at a scale of 1:10,000,000). Even if accurately scaled down, the width of a line indicating the pipeline route is equivalent to a 500m wide corridor. The "desktop" assessments that were carried out presumably used a GIS platform and this basic information (a GIS shape file showing the proposed route of the pipeline) should be readily available and should have been provided to reviewing authorities. This information was called for in earlier comments on the project.
NRETA 20 Comments	**Biodiversity Comment** Previous experience has demonstrated that during construction of similar pipelines large numbers of fauna can be trapped in the open trench. This has been recognised by the proponents and appropriate measures adopted. Species trapped in the trench can include many that may be poorly detected using routine fauna survey techniques. Accurate recording of these species would a valuable adjunct to records from standard fauna surveys in the area. The proponents have undertaken (e.g. in the CEMP) to provide information on "numbers and varieties" of animals to the NT Museum and the Parks and Wildlife Service (Biodiversity Conservation Division). Trapped animals should be identified to the species level and logged using a GPS. Identification of species should be undertaken by competent biologists with required approvals. Only a representative sample (rather than all) live species unable to be identified in the field should be retained as voucher specimens.
TRC 01 (Thamarrurr Regional Council) Comments	There are some potentially valuable timbers (Eucalyptus tetrodonta and Eucalyptus chlorostachys) cycads and orchids (Cycas maconochiei and Cymbidium canaliculatum and dendrobium ssp) that under the current plans will be cleared and then left to rot. We would like to see APT follow the lead of ENI and ensure that economically valuable products are salvaged using local contractors based in Wadeye. This ensures valuable resources are not wasted and local employment is sought – a key policy of both Territory and Federal Governments. We are working hard to develop small businesses based on local resources and expect large companies working in the Region to assist where possible.
ECNT 02 Comments	The Environment Centre of the Northern Territory (ECNT) is concerned about the cumulative impacts of 'development' in the Daly region. *Ad hoc* and piecemeal decisions and a lack of comprehensive, ecosystem-based planning have already resulted in the degradation of significant areas of the Daly catchment. A regional assessment is required to fully assess existing impacts and sustainable options before further development occurs.
ECNT 05 Comments	Weeds, cane toads, crazy ants and other invasive species MUST NOT be allowed to spread as a result of this project.
ECNT 06 Comments	Wildlife falling into pits must be avoided to the greatest extent possible.
ECNT 16 Comments	Impact from land clearing o How will additional, as yet unspecified sites be assessed for impact? o Every attempt should be made to minimise land clearing.
NLC 03 Comments	Such "additional infrastructure or clearing found to be necessary", given the requirement for all associated processes to be undertaken, will delay the start date until such time as all necessary processes have been completed. Such "additional infrastructure and clearing" would necessarily require a separate or separate agreement(s) with the land trust and native title holders.
ECNT 18 Comments	Lack of baseline studies is a Territory-wide problem that could lead to unforeseen impacts on sensitive species and eco-systems, particularly in relation to rivers and other water bodies
ECNT 19 Comments	Threatened species

	Comments from submissions
	Open trench length needs to be reduced to reduce impacts on fauna
DEWR 04 Comments	Page 116 of the PER states that: *'Given that this threshold (30%) will not be approached at any location in the Project area, and given the widespread availability of the habitats found within the pipeline corridor, it is considered unlikely that populations of local fauna will be significantly impacted '* More evidence should be provided to support this assertion. We suggest that maps be provided for each of the EPBC listed species (or at least those with the most restricted distribution) in the project area, that show the amount of habitat along the pipeline proposed to be cleared and the amount of available habitat nearby.

EPA 08; NRETA 20 – Noted, and agreed that the potential impacts on fauna which enter the trench need special protection and management. See also the response at section 1.4.9 which refers to a protocol for management of trench fauna.

MAGNT 01 – Noted.

NRETA 16 – The EPA was made aware of the existence and availability of GIS information and their ability to access it, and at each meeting with NT Govt individuals and the Environment Assessment Forum this option was offered. One Government Department (Weeds Branch) and one community group (AFANT) made direct inquiries as to accessing GIS data or maps of a scale that showed greater detail. All such requests were positively received and requested information provided. The NLC had very detailed maps of the route, and during field surveys, 32 maps of the route overlaying the satellite coverage at a very good scale were provided to NLC and other participants. These maps were also made available at community meetings, and left with some groups (e.g. Nauiyu & Daly River community). Contrary to the statement that this information was called for earlier in the Project, we know of no request for the data which was not fulfilled, and would have been happy to provide them.

The Project is happy to provide these maps at a very good scale upon request.

TRC 01 – APT would like more details as to the areas concerned, the capacity of the local resources to do the work and the timing of when it could occur. TRC are recommended to register with the NTICN as APT has registered the Project with this network. APT would also welcome further details being lodged directly to the project office in Darwin (see also the response in 4.4.1 above to NRETA 15).

ECNT 02 – Noted, but outside of the scope of this Project.

ECNT 05 – Noted; the Weed Management Plan has been developed to control the spread of invasive species (refer CEMP Appendix B). Weed washdown bays will be constructed and monitored in consultation with NRETA (PER page 124, and Figure 1-2). Figure 1-2 can be seen in Supplement Appendix 3 Introduced flora and weeds map with NTG proposed washdown facilities. Further management measures to prevent the spread of invasive species are listed within the PER, page 125:

> "*All equipment and material introduced to the work area from outside the region will be screened for invasive fauna species before entering the region. Particular attention will be paid to vehicles coming from interstate to prevent the introduction of pest species (e.g.*

Yellow Crazy Ants from Queensland). Workers are not permitted to introduce pets or other animals to the camps or worksites".

ECNT 06 – Acknowledged, however it is difficult on a moving linear project to prevent wildlife falling into the trench. The mitigation efforts are concentrated on protecting the fauna that does fall into the trench, and then to removing and releasing those animals as soon as practically possible. Text from the PER (page 124 and 125) that outlines these mitigation efforts follows:

"*Construction activities will be confined to the dry season when the activity levels of reptiles are lower due to the cooler weather. This will reduce the numbers of reptiles falling into the trench. Construction activities will also be planned so that the excavated trench will be open for the minimum amount of time necessary to lay the pipeline, although this could still be up to 5 weeks in some instances.*

Fatalities of animals that fall into the trench will be minimised by installing temporary refuges or escape routes at regular intervals (e.g. escape ramps every 500m and damp sawdust filled hessian bags every 250m laid so as to create a shelter) and other devices according to conditions.

Wildlife handlers will be available on-site to inspect the trench daily from sunrise, paying particular attention to areas where work is being done on the pipeline; such as where the pipe is being laid into the trench and where it is being welded. The wildlife handlers will remove wildlife from the trenches, identify, record data, and release the captures into nearby vegetated areas. All wildlife handlers will be legally permitted, trained in appropriate handling protocols, and will possess the necessary Personal Protection Equipment (PPE) for handling a wide variety of animals. All wildlife data will be given to the PWSNT, and any dead animals found will be preserved and submitted as voucher specimens to the Museum and Art Gallery of the Northern Territory (MAGNT). Animals that are unable to be identified in the field will be taken as voucher specimens and also lodged with MAGNT for identification.

Workers on the alignment will have constant radio contact (via the construction radio system) with the wildlife handlers, who will be available at all times to attend to fauna issues associated with the trench. The animal handlers are also licensed to euthanize badly injured fauna that are found within the trench. Animal handlers will follow The Australian National Health and Medical Research Council's Australian Code of Practice for the Care and Use of Animals for Scientific Purposes (2004) when dealing with injured fauna. Issues arising with stock will involve the landowner as the first point of contact."

ECNT 16; NLC 03 - The surveys of the pipeline route during 2006 identified what were considered to be most of the sites to be cleared. If any other sites are required to be cleared, they will be very minimal, and will be subject to negotiation with and approval from the Northern Territory Government and the respective landholders inclusive of the Northern Land Council.

ECNT 18 – Noted, and discussed previously.

ECNT 19 – See 1.4.9 and 2.2.15 above.

DEWR 04 – The vegetation along the pipeline route has been mapped and analysed and shown in Supplemt Appendix 4: Figure 1-8 Flora & Fauna Supplement Map. The tables in the figure show

the actual areas within the vicinity of the pipeline and the areas of each vegetation type which will be cleared. The following table shows the percentage of each vegetation type to be cleared.

Table Supplement 1: Percentage of each Vegetation to be Cleared.

Mapped vegetation type (from Savanna Vegetation map)	Area of Vegetation within 5km of either side of centreline (10km wide survey area) (ha)	Area of Vegetation within 15m of centreline (30m corridor) (ha)	Percentage of each to be cleared
Mangrove	1008.4	0.0	0.0
Melaleuca viridiflora, Eucalyptus spp. low open-woodland with Chrysopogon fallax and/or Sorghum spp. grassland understorey.	35359.7	117.8	0.3
Eucalyptus tectifica +/- Corymbia foelscheana +/- Corymbia latifolia woodland with Sorghum spp., Sehima nervosum grassy understorey	220161.8	703.8	0.3
Eucalyptus tetrodonta, Eucalyptus miniata +/- Corymbia bleeseri woodland with Sorghum spp., Triodia spp. grassland understorey.	10709.2	7.6	0.1
Eucalyptus tintinnans low woodland with Sorghum spp. grassland understorey.	8265.6	26.8	0.3
Corymbia dichromophloia, Eucalyptus miniata +/- Eucalyptus tetrodonta open woodland with Triodia bitextura hummock grass understorey or Triodia spp. hummock grassland	4257.8	0.0	0.0

None of the mapped vegetation will lose more than 0.3% of the available area within 10km of the corridor. The threshold of 30% will not be reached.

4.4.3. Management

	Comments from submissions
DPIFM 04 Comments	What are the water requirements for the weed wash down bays?
MAGNT 08 Comments	One or more post-construction resurveys/eradication programs are needed for weeds.
NRETA 12 Comments	**Weeds Comment** Management strategies aimed at preventing the further spread of weeds (as outlined in the CEMP) are comprehensive and thorough. The formulation of a specific weed management plan prior to the beginning of clearing works (as recommended by EcOz) is supported. The weed management plan should be appended to a supplementary PER. The Department recommends the placement of washdown facilities at the following points: E: 594425 N: 8410584E: 610971 N: 8418373, E: 637291 N: 8442155, E: 643854 N:8447714 in order to prevent the spread of mimosa from known sites. The owner and occupier of land must – (a) take all reasonable measures to prevent the land being infested with a declared weed; (b) take all reasonable measures to prevent a declared weed or potential weed on the land spreading to other land.
NRETA 21 Comments	**Biodiversity Comment** Management strategies aimed at preventing uncontrolled fires also appear to be adequate. While noting the presence of cane toads along the construction corridor, there are no management strategies that consider minimising the further spread or proliferation of cane toads in the project area. The draft CEMP should be finalised and included in a supplementary PER following further investigations (eg: biological and geotechnical) planned for the 2007 dry season.
NLC 34 Comments Weed Species	The location of proposed wash-down facilities on land trust land has yet to be determined.

	Comments from submissions
TRC 02 Comments	There is also high demand for fire wood during the dry season June – Sept. There are opportunities to strategically stack usable logs from the pipeline corridor to be collected and distributed to the community by local contractors. Once again we are trying to minimize wastage and maximize benefits to the local community.
ECNT 01 Comments	The Daly is an extremely important catchment for a host of ecological, cultural, social and economic reasons and any significant disturbance of this region should be treated with the greatest caution
ECNT 17 Comments	Rehabilitation o Requires timeline for revegetation. o Needs ongoing monitoring until revegetation is self-sustaining.
DEWR 06 Comments	Page 124 of the PER discusses how potential impacts have been minimised by avoidance. We suggest this is further demonstrated through maps that show environmentally sensitive areas that have been avoided.
DEWR 07 Comments	Page 124 of the PER mentions blasting activities. The impacts of blasting activities and mitigation measures to manage the impacts should be addressed in more detail. Some of the issues that need to be addressed are, for example, where blasting will occur and if it will occur during the breeding season of any EPBC listed species potentially present, and if so, what are the impacts and how will these be mitigated.
DEWR 08 Comments	Page **125** mentions that wildlife data will be given to the PWSNT. We would also appreciate the data being provided to the Department of the Environment and Water Resources.
NLC 35 Comments	The proposed 'open cut' crossing for the Moyle River appears more of a determination based on cost rather than total impact to the environment. Traditional owners have advised that the Moyle crossing shall be directionally drilled.
NLC 36 Comments	We have been made aware of the potential use of oxygen scavengers and biocides for hydrostatic testing of the pipe. We are not advised of other likely chemicals that are to be used with the project. A full list of chemicals and risk analysis for each chemical to be used should be provided, and mitigation measures drawn up to ensure that residues from dry season irrigation or storage of chemically contaminated waters are not remobilized by wet season water flows.

DPIFM 04 – Water requirements for weed washdown have not been calculated, but are expected to be only moderate. Washdown will likely require a tanker with a high pressure hose. Washdown is addressed in the Draft CEMP.

MAGNT 08 – This is addressed in the CEMP. Section 11.2 Weeds of the CEMP under Monitoring, Reporting and Corrective actions states;

> *"Ongoing monitoring will be undertaken for a period of up to 2 years after construction is completed to assess the success of weed control activities."*

NRETA 12; NLC 34 – The weed management plan is a component of the CEMP, and is being continuously updated and upgraded as relevant information appears. The locations of weeds were determined in the field by ecologists during field surveys. Locations of washdown points will, of necessity, be determined by the locations of weed infestations.

These points provided by NRETA 12 have been mapped onto the designated washdown facility locations and appropriate facilities will be installed.

NRETA 21 – All machinery, vehicles, equipment and Project facilities will be managed so as not to harbour or promote the breeding of cane toads. The CEMP at both 12.3 Biting Insect Management and 11.2 Weed Management address inspections and washdown requirements, which should pick up cane toads which hitch a ride. Weed washdown facilities will provide a point for thorough inspections of Project machinery and cane toad awareness will be promoted at these sites.

The reinstatement of the corridor will be completed in a manner that aims to avoid leaving hollows and areas where water can pond and provide breeding habitat for Cane Toads.

TRC 02 – APT are willing to consider carefully planned and presented strategies to support local industries. However safety and welfare of all workers and the public must be taken into account as the area will be a construction site with large plant and equipment in operation. In addition, any activities must not interfere with the success of reinstatement/rehabilitation activities.

ECNT 01 – Noted, and serious attention has been paid in the assessment process and in the Draft CEMP to this important issue.

ECNT 17 – Section 10.8 of the CEMP; Clean up and reinstatement states:

"Any sites not displaying stability (after 12 months) and natural revegetation (after 24 months), will undergo rehabilitation using a method approved by the relevant authority."

DEWR 06 – Maps showing the sensitive sites, waterholes, wetlands and lakes which have been avoided are provided in Supplement Appendix 6.

DEWR 07 - Blasting is only used in areas where the rock is extremely hard and other methods such as rock saws or hydraulic hammers with excavators are inadequate.

Modern blasting techniques for rock excavation of pipeline trench should not be associated with traditional movie-style vision of a tremendous explosion of rock and dust. Blast pattern design, timing, charge per hole, and selection of the blasting chemical are all tailored to direct most of the blast energy in a controlled and efficient manner into the rock being excavated, not into the air above.

DEWR 08 – Duly noted. Wildlife data will be handed to the PWSNT, and will also be handed to DEWR, at the end of construction.

NLC 35 – This is not correct. Site assessment of the type of crossing was carried out by ecologists, in consultation with Traditional Owners and pipeline engineers, and the NLC was present. The main factors considered were environmental, cultural and physical, and it was considered that there would be less impact from trenching the river at this point rather than HDD which would have taken up larger areas of country on the banks to accommodate the drill platform and rig, and the pipe laydown for hauling back through the drilled hole. The stony nature of the ground at this crossing site ensures successful reinstatement without leaving a long term visual impact on the landscape.

NLC 36 - This is covered by a number of pieces of legislation. A chemical inventory will be required prior to and during construction in line with dangerous goods legislation, waste management and pollution control legislation, Petroleum (OHS) regs, Radiation Safety Control legislation, and Agricultural and Veterinary Chemicals (Control of Use) Act.

4.5. Biting Insects

4.5.1. Baseline

	Comments from submissions
MEB 01 Comments	The mangrove biting midge *Culicoides ornatus* will only affect areas of the gas pipeline within 3.5km of tidal mangrove areas, with highest numbers within 2km of tidal mangrove areas; therefore will only affect the western edge of the pipeline corridor. The remainder of the BGP corridor is likely to only experience periodically minor pest problems, from other biting midge species.
MEB 02 Comments	There have been recent name changes to one mosquito genera. *Ochlerotatus vigilax* and *Ochlerotatus normanensis* are now known as *Aedes vigilax* and *Aedes normanensis.* The *Anopheles* species mentioned in this paragraph are not vectors of human disease in Australia, but are potential vectors of malaria. *Aedes* (formerly *Ochlerotatus*) *vigilax* is not a known vector of Murray Valley encephalitis virus. It should be mentioned that the highest abundance of *Aedes vigilax* will occur during September to January inclusive, and the highest abundance of *Aedes normanensis* will occur during January to April inclusive.
MEB 03 Comments	The risk of construction workers contracting dengue fever will only arise if *Aedes aegypti* is introduced into the construction camps from North Queensland, and a person infected with dengue (from overseas or North Queensland) is bitten by the introduced *Aedes aegypti* mosquitoes at the construction camps, thereby infecting the mosquitoes. Although it is mentioned that construction will conducted outside peak risk months for mosquito borne disease transmission, transmission of Ross River virus and Barmah Forest virus can occur during most months of the year, while Murray Valley encephalitis virus transmission has occurred as late as July, so it is advisable to educate workers to prevent being bitten by mosquitoes irrespective of the month of the year.
MEB 05 Comments	It should be noted that the biting insect assessment for the Trans Territory Pipeline Project (Warchot & Whelan 2004) was only a desktop assessment; therefore the information from this report can not be considered as baseline, as biting insect trapping for a period of 12-months was not conducted.
MEB 06 Comments	*Culicoides ornatus, Culicoides marksi, Culicoides austropalpalis* and *Culicoides actoni* adults were trapped at the coast near the proposed Blacktip Gas Plant, therefore the KP (approximate) field in this table should be updated to show this. Based on data from previous MEB trapping in the Top End of the NT, *Culicoides austropalpalis* and *C. actoni* are also likely to be found along the entire pipeline route, the table should be updated to show this. Both species are not known to be human pests in Australia.
MEB 07 Comments	There are two spelling errors in paragraph 1. *Cules annulirostris* should be spelt *Culex annulirostris,* while *Coquillettidia zanthogaster* should be spelt *Coquillettidia xanthogaster.* *Anopheles farauti s.l.* is correctly abbreviated as *An. Farauti s.l.* In the paragraph titled *Arboviruses,* it is mentioned that there is a potential that the dengue mosquito *Aedes aegypti* is present in the BGP region. *Aedes aegypti* is only likely to be present in areas of human habitation and within 200m of human habitation, which excludes most of the BGP. It is also probable that the

	Comments from submissions
	communities along the BGP pipeline route do not have *Ae. Aegypti* mosquitoes, as traffic movement to these communities from North Queensland are likely to be minimal. The greatest risk of exposure to this mosquito will arise if *Ae. Aegypti* is brought into communities and construction camps along the BGP route, as eggs in artificial receptacles and equipment sourced from North Queensland.
MEB 08 Comments	All mosquito species mentioned in this table, with the exception of *Aedes normanensis*, are likely to be present along the entire pipeline route, the table should be changed to reflect this. *Aedes normanensis* is likely to be most prevalent from about KP 40-285. For the pest status of *Aedes* (formerly *Ochlerotatus*) *vigilax*, the wording should be modified to say that the species will bite day and night, with major pest problems within 5km of tidal breeding sites, and pest problems up to 60km from tidal breeding sites. *Anopheles farauti* and *Anopheles annulipes* are correctly known as *Anopheles farauti s.l.* and *Anopheles annulipes s.l.*
MEB 09 Comments	Paragraph 1; Moderate biting midge problems are only likely to be encountered within 2km of tidal mangrove areas. The remainder of the BGP corridor will only experience periodically minor pest problems, from biting midges that breed in freshwater areas. Paragraph 2; It should be mentioned that *Aedes vigilax* will also pose a potential risk to all areas of the pipeline route within 60km of tidal areas, due to the long dispersal range of this species. Although it is mentioned that construction will conducted outside peak risk months for mosquito borne disease transmission, transmission of Ross River virus and Barmah Forest virus can occur in most months of the year, while Murray Valley encephalitis virus transmission has occurred as late as July, so it is advisable to educate workers to prevent being bitten by mosquitoes irrespective of the month of the year. *Aedes aegypti* is correctly abbreviated as *Ae. Aegypti.* It should be noted that the dengue mosquito *Aedes aegypti* has been eradicated from Tennant Creek. Paragraph 4; A discussion on the biting midge species *Culicoides marksi* has been placed in the same paragraph as mosquitoes. This may confuse some readers, it is more appropriate to mention *Culicoides marksi* in the same paragraph that mentions the biting midge species *Culicoides ornatus. Lasiohelia sp.* Is a biting midge, not a mosquito, so should be mentioned with *Culicoides ornatus* and *Culicoides marksi.*
MEB 10 Comments	Sewage systems and wastewater treatment facilities should also be designed and operated in accordance with the MEB guideline 'The prevention of mosquito breeding in sewage treatment facilities', and the Environmental Health Guideline 'Code of Practice for Small On-site Sewage and Sullage Treatment Systems and the Disposal or Reuse of Sewage Effluent'. Machinery items and other equipment sourced from North Queensland that have previously held water should also be treated with a chlorine solution (10%), to kill any mosquito eggs that may be present. As *Aedes aegypti* has been eradicated from Tennant Creek, artificial receptacles and other items sourced from Tennant Creek do not need to be treated with a chlorine solution. Bifenthrin should also be used to control mosquitoes around the construction camps when necessary. Bifenthrin products may not be registered for clothing impregnation in Australia; therefore permethrin will be the insecticide of choice if clothing impregnation is warranted. Appropriate screening of accommodation facilities and personnel areas such as mess and ablution facilities should also be implemented to reduce the impact of biting insects on the workforce.

MEB 01; 02; 03; 05; 08; 09; 10 - All matters raised by the MEB are noted and relevant changes to biting insect management have been incorporated into the CEMP. Tables 4-22 (following) and 4-23 (see next page) have also been amended as shown.

MEB 06 – Table 4-22 updated.

Table 4-22: Biting Midge Presence and Potential Abundance in the Project Area

KP (approximate)	Species	Seasonal Prevalence	Potential Abundance
0-20	*Culicoides ornatus*	The major human pest species within 3.5km of mangroves. High localised populations all year round, with maximum numbers occurring in August to November and minimum numbers in the wet season.	Dominant
0-26	*Culicoides species No. 6*	Rarely bites humans. A major species near extensive areas of mangroves at Wadeye tidal area. High numbers in the late dry season and early wet season, and low populations in the post wet season.	Possible
13-20	*C. papuensis*	Breeds in similar areas to *C. Ornatus* and is likely to be near Wadeye. Not a human pest species.	Possible
0-285	*C. actoni*	Wadeye. Not a major pest.	NA
0-285	*C. austropalpalis*	Wadeye, and likely to be present in some other areas.	Possible
0-285	*Culicoides clavipalpis*	Unknown	Possible
0-20	*C. marksi*	A major species in sub-coastal and inland areas, with only low populations at the coast. Low populations in the late dry season and moderate populations in the early wet and post wet to mid dry seasons. Near freshwater lakes and streams. Can be a minor human pest species.	Possible near freshwater lakes
0-285	*Lasiohelia sp.*	Minor pest. Damp, surface-terrestrial environments and rainforest through to open grassland.	Possible
0-285	*Culicoides species No. 42*	A minor species. Peak numbers in mid wet season.	Possible
55-222	*C. pallidothorax*	Near freshwater areas. A minor pest species. Peak populations during the early to mid wet season.	Possible
13-20	*C. flumineus*	An important pest species with high numbers inside mangroves only. Peaks in late dry season, early wet season.	Likely
13-20	*C. undescribed sp.* (near *C. immaculatus*)	A serious pest in lower reaches of mangrove creeks.	Likely
0-10	*C. immaculatus*	A minor to rare species near rock-sand or sandy beaches only. Peak numbers in mid to late dry and early wet season.	Possible
0-10	*Styloconops*	Open sandy beaches in small numbers biting and swarming around the head on open sandy beaches during the day.	Possible

Source: Adapted from: Whelan et al. 2004; Dyce & Wellings 1998; Shivas 1999

Table 4-23: Mosquito Pest Species

KP (approximate)	Species / Common Name	Habitat Description	Flight Range & Pest Status	Peak Period	Pest Status	Vector (disease carrier) status
0-285	*Aedes vigilax* (Salt Marsh Mosquito)	Brackish reed swamps, upper mangrove margins and tidal creek extremities	0-5km major pest 5-50km pest numbers 50-over 200km dispersal	September-January 9-10 days after peak tides; pests up to two weeks	Major pest, bites day or night within 5km of breeding sites. Plagues associated with high tides in late dry season, early wet season.	Major vector of Ross River (RRV) and Barmah Forest virus (BFV) and dog heartworm. Potential vector of many other arboviruses.
40-285	*Aedes normanensis* (Floodwater Mosquito)	Flooded freshwater sub-coastal or inland floodways and creeks.	0-2km major pest 2-5km pest numbers.	January-April; 9-10 days after extensive rainfall, pests up to two weeks	Major pest, bites in evening and night within 3km of breeding sites. Plagues in inland areas a week after widespread flooding rains in wet season.	Major vector of RRV and BFV. Potential vector of Murray Valley encephalitis (MVEV). Potential vector of many other arboviruses.
0-285	*Culex annulirostris* (Common Banded Mosquito)	Freshwater and coastal reed swamps. Streams, storm drains and sewage effluents.	0-3km major pest 2-10km pest numbers 10-15km dispersal	January to August	Major pest, very common and widespread in both urban and rural areas. Bites mainly in evening and at night.	The most important arbovirus vector of MVEV, Kunjin virus, RRV and BFV, and dog heart worm. Vector of numerous other arboviruses.
0-285	*Anopheles bancroftii* (Black Malaria Mosquito)	Freshwater, *Melaleuca* and coastal reed swamps. Shaded streams and swamps.	0-3km major pest 3-5km pest numbers	February-July, highest numbers April-July	Major pest, widespread, bites anytime near breeding site, nightly or shaded areas elsewhere.	Potential malaria vector.

KP (approximate)	Species / Common Name	Habitat Description	Flight Range & Pest Status	Peak Period	Pest Status	Vector (disease carrier) status
0-285	*Coquillettidia xanthogaster* (Golden Mosquito)	Freshwater swamps with reeds, and vegetated streams.	0-3km major pest 3-5km pest numbers	March-August	Major localised pest near extensive reed swamps. Disperses widely and bites at dusk and night, or in dense shade in day. Attracted to lights.	No diseases. Filariasis in Frill Neck Lizard.
0-285	*Anopheles farauti s.l.* (Australian Malaria Mosquito)	Coastal and brackish reed swamps. Freshwater swamps and vegetated streams.	0-1.5km minor pest 1.5-3km dispersal	March-June	Local minor to moderate pest, bites at night. Uncommon, except near mostly sub-coastal and extensive freshwater or brackish swamps.	Major potential vector of malaria.
0-285	*Anopheles annulipes s.l.* (Australian Anopheles Mosquito)	Freshwater streams and vegetated swamps.	Up to 2km from breeding site	Wet season and post wet season	Widespread pest, bites at night and will enter houses.	Powerful malaria vector.
50-285	*Mansonia uniformis* (Waterlily Mosquito)	Extensive freshwater reed swamps.	0-2km major pest 2-3km dispersal	March-June	Localised pest, bites at night near the breeding site. Attracted to lights, does not disperse far from breeding sites.	No diseases.

MEB 07 – The spelling errors in paragraph 1 of the mosquito species and sources are acknowledge along with the correct abbreviation of *Anopheles farauti s.l.*

4.5.2. Potential impacts

	Comments from submissions
MEB 03 Comments	The risk of construction workers contracting dengue fever will only arise if *Aedes aegypti* is introduced into the construction camps from North Queensland, and a person infected with dengue (from overseas or North Queensland) is bitten by the introduced *Aedes aegypti* mosquitoes at the construction camps, thereby infecting the mosquitoes. Although it is mentioned that construction will conducted outside peak risk months for mosquito borne disease transmission, transmission of Ross River virus and Barmah Forest virus can occur during most months of the year, while Murray Valley encephalitis virus transmission has occurred as late as July, so it is advisable to educate workers to prevent being bitten by mosquitoes irrespective of the month of the year.

MEB 03 – Noted.

4.5.3. Management

	Comments from submissions
MEB 04 Comments	It is mentioned that bifenthrin will be used to impregnate personnel clothing if serious biting insect problems are encountered. Bifenthrin products may not be registered for clothing impregnation in Australia; therefore permethrin will be the insecticide of choice if clothing impregnation is warranted.

MEB 04 – The CEMP has been amended accordingly.

4.6. Air Quality and Noise

4.6.1. Baseline

4.6.2. Potential impacts

4.6.3. Management

	Comments from submissions
DHCS 02 Comments	What mechanisms will be made available to the community to lodge complaints about dust emissions and noise and how would these be monitored & assessed by the proponent?

DHCS 02 - Section 9.3 of the CEMP states;

Complaints Register

The Construction Contractor will be required to report and record any complaints from the public or specific Project stakeholders to the Manager Land Access. The Manager Land Access will record any complaints received from the Construction Contractor or from the public or specific Project stakeholders and enter these on the BGP Complaints Register in accordance with the Complaints Management Procedure. Project Manager APT and Project Manager Constructor shall review each complaint upon receipt and agree how the complaint will be addressed. Corrective actions and other recommendations including, where applicable, modifications to practices and procedures

shall be made and closed out under the direction of the Project Manager APT and the Project Manager Constructor.

Details about the way that the public can register their complaints will be issued prior to the commencement of works. The Manager Land Access will have staff in the field who will maintain contact with all directly affected landowners. Other members of the public can contact the Project via the website and information stating this and other options will be posted at relevant locations including;

- Daly River Hotel and Naiyu Council
- Wadeye, Peppimenarti and Palumpa Councils
- Tipperary and Ban Ban Springs Stations and
- Adelaide River Township.

4.7. Waste Management

4.7.1. Baseline

	Comments from submissions
MEB 10 Comments	Sewage systems and wastewater treatment facilities should also be designed and operated in accordance with the MEB guideline 'The prevention of mosquito breeding in sewage treatment facilities', and the Environmental Health Guideline 'Code of Practice for Small On-site Sewage and Sullage Treatment Systems and the Disposal or Reuse of Sewage Effluent'.
EPA 17 Comments	**Waste Management** Insufficient detail is provided about types and volumes of wastes to be used on the project. The proponent should by now have a detailed understanding of what procurement is undertaken for these projects and be able to manage procurement to have the least environmental impact.

MEB 10 – Noted and will comply, as stated previously and in the PER. The CEMP has been updated to incorporate this information.

EPA 17 – The Project will generate some wastes. The estimates provided were based on experience of bulk volumes from other like projects, and APT are uncertain how this could be improved upon prior to the construction phase. The Project will procure materials which come complete with packing materials and containers, and will dispose of those in a responsible manner. The Construction Contractor will be approached to consider minimising packaging where this is possible. The Project will recycle wastes where possible, and this was addressed in this chapter. See also section 4.7.3 below.

4.7.2. Potential impacts

	Comments from submissions
EPA 16 Comments	**Waste Management** Section 2 – Welding, inspection and joint coating. Weld is tested and grit blasted (garnet?), and an external coating is applied (epoxy?). What are the possible impacts of these materials locally and what are the management measures for this operation?
DHCS 03 Comments	Use of local landfills is proposed for waste disposal. The community council responsible for each landfill must be contacted for permission prior to any disposal taking place.
NLC 37 Comments	The characterisation of waste generated by 250 persons as 'moderate' is inappropriate in the context of the potential impact of the proposal to dispose

	Comments from submissions
	of the waste generated by impacting on the disposal facilities of communities. How much waste does Peppimenarti or Palumpa generate in comparison to the 250 BGP personnel? A comparative analysis of the actual capacity of 'the few communities' to actually manage such large increase in waste generated would have been more instructive as would information as to the approaches made to communities with respect to any proposition that their disposal facilities might manage BGP waste. On Land Trust lands waste management needs to be undertaken in accordance with agreements with landholders and communities.

EPA 16 - Materials such as garnet are used for grit blasting the weld margin area prior to coating. Garnet grit is a mineral abrasive produced from naturally occurring garnet; it is free of heavy metals or toxic components. Garnet is preferred as an abrasive blasting medium as it minimises health risks to personnel conducting the blasting activities. Because the pipeline construction is linear, and weld joints are 18m apart, the impact and amount of residual materiasl is minimal.

A variety of materials may be selected for coating the weld margins and all are variations on liquid-applied materials which cure and adhere strongly to the metal of the pipe surface. Application techniques which prevent or minimise any spillage onto the ground are implemented, and cure time is usually rapid so as to allow the pipe to be lowered in without delay. Joint coating materials are chemicals which must be handled in accordance with the usual precautions from both an environmental and occupational health perspective, much like any paint-type material in industry. Transport and storage of the materials must be in accordance with applicable regulations.

DHCS 04 – Noted.

NLC 37 – Wastes were addressed in the PER in this section and the following section. It is intended to segregate and recycle wastes as much as possible, to minimise wastes. Pine Creek and Thamarrurr Local Government Councils and the Department of Health and Community Services were approached to determine initially which landfills in the region of the corridor were licensed and capable of and willing to receive putrescible wastes. Subject to this information and subject to further negotiations with the various councils who manage the landfills, contracts to collect and receive putrescible wastes may be offered to the councils on a commercial basis. This will not be determined until the Construction Contractor is appointed.

Resolution of the disposal of wastes will not be made until the Construction Contractor is able to negotiate with the various councils and waste disposal companies, so actual quantities will not be known until it is known which operators and which facilities can take which types of wastes.

4.7.3. Management

	Comments from submissions
EPA 18 Comments	Section 4.7.3 – what procurement policy will be in place to ensure that packaging is minimised or is recyclable (particularly with respect to procurement for construction camp products)?
EPA 19 Comments	Minimal capacity exists in 'local facilities' for recycling of waste materials. The principal management strategy for the project should be minimisation of waste. Consideration should be given to the opportunistic transport of recyclables to the major centres such as Katherine or Darwin. With respect to the stationing of wheelie bins around the construction camp offices, will these enable separation of wastes according to waste types e.g. recyclable and non-

	Comments from submissions
	recyclable? It is envisaged that the dedicated site environmental officer would ensure appropriate waste management practices are being implemented.
ECNT 14 Comments	Issues concerning possible contaminants from construction testing and mine camps, including sewerage disposal. There needs to be a monitoring program and a plan for reassessment of selected options during construction, as well as specific remedial actions
ECNT 15 Comments	Contaminant disposal, and monitoring
DHCS 01 Comments	**1.4.6 Waste Management** Effluent disposal systems must comply with the requirements of the *Code of Practice for Small On-site Sewage and Sullage Treatment Systems and the Disposal and Reuse of Sewage Effluent*. The statement that discharge (of sewage effluent) will be by spray irrigation should be reworded to state that "discharge will be to the satisfaction of DHCS after consideration of an application for site specific design approval".
NLC 04 Comments	Provided that no chemical substances are used during drilling, disposal via rehabilitation of a tailings dam would be acceptable.
NLC 05 Comments	If the spray discharge has undergone some form of treatment, is sufficiently remote from high activity areas and discharge is in accordance with the health acts it is unlikely be a concern to traditional owners. Such disposal must be in accordance with the agreement between the proponent and the NLC and traditional owners.

EPA 18 – The Construction Contractor will be approached to source supplies using minimum packaging where possible.

EPA 19 - Segregation of wastes can be carried out if facilities exist for the disposal of the segregated wastes. The Construction Contractor will be required to carry out waste management and recycling where it is feasible and practical to do, for example, if recycling is not carried out locally, it would be wasteful to undertake additional trips (increase greenhouse gas emissions) to and from Darwin to recycle the quantity of recyclables that the Project is likely to produce. The Project has identified a number of companies which can receive and recycle certain types of wastes, but these are limited in the region, and not comprehensive as in other states and regions.

ECNT 14; ECNT 15– These were addressed in some detail in the PER and in the Draft CEMP.

DHCS 01 – Noted – and it was assumed that irrigation would be subject to DHCS conditions.

NLC 04 – The only substance other than water used in drilling is bentonite, a clay material which is benign.

NLC 05 – Noted.

4.8. Fire

4.8.1. Baseline

	Comments from submissions
Bushfires NT 01 Comments	All burning operations must be in accordance with a permit to burn issued under the Bushfires Act in the area north of the Daly River and through to Ban Ban Station.
Bushfires NT 02 Comments	The land user responsible for the pipeline area has a responsibility to control fires in their area, and in the event they cannot control a fire must notify all neighbouring landholders to where the fire may spread and the Regional Fire

	Comments from submissions
	Control Officer.
Bushfires NT 03 Comment (NRETA Comments)	Bushfires NT reminds the proponent that the proposed pipeline falls within the Arafura Bushfire Region which is within a Fire Protection Zone. No burning may take place except when a permit to burn has been obtained
NLC 06 Comments	Management of fire and prescribed burning is addressed only in terms of the Bushfires Council and their regional plans and prescribed burning. I understand that the Agreement with the Land Trust will refer to the need for management in association with the NLC Bushfires officer.

Bushfires NT 01 – Noted. Deliberate lighting of fires will not be allowed by Project team members.

Bushfires NT 02 – As stated in the Draft CEMP, a water truck will be available to spray accidental ignitions.

Bushfires NT 03 – Noted.

NLC 06 – Noted.

4.8.2. Potential impacts

4.8.3. Management

4.9. Greenhouse Gas Emissions Inventory and Benchmarking

4.9.1. Greenhouse Emissions

	Comments from submissions
EPA 20 Comments	**Greenhouse gas emissions** As identified in the PER, greenhouse gas emissions from the proposal are expected to arise from three project phases: construction, commissioning and operations. The construction phase would generate the largest proportion of emissions. *Construction phase* The PER states that construction emissions would amount to 4500 tonnes carbon dioxide equivalent (tCO2-e), generated primarily from diesel fuelled mobile equipment. The PER separately identifies emissions associated with vegetation clearing as a result of construction. The emissions associated with land clearing, due to a loss of sequestration capacity, will initially be much greater than that estimated in the PER. However, it is recognised that the proponent intends revegetating the majority of land cleared, and that permanent emissions as a result of land clearing will be approximately 26 000tCO2-e. Consequently, total emissions resulting from the construction phase will be approximately 30 500tCO2-e. The above figure excludes emissions that will likely arise from the transport of interstate workers to the NT for the project (FIFO) as well as the transport of workers to and from the construction camps when roster changes occur. Consideration of these emissions should be included in the Supplement as they could be considerable relative to the current construction project calculations.

	Comments from submissions
	The proponent has committed to a number of measures to minimise emissions from the construction phase: revegetating land, avoiding the burning of cleared vegetation and in the context of air emissions generally, and vehicle maintenance. These measures are supported.
EPA 22 Comments	Projected greenhouse gas emissions from commissioning (53tCO2-e as a one-off) and operations (31tCO2-e per year) are otherwise minor. The proponent has committed to the use of solar/battery systems to provide power at service sites and minimising venting of gas. Again, these measures are supported.
ECNT 16 Comments	Impact from land clearing o How will additional, as yet unspecified sites be assessed for impact? o Every attempt should be made to minimise land clearing.

EPA 20 - These figures were omitted as the Project will be using commercial flights for the movement of interstate workers. As these already exist it was felt that this was outside the scope of the Project to comment on.

Emissions associated with fuel for ground transport of workers within the NT on roster change have in fact been included already.

EPA 22 – Noted.

ECNT 16 – As stated previously, if there are additional clearing requirements, the Northern Territory Government and landholders will be approached and approval sought through due process.

4.9.2. Greenhouse Sinks

4.9.3. Emissions Benchmarking

	Comments from submissions
EPA 23 Comments	The PER states that the proponent is in discussion with the Australian Greenhouse Office about participation in the Greenhouse Challenge Plus program to offset its emissions. Offsetting emissions from all phases of the proposal is strongly supported, and provides an opportunity for the proponent, particularly in relation to the operations phase, to promote the operation of the pipeline as 'carbon neutral'.
EPA 24 Comments	In benchmarking the proposal, the proponent has compared the pipeline proposal to the Alcan Gove refinery and the Darwin LNG plant. While useful in illustrating the scale of emissions anticipated from the proposal, benchmarking against quite different facilities does not provide a reasonable comparison of how emissions from the proposal compare to a similar pipeline facility. The proponent should commit to membership of the Australian Government's Greenhouse Challenge Plus Program, and consider offsetting emissions associated with the proposal.

EPA 23 & 24 - The objective was simply to put the scale in proper context. Benchmarking against similar pipeline projects has already been accomplished as the input figures for these greenhouse gas calculations were sourced from recent similar construction projects in Australia. It is not yet possible to measure actual fuel consumptions for the proposed Project.

As mentioned, the proponent is actively seeking to engage AGO in discussions regarding joining the Greenhouse Challenge Plus Program.

4.9.4. Emissions Summary

4.10. Land Use

4.10.1. Baseline

	Comments from submissions
NRETA 06 Comments	The proposal involves constructing an underground gas pipeline from Wadeye eastwards to Ban Ban Springs Station, a distance of approximately 280km. The proposed width of clearing is 30m and the ultimate footprint proposed is in the order of 840ha. The development will impact on multiple and varied soil types and trenching may not be possible in some environments. For comments on the management of erosion see the soil conservation section.

NRETA 06 – Addressed in the Draft CEMP.

4.10.2. Potential Impacts

	Comments from submissions
NLC 38 Comments	In relation to Land Trust land the above description is inaccurate and produces a false impression. The reality for most Land Trust land is that vehicles and machinery will flatten and remove the tree cover over a continuous 30m wide construction corridor. Most Land Trust land has not lost its tree cover to pastoral activities. The PER, in this section, appears to assume a pastoral only context and does not appear to engage with the physical reality of the proposed route. A rough estimate would be that well in excess of 50% of the route is treed!

NLC 38 – It was never assumed that the pipeline route traversed only pastoral land and throughout the PER this has been made clear. It is not clear how this interpretation was made in this context.

4.10.3. Management

	Comments from submissions
NLC 39 Comments	**Land Use** This is incorrect. The list provided does not include the fence line at the boundary of the Land Trust at approx KP133 and does not include fencelines in the vicinity of Palumpa on Land Trust Land.
NLC 40 Comments	The visual impact of a 30m corridor cut through treed country is significant and the scar will remain highly visible until substantial tree regrowth occurs over approximately a 15 year period. The NLC is also concerned that there are extensive sections of the pipeline route where there are no construction access tracks and as a consequence, there would appear to be some potential for soil damage, through long haul pipe and construction traffic, on the ROW and particular attention may need to be given to ensuring the constructor remains within the 30m construction corridor in these areas. Consideration may need to be given to whether or not a 30m construction corridor will be practically feasible in such areas and if not feasible then further steps including a further agreement may be required.

NLC 39 – It is possible that a few fences were missed either in documentation, recording in the field or transferring information. The intention nevertheless is to reinstate fences wherever they occur. Those cited in the PER were intended to be indicative only.

NLC 40 - A 30m corridor is adequate for construction, and is reasonably standard throughout the pipeline industry. The comments in relation to the length of haulage along the construction corridor due to the limited number of access tracks are acknowledged. The decision on how to access the pipeline route has been a balance between additional disturbance due to the creation of more access tracks and a length of construction corridor that can stand up to the traffic. The CEMP defines reinstatment/rehabilitation steps to be taken so as to encourage regrowth, and deals with the methods to protect the topsoil and seed stock to ensure a successful revegetation of the construction corridor. In the experience of pipeline engineers who have flown helicopter patrols along the NT Gas pipeline in the first and second years of operation the regrowth was so good in some places that it was difficult to distinguish the pipeline route. Taller trees will take longer to reach mature height, but will not be allowed to regrow over the pipe centreline anyway, so the 6m wide clearance over the pipeline will remain.

4.11. Historic and Cultural Heritage Values

4.11.1. Baseline

	Comments from submissions
EPA 27 Comments	4.11.1 (pg 163) - The headings are misleading and the proponent should rearrange or clarify the distinction they are making between 'Aboriginal Heritage' and 'Archaeology and history'. All Indigenous archaeological sites can also be classed as Aboriginal Heritage. If the proponent has split these sections according to the NT legislative framework protecting Aboriginal Cultural Heritage (NT Aboriginal Sacred Sites Act & Heritage Conservation Act), then that should be indicated within the headings or subheadings
EPA 28 Comments	In general Heritage Conservation Services supports the archaeological assessment by Begnaze (Appendix G) and the commitments and recommendations arising from this study. Whilst we commend the realignments of the pipeline and fencing of archaeological places to avoid impact during the construction phase, the PER does not consider another potential impact, that of pilfering through visitation. This is likely to be a significant issue for both Indigenous and non-Indigenous (historic) archaeological places and is not currently addressed within the Draft Construction Environmental Management Plan (CEMP) (Appendix B). While the Draft CEMP contains the 'skeleton' for the successful management of heritage, some aspects may need to be expanded to demonstrate the implementation of suitable strategies. As identified within the CEMP, the flagging and installation of fencing around heritage places should take place under the guidance of a qualified archaeologist.
EPA 29 Comments	As identified by the archaeologist, disturbance to Indigenous or Aboriginal archaeological places require the consent of the Minister. The proponent should be aware that the permit process will take approximately 8-10 weeks and consent to disturb may be subject to mitigative conditions beyond those in the Archaeological Assessment prepared by Begnaze.
MAGNT 04 Comments	With regard to restricted archaeological, historical and restricted sites, overall, appropriate procedures are being addressed. The NLC have held meetings with all the Traditional Owners along the route, including Native Title claimants, to agree on the findings of the field survey work and give approval for the pipeline. The anthropologist report will be presented to AAPA to

	Comments from submissions
	enable an Authority Certificate to be prepared for the project, although it is stated under 'Potential Impacts', "The pipeline route has avoided all Sacred Sites, so no impact is expected from the construction and operation of the pipeline". The proponent has reported on the archaeological and historical sites that will be impacted on and areas of concern. The proponent also states that applications to disturb or destroy will be made under the *Heritage Conservation Act 1991*.
AAPA 07 Comments	**Aboriginal Heritage** **Para 3** The Proponents should also indicate that the AAPA and the Northern Land Council (NLC) have entered into an agreement that specifies the basis on which an Authority Certificate will be issued. Minimum standards have been agreed upon for all reports on which the Authority Certificate will be based and if the timelines for reports or minimum standards are not met, AAPA is able to carry out their work independent of the NLC.
AAPA 08 Comments	**Map** It is inappropriate and unnecessary to locate sacred sites on this map as this may jeopardise the location of sites that Aboriginal people may want secret, except from the Proponents. Please remove these from the map.

EPA 27 – Duly noted, please view correction below.

NT Aboriginal Sacred Sites Act 1989

The country traversed by the BGP is rich in Aboriginal Sacred Sites and areas. The Aboriginal Areas Protection Authority (AAPA) have identified numerous Registered and Recorded sites in the area. These sites are generally associated with swamps, waterholes and escarpment edges. AAPA provided locations of all recorded Aboriginal Sacred Sites prior to the field surveys (refer Figure 4-14).

An Authority Certificate is required from AAPA for the Project, now that the field surveys have been completed. As part of this process, the NLC have held meetings with all the Traditional Owners along the route, including Native title claimants, to agree on the findings of the field survey work, and give approval for the pipeline route. NLC officers prepared and used information packages in their consultations with the Traditional Owners. At the time of writing this PER, there have been approximately 20 consultation meetings with various indigenous groups along the Surveyed Area. APT and PWC are active participants in all these consultations (refer Chapter 8). The final pipeline route was presented to the Full Council Meeting of the NLC and approved by that body, on 23rd May, 2007. Now that the selected route is formally approved by the NLC and .endorsed by all indigenous participants, the various agreements required for land access will be executed by the Traditional Owners.

Reports, outlining the agreed route and detailing the comments made during consultations with Traditional Owners, as documented by anthropologists engaged by the NLC, will be presented to the AAPA and will be the basis on which AAPA issues an Authority Certificate for the Project. In the event that AAPA is not satisfied that these reports are adequate, for purposes of issuing an Authority Certificate, it is agreed that the Project will meet the costs of AAPA entering the field itself and gathering the balance of information it needs to issue an Authority Certificate for the pipeline.

The Daly River Catchment is of great social, cultural and economic importance to Indigenous and non Indigenous Australians, whose collective values are underpinned by a healthy environment. Approximately 12 language groups retain strong cultural links with the Daly and its environs, which are also fundamental to the lives of local communities (Blanch *et al.* 2005).

NT Heritage and Conservation Act 1991

A preliminary desktop study of archaeological and historic places and objects was carried out for the NOI and the referral under *EPBC Act.* Known archaeological sites maintained by Heritage Conservation Services of NRETA have been mapped. According to this information, there are no known historical or archaeological sites protected under Commonwealth Legislation recorded within a 100km corridor centred on the proposed pipeline alignment. Details of nearby sites identified from the desktop search and from the previous archaeological survey conducted for the Trans Territory Pipeline are listed in Table 4-35.

There are 5 Registered Historic places that occur within the originally proposed 10km study corridor.

- Big Howley Mine and Battery Site;
- Brocks Creek Military Detention Site;
- Brocks Creek Sites;
- Fenton Airfield; and
- Glencoe Head Station Site.

EPA 28 – Acknowledged. Begnaze believes that the supervised implementation of temporary fences 100m long (generous considering the small extent of the sites) will discourage visitation. In addition, the recommendation "that the location of all archaeological material is made available to employees only when works may impact upon a site" (page 35 of the Archaeology Report, Appendix G) is aimed at reducing visitation and therefore reducing the risk of pilfering.

EPA 29 – Yes, this has been recognised in the PER and in scheduling.

MAGNT 04 – No action required.

AAPA 07 – Noted.

AAPA 08 – At the scale of the map, it is impossible to locate the sacred sites. APT will not reveal the locations of any sacred sites to anyone outside the Project. The sites marked on the map could be removed, but the PER has already been made public and so is accessible by anyone who cares to look.

4.11.2. Potential Impacts

	Comments from submissions
NLC 07 Comments	Route realignment is required and survey yet to be undertaken to address a sacred site and a mining interest. It is not possible to state that all Sacred Sites have been avoided until the additional survey is complete and the route finalised.

NLC 07 - It should be noted that all Sacred Sites had been understood to be avoided at the time of preparation of the PER. A site has since been advised to APT. APT are working with the NLC to agree an alternative route so as to avoid this new site which is located at the eastern end of the pipeline route.

4.11.3. Management

	Comments from submissions
ECNT 08 Comments	There seems to be a great many assumptions made by the proponents about access to Indigenous Lands and the need to obtain approval for any

	Comments from submissions
	variations. These should be carefully discussed with Traditional Owners and the Northern Land Council during this assessment process and prior to any approval
NLC 41 Comments	The proposed actions should only occur following the consent of the Aboriginal people concerned.
AAPA 09 Comments	**Management** Please note the agreement between the NLC and AAPA as specified earlier.

ECNT 08 – Extensive negotiations have been conducted with the NLC and agreements will be entered into that address all aspects of access to Indigenous lands. The whole Project, from concept through field assessments and surveys have been subject to detailed and comprehensive agreements with the Traditional Owners and the Northern Land Council.

NLC 41 – Management of these sites will be in accordance with any agreements between the NLC and the APT.

AAPA 09 – Noted.

4.12. Social Environment

4.12.1. Baseline

	Comments from submissions
TRC 03 Comments	We would also like to see local contractors engaged to undertake weed surveys along the pipeline corridor throughout the Thamarrurr Regional Council region. Contractors exist at Wadeye whom have been well trained and regularly undertake weed management activities in conjunction with the NT Government. These surveys should be undertaken monthly throughout the life of the project. We understand that there is limited employment involved in the pipeline however we feel strongly every opportunity must be maximized to use suitably skilled local staff.
TRC 04 Comments	Thamarrurr Regional Council feels strongly about these issues and is looking forward to working with APT to ensure local people are appropriately engaged in environmental works through this project. We look forward to reviewing the cultural heritage management plan for the project when it becomes available.
NLC 42 Comments	Tables 4-41 & 4-42, p182, are confusing. At first glance they appear to be descriptive of certain demographics for the towns of Katherine and Daly River but closer inspection suggests, although it is not made clear, that they actually refer to census regions, the geography of which is not specified. Based on the data presented, the PER can assert that the ***"the majority of locals living in the communities and towns within the BGP region are already employed." P182*** With respect to the indigenous populations of Peppimenarti, Palumpa and Wadeye, for example, such a statement is misleading at best.

TRC 03 – Opportunities for Aboriginal People were specifically addressed in section 4.13.1 on page 190. Through the Land Access agreements currently being negotiated between APT and the NLC commitments have been made as to the particpation of indigenous persons and enterprises on the Project works on the basis of merit and economic feasibility.

TRC 04 – The Cultural Heritage Management Plan is being developed in consultation with NLC and other stakeholders.

NLC 42 – This was poorly worded and it was not intended to imply that employment level was good, as all the evidence and our experience demonstrates that employment in these communities is poor. The correct analysis for Wadeye was provided a few pages further on, at page 189. We apologise for this unintended implication.

4.12.2. Potential Impacts

	Comments from submissions
NLC 43 Comments	***"Management measures…will include…distribution of any benefit is at a community level, via representative organisations." p184*** It is unclear both what is meant by or intended by this proposed management measure and, if intended to be a measure proposed for application in relation to Aboriginal benefits, it is not the place of the proponent to be determining such matters however well intentioned.

NLC 43 – Again, this was a poorly worded sentence. It is not the proponent's prerogative to determine how benefits of whatever sort are managed. We apologise for this unintentional phrase.

4.12.3. Management

	Comments from submissions
EPA 30 Comments	**Social Impact** EPA Program anticipates the preparation of a mangaement plan for social impact for theis project. Will the Cultural Heritage Mangaement Plan include social impact managmet or will these be separate documents? Of particular interest will be the proponent's policy on the interaction of workers with local communities along the pipeline route.
DBERD 01 Comments	PER notes that APT has consulted with the NLC to identify potential local business and employment opportunities. APT also has an approved Industry Participation Plan, which includes commitments to local and Indigenous project participation. In addition, APT has entered into an agreement with NTICN to assist with maximising local content for the construction project.
NTP 04	**4.12.3** That all employees for this project are employed under a strict code of conduct, that they are compelled to abide by any alcohol restrictions under the *Liquor Act* in the area of operation and they strictly comply with the *Misuse of Drugs Act.*
NTP 05	**4.12.3 App B Draft CEMP** That any explosives and volatile substances are securely stored at all times in accordance with the relevant legislation.
NTP 06	**4.12.3** That security is maintained at all work sites and camps.

EPA 30 – High level consultation with the NLC has been carried out since June 2006 in conjunction with PWC who, under contractual arrangements between APT and PWC, has the lead role in this element of the Project. The NLC is statutorily responsible for representation of the Indigenous interests of the Project and is involved in negotiations with the PWC and APT in this capacity, including ensuring that the inclusion of social considerations occurs in consultation with Indigenous people.

Rather than concern with social impact, key issues have involved local employment opportunities and any economic advantage the BGP Project may have for communities, and APT has entered into an agreement with the NTICN to assist with resourcing local businesses and labour during the construction period. All major contracts will contain appropriate clauses requiring similar use of NTICN processes. APT will consider application from any interested Indigenous contractors qualified for the work. APT and PWC are actively engaged in negotiations with the NLC in regard to access to Aboriginal land and a range of broader Indigenous Project participation issues.

The construction corridor was surveyed by a team of experts including Traditional Owners, and the NLC agreed to the route including ancillary facilities.

The NLC have held meetings with all Traditional Owners along the route, including Native Title claimants in order to give approval for the route. The consultations were documented by anthropologists. The route has avoided all Sacred Sites (refer also Section 4.11.2), so no social impact from this aspect is expected from the construction and operation of the pipeline. NCL permitting procedure requirements will be implemented.

Consultations will continue through the NLC throughout the lead up to and during construction phase of the Project

Management measures for contractors during construction will focus on promoting understanding of Indigenous culture, minimizing the need for a high level of interaction between communities and the workforce and reducing potential impacts on community infrastructure. A Cultural Heritage Management Plan (CHMP) is being developed in conjunction with, and requiring the approval of, the NLC.

In terms of interaction with local communities, a number of clear commitments have already been made, and these appear in the Table of Commitments at Table ES-3 under 'Social Impacts'. In the first instance, interaction will largely be avoided because the construction crew will be housed away from communities in fully self-contained construction camps including housing, food and medical. 'Wet mess' facilities will be provided within the construction camps to minimize the need for workers to visit hotels, and suitable arrangements will be made for prohibiting the sale of alcohol within construction camps to people other than construction workers. A code of conduct for all workers will also be in place. Further detail is provided at 4.12.3.

DBERD 01 – Noted.

NTP 04; NTP 06 – The Construction contract will require attention to these matters.

NTP 05 – Storage and handling of dangerous goods are addressed in the Draft CEMP, as noted.

4.13. Economics

4.13.1. Baseline

	Comments from submissions
NLC 44 Comments	**Economic situation in Wadeye** Discussion of the "*Thamurrurr Region" p190* could be helped by clarification of what the proponent understands that region to be. The discussion makes reference to the COAG process and to ImpaxSIA Consulting data from 2004 and includes references to commercial activities

	Comments from submissions
	that probably are or were not a part of the "Thamurrurr Region" at that time.

NLC 44 – The reference to the Thamarrurr region was taken from the Impaxsia report. Precise definition of what the region means is probably not germane to the substance of the intention in describing the economic situation in the Wadeye region.

4.13.2. Potential Impacts

	Comments from submissions
NLC 45 Comments	***"It is not anticipated that there will be any significant negative economic impacts on the BGP region as a result of construction of the BGP" p190*** It would be preferable, ahead of such sweeping statements, for the PER to have much more substantively documented and considered the impacts on commercial enterprises and service delivery agencies that are serviced by the Daly/Wadeye main road. Without appropriate examination of the potential transit delays and costs of these delays in the context of a likely significant rise in vehicle and heavy vehicle use of the road it is premature to assume no negative impacts.

NLC 45 – There will be impacts on traffic from the BGP Project, as discussed in detail in Section 4.14, and road use management has been addressed in a draft RUMP, provided in Appendix D to the PER. The RUMP will be developed further in consultation with various stakeholders, including the NLC. Road use from the Project may have some consequences in timing of delivery, but this is impossible to quantify at this stage of the development of the Project. The consequences of the increased traffic from the Project are likely to be short term, as the Project will be developed over the one dry season in 2008.

4.13.3. Management

4.14. Infrastructure and Transport

4.14.1. Baseline

	Comments from submissions
NLC 46 Comments	**Roads** Table 4-45, p192, provides data suggesting that in 2005 the average daily traffic along the Daly/Wadeye road was 48 vehicles. What is required is clear indication of average daily traffic during construction of both BGP and Blacktip Gas Plant (assuming both constructions are occurring at the same time). Table 4-46 – Summary of Road Conditions, p194, advises that, given the condition of this road ***"Limit speed to 80km/h to minimise dust impacts and maintain safe conditions".*** Limiting speed will have little if any impact, even if limited to 50km/h, on dust conditions and safety. Dust conditions for this gravel road are severe, making it unsafe to overtake any vehicle, irrespective of its speed or size. Vehicles travelling behind any other vehicle on this road cannot overtake safely and are thus limited to whatever the speed is of the vehicle immediately ahead of them. Patience will be tested and unless specific dust suppression measures are taken and conditions monitored throughout there will be serious accidents as well as the obvious significant disruption to the trip time of all other road users.

	Comments from submissions
NTP 01	**4.14 Infrastructure & Transport** That appropriate traffic control measures are utilised when machinery is working on or are near any public roads
NTP 02	**4.14 & Draft CEMP App B** That during construction across any waterways, appropriate notification and precautions are in place to prevent marine accidents

NLC 46 – The traffic associated with the Blacktip Gas Plant was not factored in as there is no available data. It could be expected that traffic from Blacktip is likely to be a very small component, as much of the construction work will be completed by the time the BGP is being constructed. Current plans for Blacktip are that the plant itself will be brought in from the sea.

Road use was addressed in section 4.14, and a draft RUMP was prepared and included in the PER at Appendix D. This is also discussed in 4.13.2 above. There will inevitably be some disruptions to traffic from the increased use for the construction of BGP, and the RUMP is intended to address these issues.

NTP 01 - The RUMP addresses this issue.

NTP 02 – Construction safety at all watercourses will be addressed by the Construction Contractor. The Construction Constractor will also notify interested bodies (e.g. AFANT) and use temporary road signage to notify members of the public entering the area of activities in progress. Extensive consultation and notification to all landowners and local communities should also increase awareness of the activities. These measures should prevent marine accidents as a result of pipeline construction activities.

4.14.2. Potential Impacts

	Comments from submissions
ECNT 07 Comments	The existence of a permanent access route will create problems with: o Exotics/invasive dispersal. o Recreational access o Increased likelihood of fires

ECNT 07 – The problems on the corridor associated with dispersal of exotics/invasives will be of paramount importance during construction, and all relevant mitigation measures will be in place during this time, as addressed in the Draft CEMP provided in the appendix to the PER. Post construction, however, there is very little chance that the few vehicles used to monitor and maintain the pipeline will spread weeds or invasive species.

Fires are a common occurrence in the Northern Territory, and the 6m wide break will not change the nature of these fires. Maintenance crews that would traverse this route a few times per year will be aware of fire risk and be trained to deal with spot fires in the highly unlikely event that they should start from maintenance activities.

Recreational access will be made difficult due to the fact that the majority of the route is on Aboriginal or private land, and fines will be incurred for trespassing. There will also be berms constructed along the 6m wide access road, which will deter vehicles.

5. PROJECT ENVIRONMENTAL MANAGEMENT

5.1. Environmental Management System

	Comments from submissions
NLC 09 Comments	The NLC wishes to ensure that the concerns of the traditional owners and Aboriginal communities are addressed and their interests protected in the relevant Environmental Management Plans. The NLC will need to have sufficient time to properly review and approve all such management plans and consult with traditional owners where necessary. Similarly, the NLC needs to be involved and included as part of the 'Regulatory Authority' to ensure that terms of the Agreement between the proponent and the NLC and traditional owners are being met and to be satisfied that the interests of the Traditional Owners are being protected. APT have yet to release any detailed plans for waste management, clean up and rehabilitation, biting insect management, erosion management, fire management, flora and fauna protection, watercourse management and fauna management. The plans are outlined in the CEMP, but more detail is required. The NLC should have a reasonable opportunity for input into or comment on these plans prior to their submission to DPIFM.

NLC 09 – The draft CEMP has been referred to the NLC at various stages of the Project. It is a work-in-progress, and will be updated from time to time. The details provided in the Draft CEMP are sufficiently comprehensive for the contractors that will be required to implement them. More detail is not likely to be read. Comments have been received from the whole of Government prior to and after publication in the PER, and the purpose, intent, structure, and content of the Draft CEMP has been favourably received with very few amendments required. The responsibility for environmental management during construction will rest with the Construction Manager and the Environment Manager, and the activities will be audited as described in the Draft CEMP in section 9.1. In our experience with environmental management plans generally, provided that there are sufficient commitments and safeguards, then impacts can generally be minimized. We believe that this CEMP has addressed these matters adequately. In addition, and this is important, the Alignment Sheets which the Constructor must follow addresses all the issues which can be addressed in a visual and locational way during construction. An example of the Alignment Sheet is provided in Appendix H.

5.2. Resourcing and Policies

5.3. Environmental Management Plan

	Comments from submissions
NLC 47 Comments	"The Draft CEMP will be further developed in consultation with the relevant Australian and Northern Territory government advisory agencies prior to construction commencing." p201 "Operation…will be carried out by the Northern Territory Gas and a copy of their current Operations EMP has been provided in Appendix I…The Operations EMP will be reviewed prior to commissioning to ensure that it meets the operational needs of the BGP." p201 The NLC will wish to have the concerns of the traditional owners and Aboriginal communities addressed and their interests protected in the relevant Environmental Management Plans. The NLC will need to have sufficient time to properly review and approve all such management plans and consult with

4.14.3. Management

	Comments from submissions
EPA 26 Comments	2.2.12 on page 38 – what are the precautions that will be taken to prevent spillage during fuelling of vehicles?
NLC 08 Comments	The draft Road Use Management Plan appears as Appendix D and fails to address or recognise the impacts of constant usage of the Daly/Wadeye main road. The draft Plan does not properly describe impact on this dirt road and as a consequence does not discuss any mitigation measures. The impact on road-users (most of whom are traditional owners or those associated with service delivery to or commercial activity of traditional owners) is, perhaps the single most major impact of the project. (See further discussion of Appendix D) What is meant by reference to 'the timing and management of impacts being negotiated with the department' in relation to the upgrade of the Port Keats Road? What is required in the PER is clarity of what is proposed not obscure reference to negotiations. What are the proposals that the proponent has taken to those negotiations in terms of management of the impacts and why are they not reported here?

EPA 26 - Personnel operating the fuel trucks and the equipment being fueled will be instructed in the proper use of the hose equipment and associated valves and in monitoring operations to ensure against overfilling of tanks. Regular hose nozzles for fueling of light vehicles at camps are automatic shut-off just like the fuel pumps in a normal petrol station. Storage and fuelling of BGP vehicles will be in accordance generally with AS1940 Storage and handling of flammable and combustible liquids. The PER should have stated this on page 38. Instead, reference to AS1940 is within the Dangerous Goods Section 12.1 of the CEMP (Appendix B), although diesel is not considered a dangerous good under the *Dangerous Goods Act 1998*, and vehicle fuelling should have been addressed within a separate section.

NLC 08 – As previously dsicussed (refer Section 2.2.11 and 4.14) the RUMP is being revised to provide greater definition of the daily traffic volumes on the various sections of road and the required safety management measures. The revised RUMP will be made available to the NLC for review under the terms and conditons of the Land Access Agreement.

Once the Construction Contractor is engaged they will be tasked with providing definite plans for traffic management and traffic load on public roads. With this information available, APT and the Construction Contractor will be able to develop management techniques that would be intended to further minimise the potential impact on the public using open roads that Project traffic was travelling on.