

PUBLIC ENVIRONMENT REPORT

Bonaparte Gas Pipeline

Wadeye to Ban Ban Springs Station

Supplement



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Australian
Pipeline Trust



Supplement

**Bonaparte Gas Pipeline
Public Environment Report**

Wadeye to Ban Ban Springs Station

May 2007

Prepared for: Australian Pipeline Trust

Prepared by: EcOz Environmental Services



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Supplement Structure and Content

The supplement is structured in the same way as the PER and the Appendices. All headings have been retained, even where there were no submissions or comments received.

Comments from submissions have been included where they seemed most appropriate. Some were general comments, and have been included where most appropriate, while others were specific to issues in the PER and Appendices. Each comment from each respondent has been numbered sequentially, quoted in full and placed in the front part of the relevant section. Responses then follow in text in order to address same or similar comments from different respondents once, and to reduce the space required to respond to all the comments.

Revised maps have been included in the Appendices to the Supplement.

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1. EXECUTIVE SUMMARY

1.1. Introduction

1.1.1. Objectives, Benefits and Justification

1.1.2. Environmental Approvals Process

	Comments from submissions
ECNT 03 Comments	Unfortunately, the ECNT was unable to study the proposal in the detail it requires due to the large number of environmental issues and developments within the Northern Territory at this time. To allow genuine public review, we believe that draft documents and unspecified variations contained within the proposal should be submitted to public review once they are further advanced.

ECNT 03 – The public review period was 50% more than the statutory requirement, and the ECNT submission was accepted several days after the extended and publicised close-off date. Other submissions have been accepted up to 14th May, 2 months after advertising, and 2 weeks after the close-off.

Public documents relating to the Project will include the PER, and the Supplement.

1.2. The Proposal

	Comments from submissions
EPA 01 Comments	Maps Generally, the maps provided in the PER are unsatisfactory. Specifically: - o Important features such as rivers and roads are not marked in some or are unclear; - o The scale of the maps is too coarse. Breaking the maps into shorter, more detailed sections would be more useful; - o The legend is either missing or insufficient in most maps; - o Figure 2-9 (and 4-19) is very difficult to interpret. The map needs features such as roads, rivers and towns marked on it for reference. What are the shaded grey lines? What does AADT mean? Some interpretation of the numbers in the text where this figure is referenced is needed; - o Figure 4-7 is too coarse in scale to provide meaningful information. Revised maps should be included in the Supplement.
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 re-establish? During operation, how will any ground-based inspections be conducted at these crossings i.e. will vehicles cross the waterways at that point or will they move back along the corridor to the nearest access road?
NRETA 18 Comments	Biodiversity Comment It would be a positive and helpful initiative for the proponent to provide all other relevant environmental theme GIS layers developed for the project to responsible government departments. For example, weed maps proposed to be developed at the beginning of the project should be made available to the Weeds Branch as an aid to long-term management of the project area.

EPA 01 – All maps have been upgraded to provide more detailed information and clarity. APT is willing to provide digital data of the pipeline route to organisations for use in their own

mapping systems. It is believed this offers organisations a better opportunity to review matters of interest to them in relation to the pipeline route. See also Section 2.1.

EPA 04 – Vegetation of banks at river/creek crossings will be encouraged as this stabilises the banks reducing the potential for erosion. Reinstatement issues to be assessed include the potential water flow, the bank profile, the soil type, the pre construction vegetation and the availability of other suitable / existing crossings nearby. The decision-making process will be based on both economic and environmental concerns and therefore favour reducing the potential of future problems with erosion, rather than allowing access.

Post construction surveillance of the pipeline will be predominantly by air with ground access required to identified areas of concern. It is anticipated that minimal driving through creek crossings will be required.

See also Section 2.2.18

NRETA 18 – Noted. The weeds dataset from field records was sent to Weeds Branch upon their request on the 28th March 2007.

1.3. Alternatives

1.4. Existing Environment

1.4.1. Landform Features

1.4.2. Water

	Comments from submissions
DPIFM 02 Comments	As the geofabric will only separate solutes, chemical analysis of the hydrotest water may be warranted after filtration to identify if it is suitable for disposal to the surrounding environment.
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?

DPIFM 02 – As the only additive to the hydrotest water will be an oxygen scavenger, aeration and filtration will ensure the quality of water released is no worse than the original source of water. Testing should not therefore be required. Unless biocides are used (which is highly unlikely), once filtered by the geofabric, the water should be free of contaminants.

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*.

1.4.3. Ecology

	Comments from submissions
DPIFM 03 Comments	What buffer width is proposed along open water areas? <i>The Land Clearing Guidelines</i> (Technical Report No. 27/2002 - Department of Natural Resources, Environment and the Arts, Natural Resource Management Division) offer recommendations for buffer width according to stream order in relation to clearing and may be a useful resource when considering construction impacts on migratory birds.
EPA 13 Comments	Further protection for species such as the Masked Owl and other

	Comments from submissions
	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.

DPIFM 03 – Protection of the banks of areas with open waters has largely been addressed by the route selection process and the use of HDD. All areas of permanent open water were avoided in pipeline route selection, except for the Daly River, the two branches of Green Ant Creek, and Tom Turners Creek, where open water areas could not be avoided. These four crossings will be traversed by HDD. The Moyle River, which has the potential to contain water at the crossing point is planned to be open cut trenched (refer Section 2.2.15). It is not anticipated that other watercourse crossing points will be wet but this will be dependent upon climatic conditions beyond the control of the Project. Buffers are not appropriate for open cut crossings as the pipeline route must traverse these creeks and rivers. Special measures for protection of all crossings are provided in the CEMP (revised version attached Supplement Appendix 7) and the Alignment Sheets.

EPA 13 – The Environment Manager for the Construction team will arrange for the clear-and-grade team to avoid wherever possible significant nesting trees during this work (see also Section 4.1).

1.4.4. Biting Insects

	Comments from submissions
DPIFM 08 Comments	The proponent identifies that borrow pits will require EML's or EMP's under the <i>Mining Act</i> (PER s2.1.6). Borrow pits will also need to be Authorised under the <i>Mining Management Act</i> .
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 <i>Aedes aegypti</i> 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.

DPIFM 08 – Noted. This aspect is being managed by seeking special legislation which is still in progress. Essentially BGP will comply with the intent of the legislation but is seeking a general permit for the entire Project.

MEB 10 – These comments are noted and the CEMP amended.

1.4.5. Air Quality and Noise

1.4.6. Waste Management

	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'.
DHCS 01 Comments	1.4.6 Waste Management Effluent disposal systems must comply with the requirements of the <i>Code of Practice for Small On-site Sewage and Sullage Treatment Systems and the Disposal and Reuse of Sewage Effluent</i> . 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".

MEB 10 – Noted.

DHCS 01 – Noted and will be captured in regulatory commitments documents.

1.4.7. Fire

1.4.8. Greenhouse Gas Emissions

1.4.9. Land use

	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?

EPA 08 – Sufficient competent teams will be employed to ensure that fauna are not jeopardised unduly during construction. A protocol has been developed for this work, based on work undertaken on previous pipeline construction in other states, including Queensland. This protocol is attached at Supplement Appendix 2.

1.4.10. Historic and Cultural Heritage Values

	Comments from submissions
AAPA 01 Comments	Historical and Cultural Heritage Values Aboriginal Heritage 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 02 Comments	Archaeology and History The Proponents should indicate that they will fulfil all conditions required by the AAPA Authority Certificate. In the last paragraph of this section, it should be indicated that the police, as well as AAPA, will be notified of all remains.

AAPA 01 – Noted.

AAPA 02 – The proponents will fulfil all conditions required by the AAPA Authority Certificate.

1.4.11. Social Environment

1.4.12. Economics

1.4.13. Infrastructure and Transport

1.5. Project Environmental Management

1.6. Health and Safety Program

1.7. Risk Assessment and Emergency Management Plans

1.8. Public Involvement and Consultation

	Comments from submissions
DHCS 04 Comments	Appendix J – Consultation log DHCS must be included in the log in relation to “seeking agreement and/or signoff of all appropriate licences/permits”. The current log refers to NRETA only. It must be noted that DHCS is the main regulatory authority in relation to waste disposal (landfill and sewage), accommodation (staff), food safety, potable water and public health nuisances.

DHCS 04 – Noted.

1.9. Conclusions

	Comments from submissions
DPIFM 06 Comments	What protection measures to the pipe coating are required in the event that ASS are encountered on the route.
DPIFM 07 Comments	The Department of Primary Industry, Fisheries and Mines (DPIFM) have developed a Draft Advisory Note No. 26 for the storage and handling of ammonium nitrate.
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.
MAGNT 09 Comments	The Table of Commitments in the Executive Summary (page xxxi) should be clear on what is meant by “the area” under Introduction and Spread of Exotic Flora and Fauna; does this refer specifically to the pipeline route? “Area” is not included in the Definitions on page 221.
AAPA 03 Comments	Cultural and Regional Economic Impacts Para 3 This should be altered to say...”The final pipeline route will be presented to the NLC at its Full Council meeting, as well as AAPA.
AAPA 04 Comments	Para 4 A Cultural Heritage Management Plan will be developed by the NLC and AAPA before construction commences.
AAPA 05 Comments	Last Para The Proponents should indicate that before tracks and areas will be cleared, they will obtain an Authority Certificate.

DPIFM 06 – The integrity of good quality coatings is not impacted by the natural level of acid in ASS and no special mitigation measures are required for the pipe. Management measures in ASS are focussed on protection of the environment and minimising exposure of the soils to the atmosphere.

DPIFM 07 - This is noted and will be added to Section 2.1.6 Technical Standards and Codes of Practice.

MEB 04 – Draft CEMP will be amended.

MAGNT 09 - Area in this context means the Project Footprint detailed in section 2.1.2.

AAPA 03 – Noted.

AAPA 04 – A Draft Cultural Heritage Management Plan is in preparation by APT. It will be prepared in consultation with NLC and AAPA, to the satisfaction of all parties.

AAPA 05 – Noted. This will be done.

2. THE PROPOSAL

2.1. General Information

2.1.1. *Overview of the Proposed Development*

	Comments from submissions
EPA 01 Comments	Maps Generally, the maps provided in the PER are unsatisfactory. Specifically: - o Important features such as rivers and roads are not marked in some or are unclear; - o The scale of the maps is too coarse. Breaking the maps into shorter, more detailed sections would be more useful; - o The legend is either missing or insufficient in most maps; - o Figure 2-9 (and 4-19) is very difficult to interpret. The map needs features such as roads, rivers and towns marked on it for reference. What are the shaded grey lines? What does AADT mean? Some interpretation of the numbers in the text where this figure is referenced is needed; - o Figure 4-7 is too coarse in scale to provide meaningful information. Revised maps should be included in the Supplement.

EPA 01 – All maps have been enhanced and are included in this supplement. More detailed maps on specific aspects are available on request, and the Project GIS layers can be viewed at the EcOz offices on request, as has been offered before on a number of occasions. Metadata files of the pipeline route can be made available to the department (see also Section 1.2).

Unfortunately, due to the large distance of the proposed pipeline 285km and the remote location, the best vector resolution topographic mapping data that the Project has access to is the 1:250,000 Topographic mapping from Geosciences Australia. The base map that was prepared as the template for all maps uses this data and actually labels all named roads and rivers intersected by the proposed pipeline route, so if there is an important road or river that has not been labelled intersecting the pipeline it is probably not contained in that dataset.

A generic legend was prepared that has all the consistent features on all the maps that was meant to be referenced in the text of the PER, but was inadvertently left out. Due to space issues, the legend on the map was meant to highlight only the important features that were being displayed on the map i.e. Soils or Regional Geology etc.

The quality of the maps was diminished also because the original .PDF images were reformatted as .jpeg and inserted due to some last minute labelling issues. This has been rectified.

2.1.2. *Objectives, Benefits and Justification*

	Comments from submissions
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 31 - APT will be ultimately responsible for the implementation of the EMP. 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 identified APT will require its Construction Contractor to address these. See also Section 4.1.

2.1.3. Regional Setting

2.1.4. Environmental Approval Process

	Comments from submissions
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 04 Comments	Water Allocation Comment There are currently two valid licences to extract water from the Daly River which are both relatively small in volume. These water requirements coupled with the estimates for the hydrotest and compared against historical flow records indicate that it is likely that sufficient water is available from the Daly River within the scope of the current water allocation policy to support all three uses. As no long term minimum flow data is available from any of the other creeks or rivers in the region where extraction is proposed, a sufficient supply to meet the peak requirements within the current water allocation policy must be proven. I.e. via a bathometric survey in the case of a pool or stream gauging where there is flowing water.

NRETA 02 - BGP will comply with the legislative requirements and is currently in discussion with NRETA on coordinating an ongoing exchange of information to determine likely available supplies. More exact water requirements will not be determined until detailed construction planning is completed.

NRETA 04 – It is not intended to do a bathymetric survey as no pools are intended to be used at this stage. If a standing still water body is required to supply water, the Controller of Water Resources will provide conditions for the use of this water.

2.1.5. Regulatory Framework

	Comments from submissions
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 <i>Territory Parks and Wildlife Conservation Act</i> . 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 08 Comments	Vegetation Comment Native vegetation clearing on freehold, crown and Aboriginal land tenures is controlled under the <i>Planning Act</i> . Native vegetation clearing on pastoral leases is controlled under the <i>Pastoral Land Act</i> . 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

	Comments from submissions
	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 <i>Energy Pipelines Act</i> . 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 10 Comments	Vegetation Comment Clearing controls under the <i>Pastoral Land Act</i> 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 <i>Energy Pipelines Act</i> 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.
ECNT 21 Comments	There needs to be a substantial bond held by the NTG to cover the costs of accidents, poor management practices, other impacts and rehabilitation

NRETA 08 – Noted.

NRETA 09 – Noted.

NRETA 10 – Noted.

ECNT 21 – The Proponent has very strict obligations imposed upon it by virtue of the issue of the Pipeline License including environmental impacts. Breaches carry heavy penalties. In the issue of the license, the Minister has the ability to impose a security on the Project under the *Energy Pipelines Act*.

2.1.6. Land Tenure

2.1.7. Services, Infrastructure and Accessibility

2.1.8. PER Structure

2.2. Description of the Project

2.2.1. Project Overview

	Comments from submissions
EPA 01 Comments	Maps Generally, the maps provided in the PER are unsatisfactory. Specifically: - o Important features such as rivers and roads are not marked in some or are unclear; - o The scale of the maps is too coarse. Breaking the maps into shorter, more detailed sections would be more useful; - o The legend is either missing or insufficient in most maps; - o Figure 2-9 (and 4-19) is very difficult to interpret. The map needs features such as roads, rivers and towns marked on it for reference. What are the shaded grey lines? What does AADT mean? Some interpretation of the numbers in the text where this figure is referenced is needed; - o Figure 4-7 is too coarse in scale to provide meaningful information.

	Comments from submissions
	Revised maps should be included in the Supplement.

EPA 01 – Addressed above in Section 2.1.1.

2.2.2. *Project Schedule*

2.2.3. *Pipeline Route*

2.2.4. *Above Ground Facilities*

	Comments from submissions
DPIFM 06 Comments	What protection measures to the pipe coating are required in the event that ASS are encountered on the route.
NLC 10 Comments	While all of the above is known to the NLC, sacred site clearance and consultations associated with “some operations and maintenance infrastructure in the Wadeye area” have yet to be conducted.
NLC 11 Comments	Any additional infrastructure would require consultations and approvals of the traditional owners concerned.
NLC 12 Comments	Sacred site surveys of any locations proposed outside of the existing Surveyed Area will be necessary along with approval of land-owners. If proposed locations are not identified, surveys completed and approvals obtained during the 2007 dry season then there may be delay to commencement of construction in 2008 ahead of completion of the process required in relation to these proposed towers.

DPIFM 06 – The integrity of good quality coatings is not impacted by the natural level of acid in ASS and no special mitigation measures are required for the pipe. Management measures in ASS are focussed on protection of the environment and minimising exposure of the soils to the atmosphere.

NLC 10 – This is correct. The consultations are on-going and will be resolved between the negotiating parties prior to works commencing.

NLC 11 – Noted and APT will continue to consult when there is a need to do so in accordance with the Land Access Agreement with the NLC and Traditional Owners.

NLC 12 – The only locations with the potential to be outside the existing Project Footprint, as identified in the PER, are the communication tower sites that will be required during construction. Advice from radio contractors leads APT to the conclusion that it will be able to develop a construction communications system that locates all transmission towers within the approved Project Footprint area. The Project Footprint area will have been cleared of sacred sites and thus the need for further sacred site clearances should be avoided. A desktop study is being undertaken to confirm this so that further consultations and approvals, if required, can be undertaken during 2007, such that any potential delays in 2008 can be avoided.

2.2.5. Off Takes

2.2.6. Ancillary activities

	Comments from submissions
AAPA 06 Comments	Construction Camps The Proponents should obtain Authority Certificates for all ground-disturbing works including access tracks and construction camps, as well as the pipeline corridor.

AAPA 06 – The application for issue of an AAPA Certificate to cover all project related activities includes all ground disturbing works, access tracks, and construction camps. The location and nature of these works has been explained to Senior Custodians who accompanied the APT field survey team that defined the route during field survey works carried out in November and December, 2006. The consultation with custodians is a key part of the clearance works being jointly conducted by AAPA and the NLC. These works will lead up to issue of an Authority Certificate covering all elements of the Project..

2.2.7. Hazardous and Dangerous Goods

2.2.8. Waste

2.2.9. Other Exploration Activities

2.2.10. Employment Opportunities

2.2.11. Accommodation Requirements

	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 13 Comments	The ENI camp is not a hotel and assumptions about capacity to utilize remain to be negotiated.

ECNT 04 - APT will negotiate conditions for extraction with NRETA and have already held discussions to this end. A monitoring program will form part of the extraction conditions. APT is committed to ensuring that the environment is protected as far as practicable and will ensure that measures are in place to prevent damage to aquatic environments. Monitoring is addressed in several sections of the Draft CEMP, and will be in accordance with conditions of licences issued. See also Section 4.3.3.

NLC 13 – The intention is to ensure that APT activities do not negatively impact on the local accommodation situation, and to minimise the installation of facilities in the area. Negotiations are being undertaken with ENI for the provision of suitable accommodation for both commissioning and operational staff in accordance with ENI's conditions of occupation in the area.

2.2.12. Transport

	Comments from submissions
EPA 25 Comments	Transport The estimated construction trip numbers (500) described on page 37 of the PER do not seem to tally with Table 2-8. Does this number include personnel? The estimated 33 trips per day in Table 2-9 over the construction period also do not appear to tally with this low estimate (and this excludes worker movements). This section needs to be simplified or an alternative explanation provided for clarification.
EPA 26 Comments	2.2.12 on page 38 – what are the precautions that will be taken to prevent spillage during fuelling of vehicles?
ECNT 20 Comments	Traffic, there seems to be an error or understatement of the total number of vehicle movements for the project. This impact will need to be reassessed. - o Draft report also requires further assessment when nearing completion. - o Greater emphasis required on the impact on local communities and roadside eco-systems
NLC 14 Comments	Table 2-8: BGP Potential Traffic Movements bases pipe movements on the ‘double trailer scenario’. In this context we are advised that there will be 179 loaded and 179 unloaded double semi-trailers transiting the Wadeye Road from Daly River Crossing to Wadeye. Does this presentation, Table 2-8, then mean that the intention is to use double semi trailers on the Daly/Wadeye road? If so, how does this equate with the assertion in Table 11-1 of Appendix D of speeds within the 50-80km hr range. Is it not more likely that speeds of such double semi trailer loads will be much less on this road if major accidents are to be avoided? If it is not the intention to use double semi trailers on this road then Table 2-8 should depict double the number of trailer movements and management considered in that context. If double trailers are intended then Table 11-1 in Appendix D needs to indicate a realistic average speed for these vehicle movements.
NLC 15 Comments	I understand, from Table 2-5: Project Schedule p21, that the construction phase is estimated to be “5 months duration”. If there were approximately 33 construction trips per day, as indicated in Table 2-9, then over the 5 months of the construction phase there could be 4,950 construction trips and not the 500 advised on p38. I anticipate that the 500 approximation for the entire construction phase has been underestimated by a factor of 10/or there is a significant typographical error. To the extent that any management planning has been based on the reported 500 construction trips over the entire construction phase then appropriate adjustment to that management planning needs to be made.

EPA 25; ECNT 20; NLC 15 – The transport movements required for pipeline construction are composed of 5 elements:

- Pipe haulage;
- Mobilisation/demobilisation of plant and equipment;
- Mobilisation/demobilisation and relocation of camps sites;
- Construction Trips; and
- Personnel movements

The Project has not yet entered the detailed planning phase, during which the selected Construction Contractor will determine the most appropriate construction methodologies for the Project. The methodology will be within the constraints imposed by allowing construction traffic along only specified tracks. Thus the numbers presented in the PER are indicative based on the

best information currently to hand and should not be considered as outputs from detailed traffic and logistics studies, as these studies have not yet taken place.

The number of construction trips and personnel movements cannot be predicted with any accuracy as they will be dependent on a number of factors including the actual size of the workforce, location of a given crew's work area on the construction corridor, the prevailing weather conditions and the nature of the terrain. Based on direct experience in linear construction programs over more than 25 years, key BGP team personnel estimate that no more than 500 construction vehicle trips will be required over the duration of the Project. The maximum number of construction trips in any one day would not be expected to exceed 33 based on the data provided in Table 2-9. However, this would not be expected to occur every day over the entire construction period thus it is not appropriate to multiply the number of trips by the total number of days. Construction trip and personnel transportation numbers have not therefore been directly included in Table 2-8. Worker transportation is expected to be predominantly along the construction corridor.

The data in Table 2-8 however has assumed that for every load that will be moved an empty transport vehicle will be brought into the area, move the load, and then vacate the area. This equates to 2 empty transport movements from the point of pick up to the Stuart Highway for every relocation of plant, equipment and camps; a situation which is extremely unlikely in reality. It is more probable that 2-3 transporters will be retained on site and will 'park up' on the construction corridor or at the camp site whilst not in use. Thus the numbers of transport movements quoted would be greatly reduced and APT believes this would compensate for any construction trips which were not included. To provide better clarity on potential daily traffic movements for the main heavy transport elements Table 2-8 has been revised to give the daily movements based on total movements over 120 days. Daily total movements have not been included as addition of the various heavy transport movements on a daily basis is not appropriate. Camp transportation would typically happen prior to plant and equipment mobilisation and both of these activities would occur prior to pipe haulage onto the construction corridor. Pipe haulage may however commence on the Stuart Highway for delivery to a stockpile in the region. As discussed in the PER this is not as yet determined and will not be finalised until after the Construction Contractor has been appointed and the pipe contract let.

APT is mindful of the safety issues in relation to the existing road standard and volume of traffic and has engaged the services of a traffic management consultant to review the transport data and to update the Road Use Management (RUMP) with appropriate traffic management measures.

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.

See also Section 4.14.3.

NLC 14 – It is intended to use double trailers on the Daly River to Wadeye road. Given the conditions on the Daly River to Wadeye Road Project drivers will be ensuring they drive to the conditions, taking into account the effect of speed, road conditions and fatigue management practices. The setting of specific speed limits in this context is not an effective means of ensuring road safety in itself. Note that the 7 truck trips quoted in the PER (page 33 Section 2.2.12) was incorrect and should have read 7 trailer loads (i.e. 7 single trucks or 3.5 doubles).

Table 2-8: BGP Potential Heavy Vehicle Movements

Road Section	Pipe <i>Based on 300mm pipe transported on double semi trailers</i>				Plant & Equipment			Camp			Total Vehicle Movements	
		Total		Daily	Total		Daily	Total		Daily	Total	
	Length km	Loaded	Unloaded	Av # trucks	Loaded	Unloaded	Av # trucks	Loaded	Unloaded	Av # trucks	Loaded	Unloaded
Victoria Highway, Katherine Railway Goods Yard to Stuart Highway Intersection	280	335	335	7	120	120	2	180	540	6	635	995
Stuart Highway Katherine to Dorat Road South and Fountain Head Road East	280	335	335	7	120	120	2	180	540	6	635	995
Fountain Head Road East, Stuart Highway to Ban Ban Pastoral Access.	15	18	18	0	120	120	2	0	0	0	171	171
Along construction corridor from Stuart Highway	50	60	60	1	-	-	0	-	-	0	93	93
Dorat Road South from Stuart Highway to Daly River Road Turn Off	215	257	257	4	0	120	1	180	540	6	470	950
Oolloo Road from Dorat Road to Pipeline Crossing	40	48	48	1	60	0	1	180	180	3	321	261
Daly River Road from Dorat Road to	175	209	209	3	60	60	1	180	360	5	482	662

Road Section	Pipe <i>Based on 300mm pipe transported on double semi trailers</i>				Plant & Equipment			Camp			Total Movements	Vehicle
		Total		Daily	Total		Daily	Total		Daily	Total	
	Length km	Loaded	Unloaded	Av # trucks	Loaded	Unloaded	Av # trucks	Loaded	Unloaded	Av # trucks	Loaded	Unloaded
the Daly River.												
Wadeye Road from Daly River Crossing to Wadeye first 10km	175	209	209	3	-	60	1	180	180	3	422	482
Along construction corridor from Daly River	25	30	30	1	-	-	0	-	-	0	63	63
Wadeye Road from Daly River Crossing to Wadeye	150	179	179	3	-	60	0.5	180	180	3	392	452

2.2.13. Infrastructure

	Comments from submissions
NLC 16 Comments	The proponent appears to have ignored the substantial water requirements associated with dust suppression for the Daly/Wadeye road (178kms). It is essential that these requirements be identified as a part of the project impacts. Dust suppression on the Daly/Wadeye road must be addressed as a part of the Road Use Management Plan and discussion of water requirements associated with the project needs to incorporate anticipated volumes associated with traffic management on this main road.

NLC 16 - The main continuous transport movement on the main roads (as opposed to access tracks) in the area will be the pipe trucks. These will deliver pipe on a daily basis. Approximately 420m of pipe can be put on a pipe trailer (i.e. 840m on a double). With construction needing about 3km of pipe per day about 7 trailers will need to deliver pipe to the construction corridor each day (i.e. 7 single trailer trips or 3.5 double trailer trips). The number of trucks actually on the Wadeye-Daly River Road will depend on the number of access points to the construction corridor and the extent to which the construction corridor is used in preference to the road. The number of vehicles using the road will diminish as construction progresses with very few trucks needing to make the trip the entire way to Wadeye.

All other road trips will be intermittent and logistics planning is expected to minimize interaction of these movements with pipe trucks. APT recognises that the safety of both its workers and the public is a key issue in relation to transport movements. APT has entered into agreements with the Roads Division of Dept of Planning and Infrastructure to ensure firstly that the road is upgraded by Roads Division to a standard suitable for construction traffic (which will benefit other commercial users at no cost) and secondly to ensure that the road will be maintained in accordance with Roads Division standards during the construction period. It must be recognised that the issue of dust generation is an existing problem. Watering of public roads is not considered to be a viable option for the Project and the issue will need to be managed through traffic safety measures.

As previously noted, APT has engaged the services of a NT traffic management expert to assist with the RUMP, including further development of traffic safety management measures.

2.2.14. Pipeline Design

2.2.15. Construction Activities

	Comments from submissions
DPIFM Comments 05	Large trees, by themselves, are likely to deteriorate more rapidly than if they are complemented with a lower and mid story. Buffers of native vegetation which include the lower strata should be considered when retaining large trees.
DPIFM Comments 06	What protection measures to the pipe coating are required in the event that ASS are encountered on the route.
DPIFM Comments 08	The proponent identifies that borrow pits will require EML's or EMP's under the Mining Act (PER s2.1.6). Borrow pits will also need to be Authorised under the <i>Mining Management Act</i>
EPA 03 Comments	Water Horizontal Directional Drilling (HDD) of river crossings. The proponent has indicated that geotechnical constraints to HDD are unlikely. A Special Area Plan for open cut trenching with flow diversion (contingency for HDD constraints) is included in the CEMP; however, there is no apparent link to the HDD plan in the

	Comments from submissions
	event that HDD cannot be undertaken. Further, there is no discussion about the implications of open cut trenching the Daly River in the unlikely event that this becomes a requirement. The proponent has verbally committed to extensive consultation with all stakeholders well in advance should this be necessary. The EPA Program would like to see this commitment included in the Supplement.
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?
MAGNT Comments 05	The PER proposes that 34 watercourse crossings will be “open-cut” with four crossings to be made using horizontal directional drilling (HDD) (this method is proposed for the Daly River). Other watercourses, such as the Moyle River and Dee Creek will be crossed by a road set at 90° to the river flow. Some details are given on pages 44-52, and it is planned to construct these crossings in the dry season. However, MAGNT would like to see more details and an illustration of how the bund and crossing will be constructed and completed. In Appendix E (pp 27-28), a few diagrams, a table and brief descriptions of the HDD method are all that is presented, along with a statement that this technique has not been yet tested on any of the watercourses proposed for HDD.
MAGNT Comments 06	On page 45 the PER states that open cut watercourse crossings may include flow diversion “if applicable”, and in Table 2-12 reference is made to the draft Construction Environmental Management Plan (CEMP) in Appendix B for description of management measures for the open cut watercourse crossings. The draft CEMP states that flow diversions of the Moyle River and Dee Creek will be undertaken. The main body of the PER does not discuss the impacts of flow diversion on the watercourse habitats and associated aquatic fauna. As these diversions (which involve damming the watercourse and pumping the water around the pipeline trench as shown in Figure 2-12 in the PER) have the potential to have significant impacts on aquatic fauna, they should be considered further in the PER. More detailed information on watercourse crossing, flow diversion and their impacts on aquatic fauna should be provided.
ECNT Comments 11	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.
ECNT Comments 12	As the level of blasting is unknown how will the impact be assessed and monitored?
NLC 17 Comments	During route survey, such requirement for additional width beyond the proposed 30 construction corridor was only identified at the Chilling Creek crossing point. To the extent that other watercourses will similarly require width beyond the proposed 30m construction corridor then these will, in relation to Land Trust Land, need to be identified ahead of construction and traditional owner approvals obtained. No approvals for additional use of land beyond the 30m construction corridor currently exist for LT land.
NLC 18 Comments	Table 2-14: Construction Program, p53, indicates that the proposed length of “open trench” into which entrapment might occur is “70km”. This is too long and has the potential to result in significant unnecessary faunal deaths. The NLC seeks a maximum open trench of 30km. Further, beyond identifying the need for appropriately qualified personnel to be involved with removal of animals caught in the trench it is necessary to ensure that there are sufficient numbers of such personnel engaged throughout the day for the length of open trench involved.
NLC 19 Comments	Site specific, or closure criteria need to be agreed for all locations.

	Comments from submissions
	For example, between KP176-178 where the pipeline construction corridor traverses a substantial rocky ridge there may be need for site-specific conditions associated with clean-up and reinstatement to ensure there is not a permanent scar on the landscape. It is anticipated that reinstatement may well be more about returning rocks and boulders than re-establishing non existent or barely existent topsoil. A clearer statement of the impact of construction at this site specific location would be helpful along with discussion and depiction of the affect on visual amenity after clean-up/reinstatement. Further comment should be made about plans for rehabilitation and cleanup as expressed in the CEMP – criteria defining ‘similarity’ in vegetation patterns need to be agreed prior to commencing rehabilitation (and preferably prior to construction). These criteria need to be realistic and capable of being monitored. Progressive rehabilitation should be encouraged to make maximum use of the viability of the existing native seed-bank. If this can be done, then weed management becomes the major potential problem, and this must be ensured under the weed management plan. Unfortunately this plan has not been developed and it is not possible to consider its likely success in meeting the requirements of traditional owners and preventing widespread weed infestation along the route of the pipeline. EPA also needs to ensure that there will be on-going work and finances available to ensure success of rehabilitation. Minimising and monitoring pathogen invasion (part of the CEMP) is a major challenge. There does not appear to be any baseline analysis of existing pathogens and without this, monitoring of pathogens in the post-construction environment is not possible. It is difficult to see how APT can develop and use performance indicators for pathogens within the timeframe of this project.
NLC 20 Comments	The text is constructed in such a way as to imply that there was a consensus reached between the parties concerned as to the most appropriate technique for particular crossings. In relation to the Moyle River Crossing it should be noted here that traditional owners did not agree to or approve or accept the notion of an open cut crossing. Their requirement was for minimal lasting disturbance to country by way of HDD drilling. There was no consensus or agreed technique. The landowner requirement was for HDD. It is likely that some watercourses (eg Anopheles Creek and Dee Creek) which are proposed to be trenched may be required to be drilled. The question of the nature of crossing at Dee Creek was not addressed by landowners at the time of route survey and for cultural reasons careful consideration of the appropriate means of crossing at Anophelese Creek will need to be given and remains to be addressed.

DPIFM 05 – Large trees have been avoided wherever possible, but some will inevitably be removed due to physical restrictions. 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.

DPIFM 06 – The integrity of good quality coatings is not impacted by the natural level of acid in ASS and no special mitigation measures are required for the pipe. Management measures in ASS are focussed on protection of the environment and minimising exposure of the soils to the atmosphere.

DPIFM 08 – Noted. This issue is being managed by seeking special legislation, negotiations for which are still in progress. Essentially BGP will comply with intent of legislation but is seeking a general permit for the entire Project.

EPA 03 - It is anticipated that the Daly River crossing can be successfully accomplished through HDD. However, HDD is dependent upon the geology of the area. To verify the geology of the HDD sites and potential rock locations the Proponent is intending, based on provision of the necessary approvals, to conduct geotechnical investigations at all proposed HDD sites during the dry season of 2007. These investigations are particularly important at the Daly River. If the geotechnical studies indicate that there is any potential for HDD to not be successful at any of the sites, the Proponent will immediately notify the EPA to negotiate an alternative crossing technique. The Daly River is acknowledged as being of particular sensitivity and the Proponent would undertake consultation with all key stakeholders including the relevant government agencies as identified by the EPA, the NLC, Daly River Community, AFANT, ECNT as part of the development process.

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 material 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 minimize 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 (refer also Section 12.1 of the CEMP provided in Appendix B of the PER). Waste material is removed from the construction area. Transport and storage of the materials must be in accordance with applicable regulations which have been specified in the PER.

MAGNT 05 – It was considered at the time of preparation of the PER that typical cross sections would provide adequate information for the types of watercourses to be crossed, and that showing every crossing would have taken up too much superfluous space. A complete set of diagrams of crossing profiles, and photographs, of each watercourse crossing is provided in Supplement Appendix 1. Each crossing will be further assessed in the field by the construction team prior to construction, and in consultation with the Project Environmental Manager, the techniques for each will be determined, considering constructability, environmental factors, recoverability, and long-term resilience. It is considered that the types of crossings have been well assessed to date, but, of course, further refinements will be made in the field with the construction team.

Where wet crossings, with or without flow diversions, are required the method of damming the flow depends on the level of water, rate of flow and width of the watercourse. The techniques vary from use of large polyethylene bags filled with water to sheet piling. The actual decision is a technical matter to be decided in conjunction with the Construction Contractor.

MAGNT 06 – Most of the rivers and creeks which are expected to be flowing during the dry season will be traversed by HDD, with the exception of the Moyle River, which is also under negotiation with NLC. The other creeks are expected to be dry when the construction teams plan to be traversing them, which means that it is unlikely that flow diversion will be required for more than one or two. If the Moyle River is proposed to be crossed using an open cut method, and

the river is still flowing, then it is possible that an aquadam and piping of the flow around the crossing will be used for the duration of the work, which will be a matter of days only. Given that the river probably occasionally stops flowing or reduces to a very low flow rate, then the impacts on aquatic fauna, which are adapted to ephemeral flow stoppages and very low flow rates, are likely to be minimal. The dry season is not a period of migration for most species, so it is not likely that a short period of stoppage will have any effect on aquatic species migration.

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.

For the crossings proposed to be undertaken using HDD technology, final selection of the entry and exit locations will take into account the nature of the vegetation existing at each particular site, and disturbance of vegetation which is distinctly associated with the bank of the watercourse will be avoided where at all practical, as that is the objective of the HDD approach. Given the angle of entry and exit of the HDD path and the requirement to pass well below the watercourse, it is unlikely that any entry and exit points will be within 50 meters of the watercourse.

ECNT 12 - Excavation by blasting is the last resort in pipeline construction. Blasting is only used where progress using rock saws or alternatively hydraulic hammers and excavators becomes inadequate to stay ahead of the rest of the construction crew is blasting used. Each area to be blasted is assessed in planning the blast to ensure that it can be completed safely and efficiently with no danger to any personnel or infrastructure in the immediate vicinity. Only trained qualified shot-firers will be used. Blasting techniques in recent times have evolved to the point where the blast produces very little surface and off-site effect. The charges are laid so that their explosive effects are focused on the site to be blasted.

Blasting operations will be monitored if necessary in accordance with the applicable regulations. Monitoring would only be required where there were existing structures very close to the site of blasting, which is not the case anywhere along this pipeline route.

4.2.3 PER states:

'Blasting activities will be kept to a minimum. Due to the high hazard associated with blasting explosives, there are special safety and licensing requirements for their manufacture, sale, storage, transport and use. Blasting activities are strictly controlled by Northern Territory legislation and only undertaken by highly trained and approved operators. The Northern Territory Dangerous Goods Act and associated Regulations (2005) are designed to ensure the safe handling of dangerous goods, including explosives, in the Northern Territory. Along with the Act and Regulations there is the Australian Standard 2187.1 and 2 (2006); "Explosives – storage, transport and use" to guide approved operators.

If blasting is required, an appropriately qualified contractor will design the blast and provide management procedures prior to undertaking any action. These will include;

- *General overview of blasting activities;*

- *Safety practices;*
- *Alert notices;*
- *Types of explosives and detonation technique; and*
- *Debris control.*

Both Fenton Airfield (~KP250) and the archaeological “rock cairn” (KP176) are identified in Special Area Plans (SAP) in the Draft CEMP (refer Appendix B) and will be marked on the alignment sheets.’

NLC 17 – If any specific locations for access or works, which were not agreed in the field with Traditional Owners, are required then they will be negotiated via the NLC Project Liaison Officer prior to works commencing on those areas, in accordance with the terms of the Land Access Agreement between NLC and APT.

NLC 18 – The optimal length of open trench during construction is a function of prudent construction process continuity which incorporates the necessity to manage all the environmental requirements (as per the CEMP) of open trench. Historically, pipeline projects that have had restricted open trench requirements imposed, have been plagued with logistical and safety concerns. Therefore, an unrestricted open trench is now managed by having appropriate numbers of competent wildlife handlers. The number of qualified wildlife handlers engaged on the site will be proportional to the amount of trench that is open at any particular time. It will be ensured that there are sufficient numbers of wildlife handlers to cover the length of open trench and remove any trapped fauna daily (for further detail refer PER page 125). A protocol for the handling of trench fauna has been developed and is included in Supplement Appendix 2.

NLC 19 – The CEMP is considered to be a comprehensive document, and is intended to set the broad requirements of environmental management during construction. Not every site can be addressed in the CEMP, and the intention is clearly to reinstate the pipeline route to as close as possible to its pre-existing condition. Weed management, erosion control and so on have been addressed with these intentions in mind. The Construction Contractor will be required to comply with the various commitments and in particular the CEMP. The Construction Environment Manager will determine the reinstatement conditions in consultation with the Construction Manager. Progressive reinstatement¹ will be practised, and the reinstatement team will follow closely behind the construction team. Weed management is certainly a high priority, as clearly shown in the PER and the Draft CEMP, and has been addressed from the beginning of the Project, including during the pipeline route surveys conducted in 2006. The CEMP has been updated to cover reinstatement in rock areas.

Pathogens are not addressed in the PER, but are mentioned in the Draft CEMP. The Project team has not been alerted to any known pathogens, but it is considered that the weed washdowns, inspections and cleaning routines for biting insects, controls over discharges of water used for hydrotesting the pipeline and general cleanliness requirements will prevent movement of environmental pathogens, if they occur. Human pathogens are addressed in relation to sewage discharge and to water supplies, both of which will be licensed by and monitored by the NT Dept of Health & Community Services.

There is no known way to test for broad-scale environmental unknown pathogens through mostly natural bushland, and the only realistic means of identifying pathogens is to respond to a known pathogen recorded by various experts in government or elsewhere. None were identified in any submissions from NT Government departments, which is the main repository of this sort of knowledge. Should any be identified prior to or during construction, appropriate measures will be

undertaken. It is normal practice in the pipeline industry to address these issues if they are identified.

NLC 20 –The BGP Project originally committed, based on desktop studies, to 5 HDD watercourse crossings: Daly River, 2 channels comprising Green Ant Creek, Tom Turner Creek and the Moyle River. These crossings were selected for HDD based on their potential to contain flowing water at the time of construction, sensitivity of the environment and profile of the creek bed. Environmental and archaeological field studies identified that the Moyle River could potentially be open cut with minimal environmental damage. This is due to the shallow profile and stony nature of the creek crossing location. The crossing point was also selected to minimise the removal of trees. The option to use HDD has been retained but will be considered closer to the time of actual construction based on the prevailing conditions at the time.

Consultation with the NLC and Traditional Owners will continue in accordance with the terms of the Land Access Agreement.

2.2.16. Commissioning

	Comments from submissions
EPA 21 Comments	There are only two Main Line Valves (MLVs) that can be used to isolate sections of the pipeline. In the event of a catastrophic leak, provide an estimate of the maximum volume of gas that would have to be purged in order to fix the pipe breakage. Additionally, there is some suggestion that a compressor station could be added to the pipeline at some stage; what would be the implications of this addition to greenhouse gas emissions?

EPA 21 - The compressor station is not part of this Project and separate approvals will be sought as and when such a requirement arises. The greenhouse gas implications would be addressed at that time.

The volume of gas contained in a section of pipeline between two MLVs would range between 500 and 800 thousand standard cubic meters depending on operating conditions at the time of such an event. However, the consequences of an event requiring that a section of pipeline be vented to atmosphere must be taken in context with the probability of such an event. Blowdown of a section of pipeline for repair is *extremely rare* and abnormal, and should not be included as a “forecast” greenhouse gas emission.

2.2.17. Pipeline Operation and Maintenance

2.2.18. Decommissioning

	Comments from submissions
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 re-establish? During operation, how will any ground-based inspections be conducted at these crossings i.e. will vehicles cross the waterways at that point or will they move back along the corridor to the nearest access road?

EPA 04 – Some crossings will allow for permanent access track use, while others will not be suitable. The different types of crossings are shown in Supplement Appendix 2. Each has been assessed during the field surveys along the pipeline route, and a preliminary determination of the type of crossing required. Each will be further assessed in the field by the Construction team.

Permanent crossings will not be constructed where they would compromise rehabilitation and stability of the crossing and the integrity of the buried pipe. Access will mostly be from designated access tracks, and this may involve driving back to the nearest access road to get around crossings which are not suitable for permanent crossings. Rehabilitation inspections will be carried out on the ground by vehicle. Inspections of the pipeline are mostly carried out during the lifetime of the pipeline by aerial surveys, which reduces the frequency of vehicle access (see also Section 1.2).

3. ALTERNATIVES

3.1. Introduction

3.2. No Development Option

3.3. Alternative energy supply options;

3.4. Alternative Pipeline Route Options

	Comments from submissions
ECNT 10 Comments	Were cultural and environmental impacts given sufficient weight in determining and assessing alternative routes?

ECNT 10 – Environmental and cultural impacts were given a high level of priority both during the desktop and field survey work to determine the best available route on the ground. The pipeline route was selected by a team of people surveying the line in the field, including Traditional Owners, Anthropologists, Archaeologists, Ecologists and Land Managers.

The objective of the field survey team, at all times, was to select a route which had minimal environmental impact and which avoided any sites said to contain sacred sites, or said to be culturally significant. This was done based on advice from custodians who were in attendance during the field survey work. Where environmentally sensitive areas were encountered which could not be avoided the objective was to adopt a method or direction of construction that offered the least impact.

The best available route, within the survey area, was determined based on negotiations with the NLC and other landowners such as Pastoralists and Miners.

3.4.1. Route Selection Process

3.4.2. Subsea Pipeline

3.4.3. Pipeline Deviations

	Comments from submissions
NLC 21 Comments	The BGP route continues to follow the previously surveyed TTP route from 0KP to KP9. At KP9 it deviates to continue to follow the Eni Blacktip road up to the Wadeye Airstrip at KP12. Thence, through to approximately KP28.5 it deviates to, essentially, follow the Wadeye to Daly main road and thence from KP28.5-37.5 it moves away from the main road to re-integrate (at KP37.5) with the previously proposed TTP surveyed route which it now follows through to KP80. The deviation from KP9 through to KP37.5 was determined as an appropriate alternative during survey as a result of construction issues with the TTP surveyed route and cultural and construction issues eliminating other possible alternates.
NLC 22 Comments	The intent of this particular paragraph is correct and its message is accurate but the wording is inappropriate. There is no road reserve for the Daly/Wadeye road once it enters Land Trust land. The department responsible for maintenance of the road has a preference for no egress within 50m of the centreline of this road on Aboriginal land.

NLC 21 – This observation is acknowledged.

NLC 22 – Correct, and acknowledged.

3.5. Alternative Locations for Supporting Infrastructure

	Comments from submissions
NLC 23 Comments	All quarries and borrow pits identified along the route on Land Trust land are the property of the Land Trust and, irrespective of any purported DPIFM permissions, appropriate arrangements for extraction will need to be negotiated with the Land Trust prior to any extraction during construction of the pipeline.

NLC 23 – The Project will negotiate where required to obtain access to quarries and borrow pits, both in accordance with any licence and with any owners of these quarries and borrow pits. It was not the intention of the PER to suggest that obtaining a licence from DPIFM or DPI was sufficient in itself. In most cases, existing quarries will already be subject to licenses (EMLs, or EMPs), and the Project will have to negotiate with the licence-holders.

3.6. Environmental Management Techniques

No comments.