Office of Environment and Heritage

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D2005/0011~0056

Mr Ceri Morgan
Environmental Coordinator
Woodside Energy Limited
GPO Box D188
PERTH WA 6840

Dear Mr Morgan

The Office of Environment and Heritage has examined the draft Environmental Impact Statement (draft EIS) for the proposed Blacktip Gas Project and submits the enclosed comments.

I note that the requested study of Acid Sulfate Soils sampling and analysis has not yet been received by this Office. This should be provided prior to the lodgement of the EIS Supplement.

Any queries with regards to these comments should be directed to Rod Johnson on telephone 8924 4002.

Yours sincerely

LYN ALLEN
Executive Director Environment and Heritage

January 2005

Attach.

ENV[EAM]EN2005-0012KLM

1 Project Infrastructure – Offshore

1.1 Scenarios

The Draft Environmental Impact Statement (DEIS) Supplement needs to present "worst-case scenarios" for evaluation, for example the catastrophic failure of the wellhead platform (WHP) (Section 4.5.2). A management plan for its occurrence should be part of the Supplement.

The Supplement should consider and describe the consequences of damage to the pipe by accidental anchor strike (Section 11.2) and should quantify the potential impact of pipeline construction on the seabed rather than reporting it as "slight" (Section 11.3).

1.2 Construction

Quantification of sediment disturbance for each of the two options for post-lay trenching (plough vs. jetting sled) is required in the Supplement to facilitate informed comparison of the potential impacts of both options (Section 4.5.4).

The detailed path of the pipeline is still unknown but undulations are known to occur along the seabed. Given this, evaluation of pipe construction requirements and the effect these may have on the seabed should be presented (Section 7.2.3).

Include discussion of the area of seabed likely to be impacted by works and the measures that will be employed to minimise this disturbance

1.3 Habitat

The Supplement should recognise that habitat diversity is different to habitat scarcity and that each is important. For example, seagrass is not a diverse habitat, yet its scarcity may make any patch of seagrass extremely valuable. The Supplement should also recognise the significance of mangroves as a regional habitat (Section 7.3.1).

Description of the coastline habitat at the particular point where the pipeline is proposed to cross should be provided rather than a generic beach description.

The likelihood of exotic species being introduced through fouling should be clarified as the DEIS suggests that the fouling community is expected to consist of local species "although some [vessels] may come from international waters" (Section 11.5). Proposed mitigation measures should be described.

2 Project Infrastructure – Onshore

2.1 Construction

Discuss the alternative options with respect to the laydown area at the pipeline shore crossing and provide justification for the final selection (Section 4.5.6).

Description of the proposed shore crossing should provide relevant detail that would enable an environmental assessment to be made (Section 4.5.6), including: beach composition, geology, geomorphology, ecology, flora and fauna.

Clarification is sought regarding the proposed placement of the laybarge anchors, that is, on the beach or in the dune.

Details of proposed vehicle access to the beach and laybarge anchors should also be provided, stating their movement and access restrictions.

Detailed surveys of the drainage of proposed construction access roads need to be presented in the Supplement (Section 4.5.10). These earthworks potentially affect runoff and the export of sediment, nutrients and pollutants.

Justification is sought for both the placing of a laydown area in a 50m road corridor and the specified width of 50m. Traffic risks should be described, along with changes to local traffic conditions (such as diversions required during construction).

The Supplement should contain the results of "detailed environmental surveys" for "the proposed access roads and associated drainage channels and ditch run-outs" mentioned in the DEIS (Section 4.5.10).

The Supplement should also detail the proposed works at the concrete batch plant if it is located outside the gas plant footprint (Section 4.5.11). Further survey work is required regarding the feasibility of sourcing suitable aggregates, their volume, accessibility, and works likely to be required (Section 4.5.11).

The DEIS indicates the "potential installation of a temporary groyne" (Section 11.4). OEH understands the purpose of a shoreline groyne is to mitigate near-shore currents, particularly long-shore drift that occurs parallel to the beach. Groynes are typically constructed to limit beach erosion by long-shore drift, and certainly do "affect sediment transfer along the beach and interrupt beach nourishment" (Section 11.4). More discussion is required regarding the intended use of the groyne, impacts of the groyne and measures to mitigate them. A timeline of groyne presence is also required.

Blasting, described in the DEIS as being similar to a "quiet thud" (Section 12.8), requires quantification. Clarification is sought regarding the necessity of blasting and strategies that will be taken to minimise adverse impacts, including impacts on fauna in the area.

2.2 Habitat

Habitat fragmentation and its implications should be discussed in the Supplement, as should the clearing of protected cycad and orchid plants (Section 12.3.2).

The comment that reptile activity is lower in the dry season than in the wet (Section 12.3.3) should be referenced and the timing for the excavated "trench [being] open for minimised periods" should be specified. Fauna mortality through falling directly into the trench should be acknowledged, especially for macrofauna such as wallabies, and plans to minimise it should be presented.

Consideration also needs to be made in the Supplement for the natural predators of mosquitoes (Section 12.4.1). If mosquito numbers are minimised, this may have a deleterious effect on threatened species of fish. This should be investigated.

2.3 Operation

Details of the gas processing plant area regarding measures to prevent contamination of groundwater in the event of a spill, should be described and standards cited. (Section 12.5.4). Leak protection is stated as being mainly via appropriate design of the tanks. The design of tanks and primary and secondary bunding should meet relevant Australian standards and these standards should be cited in the Supplement.

3 Contaminants and Wastes

3.1 Offshore – Construction

Specification is sought regarding the disposal location and composition of commissioning fluids made up of "brine and diesel," that are proposed to flush the well after completion (Section 4.6.1).

3.1.1 Pipe dope

The Supplement should explain the composition of "pipe dope," and quantify its likely volume and likely impact especially with respect to the comment that pipe dope may be "lost to sea" (Section 4.4.3).

3.1.2 Corrosion inhibitor

The Supplement should also explain "corrosion inhibitor," its constituents, toxicity, sink details and likely amount required (Section 4.5.4), as well as its likely impact on receiving environment.

3.1.3 Hydrotesting

The Supplement should name and quantify the chemicals that are expected to be used for hydrotesting and name their toxicity. The location, time, frequency, concentrations and loads of any discharge should also be detailed (Section 11.13). Disposal options for hydrotest water, including possible disposal at the WHP, should be discussed with respect to impacts and management.

3.2 Onshore – Construction

If seawater is to be used for hydrotesting (Section 4.5.8), discuss the composition of biocides, oxygen scavengers and corrosion inhibitors in the water, along with their likely quantity and effect on the local environment.

3.3 Offshore – Operation

Clarification is sought as to the presence of H_2S in the gas field and its likely consequences (Section 4.7.2) in terms of subsequent air emissions..

3.3.1 Drilling muds

Specify the hazardous qualities of drilling muds. Environmental impacts of using non water-based muds should be analysed in the Supplement and analysis of the costs and benefits of open versus closed circulation systems should also be included (Section 4.4.4). The extent and temporal persistence of drilling mud wastes and discharge plumes should be quantified and presented with associated impacts to biota.

Potential impacts to phytoplankton and zooplankton from the drilling waste discharge plume should be discussed (Section 11.8), particularly as many invertebrates (including commercial crustacean species) and fish have a planktonic stage in their lifecycle. Consideration also needs to be given to interruptions to the safe passage of prawns along their seasonal travel route by these plumes (Section 11.8).

3.3.2 Hydrocarbons

The volume of hydrocarbon (Section 11.8) proposed to be discharged to sea should be quantified and discussed.

3.3.3 Scale

The Supplement should explain the composition, expected loads and concentration of scale material (Section 11.14). It is not satisfactory to delay the preparation of a management plan for the disposal of Naturally Occurring Radioactive Materials until they become an issue.

3.3.4 Cooling water

The Supplement should quantify the "rapid dispersion of the biocide by the surrounding ocean at the discharge point" (Section 11.15) in both space and time.

3.3.5 Produced water

The DEIS forecasts that produced water (PW) "may produce an oily sheen which has a visual impact" (Section 11.18). This is undesirable as there is a high potential for marine food resources to become tainted. Modelling results further suggest that pollution may initially move away from the coast but return on the following tide; the Supplement should therefore investigate scenarios in which the discharge point is further out to sea (Figure 11.3, Section 11.19.1). Dispersion has perhaps been overstated as a mechanism throughout the report given the pulsing currents in this tidal area.

Design of the PW treatment system needs to account for more than just PW, given that it may also need to account for contaminated stormwater (Section 12.2.2). Clarification is sought as to whether the design has accounted for this and some quantification, if so.

3.3.6 Hydrocarbon spills

Model results suggest 20km of coastline is at risk after 5 days of elapsed time, but more temporal information is needed. Modelling suggests that biota may be coated and smothered in oil in shallow waters (Section 11.19.2). Recovery of the system following an oil spill is forecast to be "relatively quick, unless the oil enters the tidal inlets" (Section 11.19.2). What happens if the oil enters tidal inlets? How likely is this to occur? Sensitivity analyses for various model parameters should be performed and outlined in the Supplement and more certainty needs to be provided for the potential booming off of the mangrove area.

Describe the system on the WHP for blocking the overboard drains to prevent an oil spill (Section 6.2.1.3).

3.4 Onshore – Operation

3.4.1 Wadeye Landfill

In the DEIS it is proposed that sewage sludge be dumped at Wadeye municipal landfill (Section 12.5.2). This cannot occur. Alternatives are required in the Supplement.

Limitations of the Wadeye landfill should be discussed and the Supplement should quantify the likely volume of non-recyclable wastes and their nature given these limitations (Section 4.5.11). Detailed feasibility study results are required for the suitability of Wadeye Landfill for the disposal of waste from the project site (Section 12.5.1). Issues include:

- identifying the relevant authorities;
- nominating the auditor of compliance with regard to waste disposal;
- a plan for recycling;
- alternatives to the disposal of sewage sludge at a municipal landfill;
- nominating the auditor of disposal approval;
- specifying the plan for wastes deemed unsuitable for landfill;
- estimated quantification of waste loads and their distribution through time;
- detailed analysis of the option to transport all waste to Darwin and to a specific location.

3.4.2 Contaminated water

The disposal strategy for any water unsuitable for the PW treatment system is required (Section 6.2.1.2). Details of the expected quantities of contaminants remaining after PW treatment and how these contaminants will be disposed should be described (Section 6.2.3.2).

Stormwater management could be a significant issue (Section 12.5.2). Detailed plans for contaminated stormwater should be provided, including the method by which contaminated water would be detected. Currently the DEIS suggests it will be "stored and tankered off site for disposal at an approved location" (Section 12.5.2). Indicate the intended approved location of the hazardous waste disposal.

3.4.3 Other onshore operational waste

The Supplement should contain "specific hydrotest and dewatering procedures" that "stipulate management measures to deal with any predicted environmental impacts" as mentioned in the DEIS (Section 4.6.3).

Description of the management of green waste disposal from areas proposed to be cleared is required (Section 8.3.2).

Specification is required for the handling of onshore packaging waste (Section 6.2.1.1).

The "negligible to slight incremental increase in the environmental impacts" of hazardous waste disposal needs to be quantified and all outputs specified (Section 12.5.3). Issues associated with transport of hazardous waste should also be addressed.

Explanation is required regarding offshore and onshore storages of diesel and chemicals; description of fire-fighting chemicals; and, definition of "appropriate bunding," including citing of Australian Standards (Section 4.8.2).

4 Atmospheric emissions

DEIS discussion suggests that "offshore [gas] emissions will be minimal compared with onshore emissions" (Section 11.21). Emissions should be quantified in the Supplement.

The management summary list for combustion gases needs to be improved, as no consideration is given to a worst-case scenario (Section 12.6.2). Discussion of the implications of atmospheric pollution moving over terrestrial lands outside the project area is required. For example, there may be implications for species that were considered too distant in earlier analyses, but whose habitat may be affected by atmospheric pollution.

Low NO_x emissions are expected, but specification of the steps to be followed if NO_x levels are found to be high is desirable (Section 12.6.2). Low background levels of SO_x and NO_x indicate the status of the natural system (before impact). This project proposal should seek to minimise its impact and so should aim to affect NO_x and SO_x levels as little as possible. Use of a chemical binder ($MgCl_2$) to suppress dust needs to be further explained (Section 12.6.5). Its volume, persistence, application, and impact on waterways should be fully detailed.

5 Greenhouse

The Blacktip proposal is expected to emit 90 000t CO_2-e per year during the operation phase. This would represent a six per cent increase in NT greenhouse gas emissions (based on 2000 Northern Territory inventory data), and an increase of 1.6 per cent in Australia's national emissions (based on 2002 national inventory data). Emissions from the construction phase are estimated to be 15 000t CO_2 (Section 12.6.1).

To expedite the assessment process, comments on the draft EIS were provided by Paul Purdon (Senior Policy Officer, Greenhouse Unit) to the proponent at a meeting on 10 December 2004 and in a follow-up email to Ceri Morgan (cc Rod Johnson) on 13 December 2004. This correspondence requested additional information on emissions from the commissioning and early production stages of the project, and greater detail on product life-cycle emissions. Comments also suggested the revision of emissions calculations (Table 6-5). It is expected that the proponent will address these comments in the supplement to the EIS.

The DEIS discusses ongoing action by Woodside in relation to sustainable and renewable energy investment and technology. The proponent has not identified options to offset emissions specifically from the Blacktip proposal. As raised with the proponent, it is recommended that Woodside investigate options to offset greenhouse gas emissions specifically from the Blacktip development, in consultation with the Office of Environment and Heritage (OEH). This recommendation should be listed as a commitment by the proponent in the supplement to the EIS. OEH is particularly interested in identifying offsets options in the Northern Territory.

It is noted that Woodside is currently a member of the Australian Government's Greenhouse Challenge program. It is recommended that ongoing membership of the program be listed as a commitment in the Supplement.

6 Noise

Noise levels at Tchindi Aboriginal Camping ground appear to be between 54 and 50 dBA (Figure 12.2) rather than <47 dBA as is quoted in the text (Section 12.7); however, the DEIS suggests that the Tchindi Aboriginal Camping ground and Wadeye local community would be notified at least 24 hours prior to the commencement of planned flaring. Include in the Supplement an indication of the flexibility of the flaring schedule according to cultural requirements, such as postponing the flaring should it be unsuitable for people at Tchindi.

Design of the flare needs to account for nearby sensitive receptors even in emergency situations.

7 Surface and groundwater hydrology

Rainfall and storms will have an impact on the proposed project site (Section 8.2.2). Storm surge mitigation details are sought.

The Supplement should definitively indicate the location of groundwater bores, both existing and proposed, and discuss the availability of groundwater for drinking and for hydrotesting of pipes. A full water balance should be presented detailing use, source and sink of all water sources for the duration of the proposed project.

There appears to be little information with regard to ground and surface water resources in the gas plant area and there is definite intent to use these resources for the project during construction (Section 8.2.6). To adequately assess the environmental impact of this proposal, further discussion is required on the potential of ground and surface water systems to be affected by water bores, access routes, borrow pits and quarries and establishment of laydown areas (Section 8.3.3). The Supplement should include, and assess the impacts of, various management options associated with potential impacts on surface and groundwater resources. The environmental effects of the proposed onshore structures on the hydrological system should also be discussed.

The Supplement should include a flood frequency analysis of the proposed site to enable assessment of the risk of flooding.

If groundwater is to be used for hydrotesting of pipes, a complete groundwater survey of the region should be undertaken for assessment of the available resource both for the life of the project and for ongoing concerns of the local community following decommissioning of the project.

8 Social impact

The Supplement should discuss the opportunity for the Wadeye community to benefit from Blacktip gas as a possible power source, in line with the statement that the project will “provide the necessary gas processing infrastructure to supply additional markets, in the event that these should mature” (Section 1.6). An example of this would be the installation of off-take valves for future gas supply at Wadeye.

Claims in the DEIS that the proposal will bring opportunities for indigenous communities need to be supported in the Supplement (Section 2.2.1). Given approval, construction would commence in the short term and currently there is no apparent strategy in place to train and employ local indigenous people for the project. Include in

the Supplement how management of this project will take into account the wishes of the Traditional Owners including plans to involve them in the development of EMPs (Section 3.3.1).

The Social Impact Management Plan (SIMP) is intended to address potential social impacts identified in the DEIS Social Impact Assessment and during a two-day workshop, which was to be held in Wadeye. It is assumed that this workshop has not been conducted. It is requested that the appropriate assessment officer from this Office be invited to attend the workshop. Since timelines for the beginning of construction are tight following approval, it is advised that the Draft SIMP be provided with the Supplement to facilitate a comprehensive review of the document prior to finalisation.

9 Alternative proposals

Alternatives to proposed actions should be provided throughout. These include condensate storage, the degree of trenching along the pipeline route, produced water treatment and disposal, accommodation for those not stationed on the lay-barge, guaranteed access to groundwater and certainty in the extraction capability of the proposed aquifers.

The need for an onshore flare is questioned if off-shore gas processing is undertaken (Section 5.3.1). The flare could potentially be positioned on the WHP, eliminating the need for a 64ha compression station site.

Alternative mosquito control measures are also sought as the burning of swamps raises unnecessary greenhouse and ecological issues (Section 12.3.5).

10 Rehabilitation

The only option presented in the DEIS is for the pipe network to be left in place at the decommissioning phase (Section 4.9). The Supplement should consider the option that infrastructure is totally removed.

11 Aboriginal Cultural Heritage

The recommendations within the archaeological survey report by Begnaze represent a comprehensive approach to managing any potential impact on prescribed archaeological places and objects located within the Black Tip onshore pipeline and gas plant footprint. Recommendations provided for linear midden site are appropriate to minimise impact, regardless of where the pipeline cuts through the dune. Any decision concerning the exact location of the pipeline and permit to disturb that section of the site should be in consultation with the appropriate parties (Aboriginal Traditional Owners/NLC/AAPA).

Should the location differ from those inspected by Begnaze it is recommended that the exact section of the midden is inspected prior to final design and onset of construction to minimise the potential for impacting upon sensitive or highly significant archaeological remains (eg human burials, hearths) through selection of a site.

Prior to trenching and disturbance of the site for pipe laying, it is suggested that the opportunity for further research on the midden be pursued, given that “the site has a high potential for further research” (Section 9.9.2).

It is also recommended that Woodside comply with recommendations developed by Begnaze for the Design (8.1), Construction (8.2) and Operational phase (8.3) including, but not limited to:

- placement of additional infrastructure and auxiliary areas in accordance with the archaeological predictive model developed.
- undertaking of additional surveys, as recommended by Begnaze, during the design phase of the project for all Onshore-Related Components as specified in Table 4.2 (Vol1, pg 48) not within the gas plant footprint or not previously subject to archaeological survey, including, but not limited to, the proposed haul road between Wadeye and the proposed gas plant.
- lodgement of permit applications for consent from the Minister for the Environment and Heritage to disturb/destroy archaeological materials protected under the *Heritage Conservation Act* prior to the onset of construction (see attachment). The proponent should note that consent may be subject to certain archaeological mitigative works.

Lastly the proponent should note that recommendations made by Begnaze for the construction and operational phases are considered preliminary and may be revised pending further archaeological surveys.

The Supplement should include further consideration of the planned disturbance to Walpinhthi Reef (Section 4.5.4). The DEIS states that anchoring for pipelaying and the shore pull operation will occur in this sacred site but does not provide justification for the disturbance or the alternatives that may have been considered in determining the need for disturbance. Discuss the options for managing the impacts to this site. Explain the strategy to be adopted should the Traditional Owners not give consent for the disturbance of Walpinhthi Reef.

12 Legislation and Standards

Throughout the DEIS reference is made to "relevant legislation" and "Australian standards." OEH strongly recommends that these types of references be replaced with the names of existing standards and pieces of legislation.

13 Need for further study

Several areas require further study before an environmental assessment can be made. For instance, failure to find macroalgae during an abbreviated study does not permit the conclusion that marcoalgae is insignificant (Section 7.3.2). The suggestion that conditions are not suitable for macroalgae growth needs to be qualified with some quantitative measures of limiting conditions.

In the absence of survey work, inferences were made, for example, that seagrasses in the area would be similar to elsewhere in the Top End. Further investigation of seagrass presence is required as significant areas of seagrass may exist in small extents. Rigorous investigations and details of sampling methodologies should be presented in the Supplement.

Discussions relating to invertebrates and fish populations rely again on inferential logic that populations are similar to elsewhere in the Top End (Sections 7.3.4 and 7.3.5). As such, these comments cannot be the basis of informed environmental assessment; more baseline studies are needed.

The DEIS states that no dugong surveys have been conducted in the Joseph Boneparte Gulf. Investigations should be undertaken. Given that there is no information regarding the susceptibility of dugongs to oil spills, the statement they are "likely to be able to detect a surface slick" cannot be justified. The DEIS assumes that a lack of seagrass will translate into an absence of dugongs, however this is speculation. Further confusion is added when the DEIS states that dugongs are known to occur both to the north and to the south of the proposed pipeline and yet saying that in the region of the proposed pipeline dugong activity is "very limited" (Section 7.3.6).

The DEIS states that the abundance and distribution of sea turtles is unknown. The sea turtle section is speculative and it is regrettable that no investigation has been performed. The argument that an animal is rare does not support the conclusion that a section of its habitat may knowingly be damaged (Section 7.3.9). Management strategies need to be addressed and presented for evaluation.

Further, the Supplement should detail the type of biota present at the condensate mooring (Section 11.3) and should quantify the risk of spills reaching a "sensitive resource" (Section 11.8).

14 Weed management

The Supplement should specify that it is the proponents' responsibility to ensure that new weed species are not introduced and that existing weeds do not accelerate their colonisation (Section 8.3.4).

The treatment of weed infestation (Section 12.3.4) as a serious issue should be formally addressed. Include in the discussion:

- the definition of "weed free;"
- a specification that the washdown bay include a hoist or inspection pit;
- the likelihood that fill material from borrow pits will contain weed seed;
- the urgent need for all materials and fill to be quarantined before being transferred to the proposed construction site.

15 General Comments

The Supplement should specify how the requirements of EIS assessment will be imparted to the various contractors who will undertake the construction of Blacktip.

Interpretative phrases such as "Site X will be rehabilitated as soon as possible" should be replaced with specific commitments against which the proponent will be made accountable.

The DEIS states that the "offshore components of the Blacktip project are located within the R202G offshore military exercise zone," in which "a wide range of military exercises including live firing" occurs (Section 9.5.2). Quantification of the risk of stray firing incidents is sought in the Supplement, along with any arrangements made with the military to mitigate any accidents.

The Supplement should present plans for backfilling the proposed pipeline trench (Section 4.5.6). Detailed results should be presented for the flare positioning (Section

4.7.2.2), flood studies (Section 8.2.2), groundwater studies (Section 8.2.6) and mosquito breeding sites (Section 8.3.6).

16 Miscellaneous

- The Minister responsible for the EIS process is the Minister for the Environment and Heritage, not the "Minister for Infrastructure, Planning and Environment" (Section 1.7).
- Matters addressed in the DEIS should not be limited to those specified in the guidelines (Section 1.11.1).
- DIPE is an acronym for the "Department of Infrastructure, Planning and Environment", NOT "Industry" (Section 3.3.2). This mistake occurs throughout the DEIS.
- Some data in Table 4.5 should be checked. Volumes of cuttings were summarised in this Table. For the Blacktip Primary Well, the 8½″ section is specified as having a length of 700m, yet the start and end section lengths suggest a length of 800m. The cuttings volume would be 29.3m^3 rather than the quoted 26m^3.

Northern Territory Government

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Northern Territory Government Comments to the Blacktip Draft Environmental Impact Statement

INTRODUCTION

The Northern Territory Government reviewed the draft Environmental Impact Statement pertaining to the Blacktip Project. Comments from various Government Agencies were consolidated by the Department of the Chief Minister. Table 1 provides an Index to Agency Submission's.

Table 1

INDEX TO AGENCY SUBMISSION'S

	AGENCY	Sections
	Aboriginal Areas Protection Authority	1.8.1; 1.8.2; 1.9; 3.1.1; 3.2.1; 4.5.4; 4.5.6; 4.5.10.1; 4.5.11.4; 5.6; 5.9; 9.9.2; 9.10; 9.10.1; 11.3; 11.4; 12; 13.1; 13.3; 13.9; 14; 15.1
	Community Development Sport and Cultural Affairs	4.5.10.1; 4.5.10.4; 4.8.9; 5.6; 7; 7.3.1; 7.3.2; 7.3.3; 7.3.4; 7.3.5; 8; 8.3.5; 9.7; 11; 11.3; 11.6; 11.8; 12.2.2; 12.3.3; 12.5.4; 14; Appendices B,C, F, G, H, L and P
	DBIRD – Mines And Petroleum Management Division	1.8.1 ; 1.8.2 ; 1.9 ; 3.2 ; 3.3.1 ; 4.1 ; 4.5.7 ; 4.5.8 ; 4.5.10.3 ; 4.5.11 ; 4.5.11.3 ; 4.5.11.4 ; 4.6.3 ; 4.7.1 ; 4.7.2.2 ; 4.7.5 ; 4.8.2 ; 4.8.9 ; 4.9 ; 4.9.2 ; 4.9.4 ; 4.9.5 ; 5.3.4 ; 7.2.2 ; 7.2.4 ; 8.3.1 ; 8.3.6 ; 9.5.2 ; 10 ; 11.3 ; 11.4 ; 11.6 ; 11.8 ; 11.13 ; 11.14 ; 11.19.2 ; 11.20.3 ; 12.2.2 ; 12.6 ; 14.5 ; 15.2 ; 16.2.4 ; Appendix A Vol 2 ; General
	DCM – Office of Territory Development	1.8.1;
	Department of Infrastructure Planning and Environment (excl OEH)	4.5.7; 4.5.8; 4.5.10.1; 4.5.11.1; 4.6.3; 8.2.5; 9.5; 13.3; 15; 15.2; Appendix M; General
	Department of Health and Community Services	4.5.3; 4.7.2.2; 4.8; 4.8.2; 4.8.3; 4.8.8; 4.8.9; 6.2.1.1; 6.2.1.2; 6.2.3.1; 6.2.3.2; 6.2.3.3; 6.3; 6.4; 11.14; 11.18; 11.20.3; 12.2.1; 12.2.2; 12.5.1; 12.5.2; 12.5.3; 12.4; 12.6; 14; 16.16; Appendix A Volume 2

Should the proponent wish to seek clarification on these comments the relevant agency contacts are:

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Section 1.8.1 Northern Territory Primary Legislation

Page 17 Under the *Northern Territory Heritage Conservation Act 1991*, the AAPA has delegations associated with burials and skeletal remains.

The *Food Act 2004* is not cited here or in Appendix A Volume 1. This legislation is targeted at ensuring that food for sale is safe and suitable for human consumption and would apply to food supplied for consumption in the construction camp.

In addition there is no reference to the Public Health Act and associated regulations such as:

- Public Health (General sanitation, mosquito prevention, rat exclusion and prevention) Regulations;
- Public Health (Night soil, garbage, cesspits, wells and water) Regulations;
- Public Health (Shops, Boarding Houses, Hotels and Hostels) Regulations.

Section 1.8.2 Commonwealth of Australia Primary Legislation

It should be noted that the *Aboriginal Land Rights (NT) Act* is the fundamental power behind Northern Territory laws for protection of sacred sites. This Act also allows the establishment of Northern Territory laws.

Relevant acts to the activity not identified include:

- *Navigation Act 1912;*
- *Australian Maritime Safety Authority Act 1990;*
- *Environment Protection (Sea Dumping) Act 1981; and*
- *Petroleum (Submerged Lands) (Pipelines) Regulations 2001.*

Section 1.9 Related Environmental Approvals

Section 1.9

The proponent states p23 that:

"The Northern Territory will administer the longer portion of the sub-sea pipeline….*Petroleum (Submerged Lands) Act 2003."*

This statement is incorrect as the appropriate parent legislation is the Commonwealth *Petroleum (Submerged Lands) Act 1967*.

Statutory Approvals and Licences

The draft EIS p23, paragraph 3 establishes licences and approvals required for the activity. It should be noted that under the *Petroleum (Submerged Lands) (Pipelines) Regulations 2001* acceptances are required for pipeline management plans outlining:

- design and construction;
- operation;
- modification; and
- decommissioning.

This omission should be included in project milestones and in any revisions of the Environmental Impact Statement (EIS).

In consideration of the identified omitted legislative requirements it is suggested that the proponent review legislative risk and attendant planning/implementation risk including any influence this issue may have on the project timing/management.

It may be appropriate here to state that the Northern Territory Government require the proponents to obtain Authority Certificates for all developments.

Section 3.1.1 Stakeholder Engagement

It should be noted here that the proponents funded the NLC to carry out site protection surveys. The AAPA had no role with regard to these on-ground surveys. The NLC and the AAPA however, have agreed that Authority Certificates will be issued on the basis of NLC reports if they meet required standards specified by the AAPA.

Section 3.2 Key Stakeholder Groups

How will the proponent provide feedback to key stakeholder groups on proposed control methods relating to any issues they have raised?

Section 3.2.1 Indigenous Communities

With regard to sacred site clearances, again, the majority of consultative activities were carried out by the NLC.

Section 3.3.1 Indigenous

Development of a communication strategy appropriate for the project stakeholders should be considered.

This strategy could address issues such as the following;

“The proponent plans to form direct consultative relationships with traditional owners. Presently, the Northern Land Council (NLC) facilitates the majority of consultation. Criteria for engagement through the NLC as opposed to direct contact with traditional owners should be formalised to minimise potential jurisdictional conflict.”

Section 4.1 Project Overview

It is suggested that the ability to completely remove all project infrastructures at the decommissioning stage is included as a primary design criterion in the Front-End Engineering Design stage. See discussion in Section 4.9 of this review

Section 4.5.4 Sub Sea Export Pipeline

Disposal options and approvals for dredging spoil disposal have not been outlined in Section 4.5.4 for Commonwealth waters or Northern Territory coastal waters. It would be prudent to discuss options involving disposal of spoil at sea with the custodians of the Commonwealth *Environmental Protection (Sea Dumping) Act 1981* and the Northern Territory Department of Infrastructure Planning and Environment Office of Environment and Heritage as custodians of the Northern Territory *Water Act*.

The proponent should identify any possible effect trenching methods will have on the WALPINHTNI REEF sacred site. This discussion should include comment on alternatives, their impact and the basis of selection.

Section 4.5.6 Shore Crossing

The report should explore any possible effects of trench dredging would have on the WALPINHTNI REEF sacred site.

Section 4.5.7 Onshore Pipelines

Table 4.8 Landfall Construction Methods

It is noted that blasting will be conducted in the near shore area if necessary. What results from the previous geotechnical surveys justify the use of explosives in this location?

It is suggested that if an excavator is being used in the near shore area, as proposed in Section 4.5.6, then the area may be excavated using a rock hammer attachment. This method was successfully used as an alternative to explosives for the Bayu Undan project.

If blasting is to be conducted as part of trenching operations authorisations are required under the *Northern Territory Dangerous Goods Regulations.* Blasting risk assessment and any subsequent justification for use of this technique will need to address the concussive impacts on reef ecosystems.

Preparation of Right of Way

Temporary artificial depression of a water table may require the use of pumps to abstract water from the area of concern. Artificial depression of the water table has impacts that need to be addressed these being:

- lowering of the standing water groundwater levels below annual variation;
- discharge point of abstracted groundwater; and
- impacts on beneficial users (if any).

It is suggested that for this and the upcoming Trans Territory Pipeline project that Woodside contact the Controller of Waters within Department of Infrastructure Planning and Environment Conservation and Natural Resources Division to discuss.

The proponent plans to clear vegetation for a maximum width of 40m, along a 2.5km stretch. The proponent will require a land clearing permit under the *Planning Act.* Woodside have been advised of this requirement by the Agency. No work on clearing the Right of Way shall commence prior to receipt of this permit.

Rehabilitation and pipeline markers

Australian Standard 2885.3-2001 Section 6.2.2 'Patrol of route', Section 6.4.2 'Access to the pipeline' and Section 6.4.4 'Vegetation on and near the pipeline' need to be considered when rehabilitating the right of way especially with regard to and pipeline inspection and operational requirements.

Onshore export pipeline

It is mentioned elsewhere that wildlife maybe impacted by being trapped, exposed or dehydrated in the trench or in the cleared area. Will there be limits for time that sections of the trenches remain open or are the time limits restricted only to the development of the total pipeline?

4.5.8 Onshore Gas Plant

It is proposed to use approx 6000 m^3 of water to hydrotest onshore storage tanks and pipelines. The proponent indicates that they are considering the use of bore water or sea water, with the likely choice being bore water. The proponent should demonstrate their rationale behind the use of bore water as apposed to alternative options such as filtered seawater.

Bore water is of high quality and has other beneficial users as identified in Section 8.2.1. This issue should be discussed with the Controller of Waters within Department of Infrastructure Planning and Environment Conservation and Natural Resources Division.

The project requires the clearance of 64ha of native vegetation and will require a land clearing permit the *Planning Act*. Woodside has been advised that a permit will be required. No work on clearing the gas plant site shall commence prior to receipt of this permit.

Section 4.5.10.1 Access and Haul Roads

The proponent should acknowledge within the EIS the need for increased maintenance during construction on the proposed access route from Darwin to Wadeye to maintain accessibility at current standards and the need for re-instatement of the route on completion of construction.

In examining this issue the proponent should note all up-grading of roads will require Authority Certificates. AAPA records suggest that the Daly River-Port Keats Road has some particularly difficult site issues.

The proposed road from the Wadeye Airstrip to the Onshore Process Facility needs to address:

- Impact upon the proposed sub-division and
- Hazard to aircraft such as dust.

Section 4.5.10.3

Barge ramp pipeline shore crossing multi use area

Has the proponent considered the option of combining the pipeline shoreline crossing with a barge ramp? The areas for the pipeline shoreline crossing and the right of way to the gas treatment plant would have already been cleared to facilitate construction. As suggested on pp 98 paragraph 1, the right of way could then accommodate a dry weather haul road.

Has the proponent considered the option of upgrading the road to an 'all weather road' from the pipeline shoreline crossing to the gas treatment plant. This will be not only a useful facility during the construction phase as an all weather transport route.

Section 4.5.10.4 Wadeye Airstrip

Table 4-10 alludes to the use of helicopters or light aircraft to transport personnel to the plant site. The use of helicopters is not detailed in the report.

The use of helicopters at Wadeye will require the construction of a helipad with associated infrastructure in line with CASA guidelines. It is requested that the proponent address the use of helicopters including the process to ensure appropriate infrastructure is in place in a timely manner.

Section 4.5.11 Construction Materials and Infrastructure

In accordance with the Northern Territory *Mining Act* and *Mining Management Act* construction materials including rock fill and aggregates should be sourced from valid mining tenements with appropriate authorisations. It would be prudent to discuss extractive options and other mining related issues with the Department of Business, Industry and Resource Development Titles and Mining and Petroleum Management Divisions.

4.5.11.1 Quarantine and Staging Areas

The EIS refers to the possible requirement for a quarantine and staging area in Darwin, but no detail has been provided. Will the proponent be using Darwin, another site in the NT or will material be inspected overseas?

Establishing such a site may have timing and regulatory implications for the project.

Section 4.5.11.3 Construction Waste Materials

The proponent states that "…materials are compacted via disposal at the Wadeye Council Landfill Facility, subject to capacity and approval." What other options are available if the Wadeye Landfill does not have the capacity and compatibility or if approval is not given to dispose of project wastes?

4.5.11.4. Aggregate Sources Gravel

It is important that the proponent note that all such areas require Authority Certificates.

In accordance with the Northern Territory *Mining Act* and *Mining Management Act* construction materials including rock fill and aggregates should be sourced from valid mining tenements with appropriate authorisations.

This will need to be considered prior to the commencement of extractive activities and may be discussed with the Department of Business, Industry and Resource Development Titles and Mining and Petroleum Management Divisions.

4.5.13 Construction Workforce & Accommodation

There is no mention of the provision of a commercial food preparation facility for the construction camp. Such a facility will need to comply with the

requirements of the *Food Act 2004 and Food Standards*. The construction camp and the subsequent permanent camp will also require registration as a boarding house in accordance with the *Public Health Act and Regulations*.

All building works must comply with *NT Food and Public Health Acts and Regulations* and the Building Code of Australia and be carried out to the satisfaction of the DHCS Environmental Health Darwin Rural office.

Detailed plans, in relation to work proposed within the terms of the above legislation, must be submitted to DHCS Environmental Health Darwin Rural for assessment, prior to any works commencing.

Section 4.6.3 Export Pipeline

Information regarding the categories of chemicals to be used to conduct the hydrotest should be included in the EIS. It is understood that the specific chemicals to be used have not been selected but a general discourse demonstrating associated risk awareness could be included addressing items such as:

- toxicity;
- environmental persistence; and
- expected breakdown products primary, secondary and tertiary

It should also be noted that a discharge license under the Northern Territory *Water Act* will be required as the discharge location is within NT Coastal Waters.

Hydrotest chemicals

It is requested that the proponent provide a review regarding environmental impacts of discharges associated with releases of hydrotest water. The objective is to identify the average range of chemical concentrations expected to enter the marine environment resulting from the release of hydrotest water. What criteria will be used to select chemicals that are 'environmentally suitable'?

Volume of discharge

The volume of hydrotest water to be discharged in the nearshore environment is almost 13 times the daily volume of produced formation water (PFW) to be discharged at peak period. The volume of hydrotest water to be discharge in a day will be greater than predicted peak volumes of PFW.

Predictive modelling of plumes

In consideration of the chemical constituents of hydrotest water and the volume of the discharges for both the export pipeline and the onshore storage facilities, modelling of hydrotest discharge plumes should be undertaken. The location of the discharge in the nearshore marine environment and the proximity of sensitive environmental receptor such as Emu Reef and Howland Shoals is of key concern.

Verification of model outputs

It is noted on pp 14 of (Teikoku Oil (Bonaparte Gulf) Co Ltd 1994) that the high turbidity of waters within Joseph Bonaparte Gulf (the Gulf) ' improves markedly' north of Point Pearce. This would suggest that the discharge location is not under the influence of currents experienced in the lower sections of the Gulf (Teikoku Oil (Bonaparte Gulf) Co Ltd 1994). On page 50 of Appendix J Volume Two Technical Appendices Blacktip Environmental Impact Statement it is stated that " there are no specific current measurements in the region of the Blacktip development,….". Considering the importance of the nearshore environment to traditional subsistence, will verification of modelled current movements be undertaken prior to discharge of hydrotest waters from the condensate or produced formation water discharge pipelines?

The wind data used as input to the model parameters utilises records for the years 2000 to 2003. For the purposes of running a robust model is the wind data sufficient to represent the typical of the wind regime for the near shore area?

Alternative discharge location

Has alternative locations and techniques for the disposal of produced formation water (PFW) such as at the well head, land based disposal or onshore treatment prior to disposal been considered? The environmental sensitivities of the proposed discharge site and the importance of the area for traditional subsistence need to be taken into consideration

As an example hydrotest discharge could potentially be undertaken at the well head platform. The water depth and greater distance to environmental sensitive receptors reduce risk associated with the discharge of PFW and hydrotest water at the well head platform in comparison to the nearshore outfall.

The EIS states that the risk posed by Process Water is low based on expected contaminant levels, treatment before release, volumes released and dilution. The EIS gives a commitment to characterise the contaminants of Process Water and assess its effect on the marine environment both off-shore and on-shore. These additional studies are required to confirm the minimal effect Process Water discharge is expected to have.

These waters will be treated with biocides and oxygen scavengers which have yet to be specified. The EIS states that a Pipeline Flooding and Hydrotesting Procedure and a Pipeline Pre-commissioning Procedure will be undertaken for review and approval prior to the commencement of hydrotesting. These procedures are required if discharge of hydrotest waters is to occur within NT jurisdiction.

Section 4.7.1 Onshore Production and Onshore Pipeline Operation

Onshore export pipeline

In paragraph two it is identified that the frequency of pigging and pipeline right of way inspections will be defined in the pipeline license. It is suggested that this information will be set out in the construction and operations pipeline management plans rather than within the pipeline license.

Section 4.7.2.2 Excess Gas and Flare

It is stated that "there is potential for forward notice to be given to the local community of the timing and duration of" gas flaring. Although infrequent, medium and large flames will be highly visible and may initially cause concern at the Wadeye Community. What measures will be taken to allay the Wadeye Community's initial concerns about medium & large flames? In addition the noise management plan should address informing local stakeholders of planned flaring.

Section 4.7.5 Operational Access Routes

The proponent should assess the capacity of the Wadeye airstrip to handle competing usage and increased maintenance requirements?

Section 4.8 Ancillary Systems, Facilities and Support

Onshore

The potable water supply

shall comply with the NH&MRC Australian Drinking Water Guidelines 1996. Bore setbacks to onsite wastewater disposal shall be in accordance with the *Code of Practice for Small On-Site Sewage and Sullage Treatment Systems and the Disposal or Reuse of Sewage Effluent.*

Section 4.8.2 Diesel and Chemical storage

How will well head platform design incorporate spillage control techniques for chemical storage areas? Will biocide be stored on the well head platform?

Onshore storage

What mitigation measures will be taken to prevent soil contamination from spillages in the diesel drum storage area during the construction phase? Will there be any petrol stored onsite as there are issues with potential petrol sniffing at the Wadeye Community. Will the diesel and chemical storage comprise a secure compound?

4.8.3 Cooling & Heating Systems

Onshore

Will there be any cooling towers that pose a *Legionella* risk to employees or the public? DHCS Environmental Health Darwin Rural office requests to be notified of these cooling towers as part of the Legionella Risk Management Strategy. Cooling towers must comply with the relevant Australian Standards.

4.8.8 Drainage Systems

Onshore

Open & closed drainage systems must be designed to minimise mosquito breeding onsite (refer Medical Entomology comment in Part 2 of this correspondence).

4.8.9 Sewage and Putrescible Waste

The proponent alludes to the use of the Wadeye landfill for disposal of the sludge from the permanent sewage treatment facility. This facility is unlikely to be suitable. There needs to be more detail provided as to alternatives should this concern be realised. In addition what options have been considered in determining the use of Wadeye Landfill as the preferred disposal option.

For example;

Has consideration been given to transporting primarily treated sewerage to the Wadeye sewerage treatment plant as a temporary measure?

What system is intended for use during the operational stage conventional septic tanks or alternatives treatment systems?

It is stated that “all sewage systems will be approved by the Northern Territory Health Department”. Any sewage treatment systems used during the construction and operational phases 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.

Section 4.9 Decommissioning

It is stated on page 130 that decommissioning is considered on a case by case basis at the time of expiration of the permit, license or lease.

Planning for decommissioning of the well head platform, pipeline and onshore plant should be considered in the front end engineering design to ensure continual refinement over life of project and ensure “unexpected surprises” are resolved in advance of closure.

This planning could include financial provisioning in advance of closure and the evolving nature of industry best practice. As an example;

> Resolution A.672 (16) of the International Maritime Organisation 1989 ‘Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone’, Standard 3.13 states
>
> *“On or after 1 January 1998, no installation or structure should be placed on any continental shelf or in any exclusive economic zone unless the design and construction of the Installation or structure is such that entire removal upon abandonment or permanent disuse would feasible”*

Section 4.9.2 Offshore approvals framework

It is stated ‘that the regulatory authority has prime responsibility for the coordination, consideration and approval of decommissioning activities under the P (SL) A.’ (pp 131 Woodside, 2004).

The regulatory authority is principally concerned with consideration of decommissioning options and acceptance/approval of decommissioning activities under the *Petroleum (Submerged lands) Act 1967* and its associated subordinate legislation. The role of the regulator in coordination of decommissioning extends to the timely provision of approvals to conduct the activity. Coordination of activities is the responsibility of the operator at the time of decommissioning.

Section 4.9.4 Wellhead platform

Resolution A.672 (16) of the International Maritime Organisation 1989 ‘Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone’, Standard 3.1 states: “ *All abandoned or disused installations or structures standing in less than 75m of water and weighing less than 4,000 tonnes in air, excluding the deck and superstructure should be entirely removed*.” Standard

3.2 of the above resolution states "*All abandoned or disused installations or structures emplaced on the seabed on or after 1 January 1998, standing in less than 100m of water and weighing less than 4,000 tonnes in air excluding the deck and superstructure shall be entirely removed*."

It is suggested that Woodside consider these and other identified standards during front end and detailed engineering design phases.

Section 4.9.5 Export Pipeline

An option not discussed in the EIS is if other facilities built in the future are using the pipeline as a common carrier at the time of decommissioning the Blacktip facility. This is a distinct possibility given the interest in gas reserves within the Joseph Bonaparte Gulf and future gas supply requirements for Darwin/Northern Territory. Consideration should be given to this possibility and how decommissioning requirements outlined in the EIS may be impacted. The potential for the development of other petroleum facilities in the Joseph Bonaparte Gulf and their importance to the future energy demands for Darwin/Northern Territory is identified and acknowledged in dot points 2 and 3 on pp 136 Chapter 5 of the EIS.

Section 5.3.4 Summary

From an environmental risk perspective offshore processing of wellstream fluids would be the preferred option. Discharge of PFW at the wellhead platform would pose reduced risk to the nearshore marine environment due to the physical separation of chemicals of concern relative to sensitive environmental receptors. Processing and storing condensate offshore also minimises risks associated with oil spills in the nearshore environment.

If processing were to take place offshore the costs associated with condensate processing and storage offshore would be offset by the reduced requirement for processing infrastructure onshore and further reductions in costs and disturbance related to the swamp mooring. Risk is further reduced by removing any events related to unplanned hydrocarbon discharges into the marine environment.

Though modelling (Appendix J) has indicated that the impacts of PFW on the near shore environment are acceptable, it is not critical that PFW be discharged at the nearshore location.

The main driver in relation to the onshore processing option is project economics. A rational on the weighting's given to the selection criteria should be provided within the text.

PFW contains more constituents of concern than hydrocarbons. Process chemical and potential radioisotopes will also entrained in PFW. It is requested that further consideration be given to the impacts of the nearshore PFW pipeline outfall in the long term? This should include potential for

bioaccumulation in lower trophic levels and the potential for tainting of traditional subsistence fisheries.

Section 5.6 Pipeline Shore Crossing Location

Page 142 (and Appendix B). 'No offshore reefs'. This statement is contradicted by the finding of coral (specifically gorgonians) assemblages at site Pipeline 11 (Section 7: 177; Appendix B: 37). The fact that more were not collected reflects the use of an inadequate hard bottom-sampling device. A rock or scallop dredge should have been used.

The report states (Page 141-2) that the proposed shore crossing site offered:

> "… the most flexibility in the event that minor deviations to the off-shore components are made. Wadeye offers a better alignment than the TransTerritory Pipeline and the shorter off-shore route with no off-shore reefs".

This is contradictory as the EIS indicates that the **WALPINHTNI REEF** may be endangered by trenching activities and mooring anchors. The report should list the efforts made to avoid damage to the **WALPINHTNI REEF** site when the shore crossing location was decided upon.

Section 5.9 Condensate Treatment and Export

There is no mention here of considering sacred site concerns, eg the WALPINHTNI REEF sacred site. There is no mention of alternative routes that could avoid any possible damage to the site. Such alternatives and the reasons why they were rejected require discussion.

6.2.1.1 Non-Hazardous Solid Waste

It is stated that the "exact quantities of waste are not known at this stage and will be dependent on the numbers of personnel involved and the approach taken for construction".

Notwithstanding, there is no guarantee that the Thamarrurr Community Government Council's solid waste dump has the capacity nor the management to receive waste from the project site. The proponent may need to construct a new waste management facility for its exclusive use or consider negotiating with Wadeye Council to joint manage a shared facility. Waste management facilities must not cause a nuisance under the *Public Health Act.*

6.2.1.2 Liquid Waste

Refer 4.8.9. Will the drainage management system address the risk of cross-contamination between wastewater and potable water. Will there be different coloured pipework, different types of taps, installation of back flow prevention

devices, and a risk management strategy? DHCS Environmental Health Darwin Rural would be interested in seeing further documentation of the drainage management system once it is developed.

Any industrial waste should not be discharged to an onsite wastewater disposal system. Oil/grease removal systems should comply with Power and Water Corporation's *Guidelines for On-site Pretreatment.*

6.2.3.1Non-Hazardous Solid Waste

Refer to 6.2.1.1

6.2.3.2 Liquid Waste

It is stated that the 'largest volume of liquid waste will arise from the Produced Water Facility which discharges approximately 3km offshore'. What is the composition of the produced water, particularly microbiological quality? This is important in assessing potential algal blooms and shellfish contamination. Shellfish maybe consumed by the Wadeye Community or be harvested for commercial sale.

6.2.3.3 Hazardous waste

Once it is determined how the silica gel will be replaced, then DHCS Environmental Health Darwin Rural requests details particularly with regard to the transport of the hazardous waste.

6.3 Atmospheric Emissions

Will there be any health impact on the Wadeye Community from the atmospheric emissions from the plant? What do people do if they claim that they are being affected by emissions from the plant? What mechanisms will be in place to monitor and assess complaints?

Section 6.4 Noise and Appendix A Volume 2

All readings within the report have been taken in the db(A) scale with readings as high as 120 db(A) (similar to a jet aircraft). Whilst the db(A) scale is chosen to reflect neighbourhood or nuisance noise levels (because it best reflects the hearing range of the human ear) it is not suitable on its own for addressing potential noise induced hearing loss. What would normally be required is for a complete Octave Band frequency analysis to be undertaken. This would indicate levels within all frequencies and may in fact reveal levels far exceeding 120db when all octave bands are considered. With levels of 120db(A) being expected during pipe venting and even levels of 117db(A)

being expected from generators, sound levels are an important consideration and Octave Band analysis should be conducted to give a more realistic picture.

Section 7 Existing marine environment.

The marine offshore fauna survey generally is inadequate: it is based on four days' grab-sampling only, a technique that collects sediment infauna and the occasional benthic animal. Use of dredge or underwater video would have been more appropriate sampling methods. From the data provided it would appear that the Western Australian Museum (WAM) or MAGNT do not appear to have been contacted for fauna records from the area? For example, there are hundreds of regionally relevant records in MAGNT databases.

All the conclusions about the fauna are based on this survey. It is stated that sand waves and soft featureless sediments dominate the offshore environment. However, a few grab samples do not give a good idea of what the fauna really is.

Section 7.2.2 Climate

On page 172 of the EIS reference is made to the number of cyclones experienced in the Joseph Bonaparte Gulf as being ten cyclones per decade. The reader is then referred to Figure 7.2. Figure 7.2 indicates that the average annual number of tropical cyclones for the proposed Blacktip facility is close to the boundary of 0.2 and 0.4 events. What is the expected frequency of cyclonic activity?

Section 7.2.4 Oceanography and Water Quality

Information on water quality nearshore is available from the work undertaken by LeProvost Dames and Moore for Teikoku Oil (Bonaparte Gulf) Co Ltd in 1994. This information includes turbidity, water temperature and salinity. Records of current speed and direction have relevance to modelling of discharges in the nearshore environment.

Section 7.3.1 Regional Setting

The statement 'high turbidity and river flows appear to limit epibenthic development' does not hold true in Darwin Harbour, which in parts has a very diverse epibenthic assemblages and it is also likely to be untrue for the Joseph Bonaparte Gulf. In fact high turbidity/tidal flow is likely to be primary reason for the diverse communities of sponges and soft corals in Darwin Harbour.

On Page 183 it is stated that Figure 7-4 shows the extent of mangroves in the Joseph Bonaparte Gulf and surrounding area.' In fact Fig 7-4 only shows the distribution of mangroves in the area where the proposed pipeline will cross the shore.

Section 7.3.4 Invertebrates

On Page 192 the prawn species are discussed, but the text is very general and poorly referenced, so that the reader does not know where the information comes from or if it is relevant to the area. It appears that the proponent has not contacted NT Fisheries for information on prawn species diversity, by-catch etc.

In 1993 the NT Department of Infrastructure Planning and Environment and MAGNT conducted a joint marine fauna survey from Anson Bay to the Beagle Gulf – a region directly comparable to that described in the EIS. The material from this work is held at MAGNT. This survey is not even mentioned in the EIS, despite this survey being the only biological survey ever carried out close to the EIS region.

Section 7.3.2 Seabed Habitats and Communities

Corals

Page 187. The gorgonian corals mentioned on Page 142, collected during the survey of the proposed pipeline route, are not mentioned in the section on Corals. They should be. The proposed path of the pipeline goes through a coral patch and the extent of this should be further analysed by appropriate sampling methods. This would be far more pertinent than the discussion of the corals from the Ashmore Cartier Group, which lie well offshore in the Timor Sea.

Section 7.3.3 Intertidal Habitats and Communities

Page 188. Lower intertidal habitats and communities of the sand beach/sandflat are not discussed, and a comparison is made between the upper intertidal of Northern Yelcher Beach with the mid-tidal zone at Southern Yelcher Beach. This is not a valid comparison given the degree of zonation expected on these beaches (esp. Northern Yelcher, which has relatively steep relief).

7.3.5. Fish

This section refers to a WA survey of the Kimberley region and to an unpublished 1994 Dames and Moore report on Darwin Harbour. The publication by Larson and Williams (1997) is more up to date and accurate on Darwin Harbour fishes. It would be relevant here to discuss the Anson Bay/Beagle Gulf survey (which obtained many fishes). This section does not deal adequately with presence of endangered or threatened elasmobranchs or other fishes in the EIS region as is required.

Section 8 Existing Terrestrial Environment

This section lacks detail on small, cryptic fauna that can only be obtained through comprehensive, multi-seasonal surveys.

8.2.5 Geology and Soils

The EIS states that an on-site study was to be completed by the end of 2004 to determine the extent of acid sulphate soils along the pipeline route, landfall site and proposed plant site. This follows from the desktop study presented in Appendix D of Volume 2. This study has not been presented and the actual extent of ASS is therefore unknown.

The report generated by the on-site shall be submitted.

Section 8.3.1 Regional Ecological Setting

How has the design of Flora and Fauna surveys ensured adequate and appropriate information is obtained in relation to this setting.

The lack of information regarding the presence of threatened fauna in the proposal location should be investigated along with the other identified areas where there is a paucity of information.

Section 8.3.5 Fauna Habitats and Species

Examination of the Fauna habitats and species (8.3.5) indicates that the fauna species lists were compiled from a single brief 5 day (dry season) survey and a search of the NT Fauna Atlas database. Due to this poor survey effort, the compiled list is a considerable underestimate of the terrestrial vertebrate species liable to be present. Additionally, further doubt on the veracity of the given species list is given by the inclusion of some taxa, admittedly taken from the Fauna Atlas database, whose distributions do not include the project area. These are the scincid lizards *Carlia longipes* and *Glaphyromorphus nigricaudis* (Appendix 3 of Appendix H), both only known from north-east Arnhem Land in the NT, and the freshwater turtle *Emydura worrelli* (Table 3 of Appendix H) known only from the Roper River drainage system in the NT.

Although, the areal extent of the project is relatively small, and is contained within a much greater area of similar surrounding environment, the terrestrial fauna species list provided does not satisfy the requirement that significant species (including the few mentioned) do not occur on the project's site.

Section 8.3.6 Biting Insects

For the management strategy proposed floristic composition and diversity may be impacted.

What is the rational associated with the burning of Swamp 1 to minimise mosquito habit? What alternative mechanisms have been explored?

Section 9.5 Military Zones

Defence areas are impacted on in the offshore and onshore component of the project. Whilst the EIS indicates that further consultation with Defence is to occur it implies that the tacit approval of the Department of Defence to the infringement in its naval training and RAAF exercise areas. A definitive statement to that effect from the Department of Defence should be a prerequisite to an EIS approval.

Section 9.5.2 Offshore Military Exercise Zone

Have appropriate procedures and processes been established regarding identification of any unexploded ordinance in the construction area.

What agreements or relationships are in place in regard to the shared use of this area particularly in relation to risks associated stray firing impacting on the project.

Section 9.7 Fisheries

The EIS discusses fisheries of all kinds, but just their presence and number of licences, and almost nothing as to what is caught in these fisheries or their bycatch, which could provide faunal community information. Very little of the information provided is adequately referenced. It is presumed that it must have come from NT Fisheries reports – so why not say so? In particular, the text on traditional fisheries must have come from Coleman (2003) or Henry and Lyle (2003), and it should also be referenced.

Section 9.9.2 Terrestrial Archaeology

There is a possibility that archaeological sites are also sacred sites. The *NTASSA* defines a sacred site as:

> "… A site that is sacred to Aboriginals or otherwise of significance according to Aboriginal tradition, and includes any land that, under law of the Northern Territory, is declared to be sacred to Aboriginals or of significance according to Aboriginal tradition".

Section 9.10 Aboriginal Heritage

A more defined usage of the term “sacred site” is required. The *Northern Territory Aboriginal Sacred Sites Act 1989 (NTASSA)* defines a sacred site as:

> “… a site that is sacred to Aboriginals or otherwise of significance according to Aboriginal tradition, and includes any land that, under law of the Northern Territory, is declared to be sacred to Aboriginals or of significance according to Aboriginal tradition”.

The EIS uses numerous terms to describe sacred sites. For instance, the following are used:

- Aboriginal sensitive cultural site
- Cultural site
- Aboriginal cultural site
- Aboriginal sites
- Aboriginal heritage sites
- Sites and sensitive areas
- Aboriginal sites of significance.

A section that clearly illustrates the *NTASSA*’s definition of a sacred site and the penalties for illegal entry, illegal work and desecration of a sacred site is required.

Following this, consistent usage of the term ‘sacred site’ is required throughout the EIS. All ‘sacred sites’ are protected. A proponent requires an Authority Certificate and must work in accordance with the conditions of the Certificate.

A clear explanation of the Authority Certificate process under the *NTASSA* is needed. Also, a clear statement that the Northern Territory Government’s requires Authority Certificates for all project development is essential. In such a section the proponent’s commitment to obtaining Authority Certificates also requires re-statement.

The particular process of obtaining these Authority Certificates for this development requires explanation in the EIS. As the report clearly indicates, the Northern Land Council (NLC) was funded by the proponents to perform sacred site protection surveys. The AAPA was not involved in these surveys. Arrangements have been made between the NLC and the AAPA for the issue of Authority Certificates on the basis of NLC reports, assuming such reports meet minimum AAPA requirements which the NLC are aware of.

A preliminary report has been received from the NLC, however further reports are required before an assessment can be made as to whether Authority Certificates can be issued.

The EIS suggests that the sacred site WALPINHTNI REEF may be interfered with by off-shore developments. The report should discuss such a possibility in more detail and the efforts made to minimise damage, for example, re-routing the off-shore pipeline and mooring facility. If the off-shore pipeline and mooring facility cannot be shifted, the reasons for this inability should be clearly stated.

Section 9.10.1 Aboriginal Sites of Significance

Under "sacred sites" (page 285), the report states that sacred site surveys were undertaken by the NLC in conjunction with traditional owners.
It also states that it has been a high priority of Woodside not to damage or impact on sacred sites. It is indicated that, "None of these sites will be impacted on by the proposed development". However, the EIS strongly suggests that the WALPINHTNI REEF sacred site will be impacted. If this is the case, then the above statement should be altered.

Two Aboriginal groups are identified as having responsibility for various sacred sites. These are variously spelt as: YAK MANNING, YAK MANINH, YAK DIMINHIN and YAK DIYMINH. Consistent spelling is required.

Section 10 Risk Assessment Approach

Has the proponent given consideration to risk assessment of terrorist activity for an unmanned wellhead platform?

The EIS has not discussed the risk assessment of environmental impacts of export pipeline rupture for the following events:

- strike by sinking vessel; and
- dropped objects.

Consideration may be given to;
- Has the pipeline design incorporated subsea and onshore isolation valves?
- The use of plume discharge modelling for the near shore and offshore marine environments.

In addition, social impact assessment indicates that consultation with the community of Wadeye has been undertaken. It is assumed that the risk to the community associated with catastrophic failure has been discussed however, have these risks been understood by the community? It is requested that Woodside demonstrate that the community of Wadeye has understood the risks inherent with the project (pers comm Matthew Stephen 2005).

Section 11. Marine impacts

One definite impact will be that of a large artificial reef – the wellhead platform. This is likely to be a positive impact, from the viewpoint of the marine fauna. There do not seem to be any plans to sample and monitor settling and colonisation of its structure and surroundings for fish and invertebrates. In addition, how else can aquatic pest management be effective unless the "fouling" fauna is regularly sampled and identified? This is an opportunity for the proponent to be proactive. This monitoring should be seriously considered.

Section 11.4 Summary of Marine Impacts

This table should also summarise the possible negative effects on the WALPINHTNI REEF sacred site.

Section 11.3 Seabed Disturbance

What will be the expected location of the cargo vessel anchors forward or to the rear of the swamp mooring?

Page 335. 'There are no known coral reefs, seagrass beds or other areas of sensitive bottom habitat along the pipeline route (Fugro 2004) (repeated 2 times on this page; see also ES: 8). Fugro appears to be a geotechnical report and it is doubtful if much attention was paid to the biota. Besides, this statement directly conflicts with the finding of gorgonians at site Pipeline 11 (Section 7: 177; Appendix B: 37).

The proponents state the WALPINHTNI REEF is a sensitive Aboriginal cultural site. The term "sacred site" should be used rather than "sensitive Aboriginal cultural site".

They also indicate there is potential for its disturbance by near-shore pipeline laying and shore pull activities. This contravenes previous statements which indicate that no sacred site will be damaged. This section should indicate any possible alternatives for the location of the pipeline and mooring facilities.

Pages 366 and 375

Comment on the effect oil and hydrocarbon spillage may have on the WALPINHTNI REEF sacred site is needed.

Section 11.4 Beach disturbance

The Flatback turtle is listed as vulnerable under the Commonwealth *Environmental Protection Biodiversity and Conservation Act 1999*. Though it is stated that the area is not critical for the survival of the species this does not mean that importance of the nesting area should be discounted. The contribution of the project to increased mortality amongst hatchlings in an already vulnerable species needs to be put in context. The following is taken

from the Commonwealth Department of the Environment and Heritage (DEH) Marine Turtles website:

"When breeding, nesting females return to the same area, thought to be in the region of their birth. As hatchlings, they become imprinted to the earth's magnetic field and, possibly, the smell of the waters adjacent to the nesting beach which allow them to successfully complete their migration." (DEH, 2005)

"Between nesting efforts, female turtles gather adjacent to the nesting beaches. They return to the same beach to lay consecutive clutches." (DEH, 2005)

The occurrence of nesting sites in eastern portion of the gulf coastline is less frequent than areas further to the south. The rarity and presence of the nesting sites in the vicinity of the proposal site makes these important on the regional level. This issue requires further consideration.

Section 11.6 Marine Pest Species

Page 341 does not adequately address aquatic pests, in particular the translocation of non-indigenous fouling species on rigs etc. This section and later (Table 15-3, Page 491) largely ignore introductions of marine pests through hull and structure fouling.

Further the Australian Quarantine and Inspection Service (AQIS) Australian Ballast Water Management Requirements Section 4 states that "*Ballast exchanges must be conducted outside the Australian 12 nautical mile limit. It is also recommended that ballast exchanges be conducted as far as possible away from shore and in water at least 200m deep.*" (pp 5 AQIS, 2001) The EIS identifies that the wellhead platform as a suitable location for international shipping to conduct ballast water exchange. It is suggested that Woodside reconsider conducting ballast water exchange at the well head platform given the water depth recommendation described in the AQIS Ballast Water Management Requirements

Section 11.8 Drilling Waste and Discharge

'Benthic organisms are widely distributed in the area of the proposed development and the environmental impact associated with drill cutting disposal in predicted to be minor due to the relatively small area protected and the [presumably] wide distribution of similar community types throughout the region'. Add 'presumably', as there is little or no data available to characterise the benthic communities in these areas.

What is the cumulative impact associated with drilling a number of wells at the location? The proposal indicates that the number of wells may be between two and six. The cumulative impacts of batch drilling programs should be discussed. What are the volumes of drill cuttings expected to be discharged?

Given the jurisdiction in which drilling is to be undertaken consideration needs to be given to this issue in light of the Western Australian Department of Industry and Resources policy regarding cumulative impacts of discharges from batch drilling.

Changes in reduction oxidation potential

The next logical step is to consider chemical changes that result from oxygen depletion ie from aerobic to anaerobic decomposition. Changes to the oxidation reduction potential of the benthos may lead to the preferential release of heavy metals or other elements from the sediments.

Decomposition of drilling fluids in an anoxic environment would preferentially use sulphur as the next oxidising element if available. One of the products of anaerobic decomposition is methane gas. The following information related to gas impacts including methane homologues is provided in Patin 1999.

"The concentrations of bottled gas that caused the death of 50% of the fish during 48 hours (LC_{50}) equaled 1-3 mg/l [Umorin et al., 1991]. For zooplankton, this concentration during a 96-hour exposition was 5.5 mg/l without air pumping and 1.75 mg/l with it. These results suggest that fish are more vulnerable to the effects of methane homologues than zooplankton. They also indicate that acute toxic gas effects in fish start under minimum concentration of about 1 mg/l, which approximately match the results from field observations as previously described. Some other studies give similar values of LC_{50} (96 hour) of natural gas for zooplankton, zoobenthos, and fry of marine fish (0.6-1.8 mg/l) [Borisov et al., 1994; Kosheleva et al., 1997]."
(Patin, 1999)

Information is required for the primary secondary and tertiary breakdown products of non-water based drilling fluids, including persistence. Non water based drilling fluids are proposed for use in the lower sections of the production wells if conditions require.

The above reference is also relevant to subsea releases of raw wellstream fluids from the export pipeline.

Section 11.13 Hydrotest waters

Please provide further justification for the stated hydrotest discharge location. See discussion Section 4.6.3 of this review.

Section 11.14 Scale

Precipitation of naturally occurring radioactive materials (NORMS) within production equipment needs consideration in more detail. The discussion should include:

- any ecological impacts of radioisotopes entrained in PFW discharged on the near shore environment specifically bioaccumulation in lower trophic species; and

- disposal options for norm generated as result of onshore/offshore operations.

There are currently no onshore facilities in the Northern Territory, which accept low specific activity wastes. The preventative measures outlined in Section 11.20.3 of the EIS will not be sufficient if NORMS disposal becomes an issue during the project lifecycle. It is suggested that Woodside discuss available disposal options with the custodians of the Northern Territory *Radiation (Safety Control) Act*, the Department of Health and Community Services, Environmental Health Section.

Should scale containing NORMs be recovered from the production process, then DHCS' Radiation Protection requests a detailed plan to provide advice on the assessment of disposal options.

Section 11.18 Produced Water

It is stated that 'biological communities are unlikely to experience prolonged exposure to the PW plume' and that the produced water is treated and discharged 3km offshore via a pipeline. What mitigation measures will be taken to ensure that the produced water, particularly on incoming tides, does not affect the fish and shellfish sourced by the Wadeye Community and commercial harvesters from the project area? Will the proponent conduct ongoing testing measuring toxic effects on marine fauna & flora in the project area to verify their claims? The Wadeye Community does not have the capacity to do such testing and will likely expect answers from the proponent confirming that the fish and crabs are safe to eat.

Section 11.19.2 Effects on Biota

The following impacts associated with discharge of hydrocarbons into the nearshore marine environment require consideration:

- oil spill beaching on 20km of coastline on subsistence fisheries; and
- remedial treatments for rocky platforms oil subsequent to a spill.

Section 11.20.3 Hazardous Waste Stream & Chemicals

DHCS Environmental Health Darwin Rural requests to see a copy of the Waste Management Plan.

The International convention for the Prevention of Pollution from Ships 1973 Annex 3 Regulation 8 Discharge of Sewerage (1) (a) states that *"the ship is discharged comminuted and disinfected sewerage using a system approved by the administration in accordance with regulation 3(1) (a) at a distance of more than four nautical miles from the nearest land, or sewage which is not comminuted or disinfected at a distance of more than 12 nautical miles from the nearest land,…*' Information provided in the EIS should to be amended to reflect this requirement.

Section 12 Terrestrial Impacts, Management and Prevention

There should be some discussion about possible effects on sacred sites.

Section 12.2.1 Preventative & Management measures for acid sulfate soils

It is stated that 'acid generation from soils can affect human health'. There is potential for a moderate to high risk of acid sulfate soils around the shore crossing. What mechanisms will be put in place to monitor the prevalence of acid sulfate soils? DHCS Environmental Health Darwin Rural requests a copy of the ASS site investigation report.

Section 12.2.2 Hydrology & Water Quality

DHCS Environmental Health Darwin Rural requests a copy of the Groundwater Protection Management Plan. The plan needs to demonstrate that there will be no detrimental impact on the groundwater sourced by the Wadeye Community.

How will small systemic leaks over long periods of time be captured? To this end, will analysis of groundwater beneath the onshore processing be undertaken at scheduled intervals as part of the proposed monitoring program? It is noted that groundwater monitoring is not established in Table 15.1 of the EIS. Suggested contaminants of concern are hydrocarbons and faecal coliforms. It is acknowledged that Table 15-10 outlines proposed groundwater monitoring.

The hydrological risk assessment indicates a high primary risk of contamination of ground water. There is reference to a Ground Water Protection Management Plan, however there is insufficient detail provided

12.3.3 Fauna Capture in Open Trench

A major impact on the local terrestrial fauna will be the 2.5 kilometre trench, open for several weeks (Table 12.2). Although preventative measures, such as escape ramps at regular intervals along the trench, are proposed, many of the smaller animals likely to be trapped in the trench (eg small lizards) may

not locate a ramp. As a further management measure, placement of numerous sheltering sites (eg flattened cardboard boxes) on the trench floor would provide shade and protection from predators.

While the EIS addresses potential impacts on terrestrial fauna and gives commitment to mitigation measures, it does not supply enough information on species likely to be present and, therefore, does not adequately address their management.

Section 12.4 Biting Insects and Mosquito Bourne Disease

The Entomology Branch of the Department of Health and Community Services request that the proponent discuss the potential to include within the monitoring program (refer tables 15-1 and 15-13) larval identification.

Section 12.5.1 Non Hazardous Solid Waste Stream

Refer to 11.20.3

Section 12.5.2 Liquid Waste Stream

It is not recommended that the Wadeye Sewage Treatment Facilities be used as a backup for the disposal of sewage sludge from the project. There has been a history of sewage pond failures across the NT when they are shock loaded with sludge and so it is unlikely that Power and Water Corporation will approve any application for this activity. DHCS would not support this proposal.

It is noted that DHCS Environmental Health Darwin Rural must approve the onsite wastewater disposal systems.

Decommissioning of system may require capping of pipes, pumping out and filling of septic tanks.

Section 12.5.3 Hazardous Waste Stream

What security will be afforded to ensure that the hazardous waste is secure?

Section 12.5.4 Chemical & Hydrocarbon Spills

Potential petrol sniffing is a concern for indigenous communities, therefore as a public health intervention fuel must be kept secure, particularly petrol. What measures will be taken to ensure that fuel is kept secure?

Section 12.6 Atmospheric Emissions

The report states that the proponent will minimise atmospheric emissions including dust and odours. A monitoring program will also be conducted. What involvement will the Wadeye Community have with the monitoring program and what are their options to voice concerns about possible atmospheric emissions from the project?

Dust contributes to diseases such as trachoma and may cause complications for asthma sufferers. Therefore, DHCS Environmental Health Darwin Rural requests a copy of the Dust Management Plan.

In the above section atmospheric monitoring of non-greenhouse emission is not proposed. Will non-greenhouse gas emissions be incorporated into any atmospheric monitoring planning to confirm and routinely assess the non-significance of these emissions?

Woodside has obligations to report annually emissions for an established suite of air contaminants under the National Pollution Inventory. If measurement is not undertaken how will Woodside demonstrate quantitative reporting, best practice technology and continuous improvement?

Section 13.1 Introduction

This section should include the disturbance or destruction of sacred sites as elsewhere in the EIS there is an indication of possible damage to WALPINHTNI REEF, a sacred site may be damaged.

Section 13.3 Infrastructure and Transport

The EIS acknowledges the potential for damage to existing road surfaces from heavy vehicles accessing the site during construction (13.3). However, the need to maintain road pavement at or above existing levels is not mentioned in the preventative and management measures in this section (although this issue is picked up in the Framework Traffic EMP Table 15-17).

The proponent should recognise that there are particular sacred site problems regarding the Daly – Wadeye access road.

Section 13.9 Aboriginal Heritage

The term, “Aboriginal sensitive cultural sites” should be replaced with “sacred sites”. Some discussion of the requirements of the *NTASSA*, the definition of a sacred site and the Authority Certificate process and the particular arrangements with regard to the issue of Authority Certificates between the Northern Land Council and the AAPA would be appropriate here.

Potential Impacts on Sacred Sites (Page 459)

All raw material sources require Authority Certificates. Restricted areas should be placed on maps so they can be avoided.

The report indicates, "… the near-shore export pipleline laying activities may impact the area in the vicinity of the off-shore WALPINHTNI REEF". This contravenes earlier statements that the pipeline route was positioned deliberately to avoid sensitive areas. There needs to be specific discussion of the potential for disturbance, the nature of disturbance, an assessment of any possible special mitigation measures. This includes the consideration of alternative routes that avoid any damage to the WALPINHTNI REEF.

The EIS states that:

> "Discussions with traditional owners and anthropological surveys were undertaken and the proposed pipeline route and on-shore gas plan location were positioned deliberately to avoid sensitive areas".

If this is the case, then explanation is required about assertions in other sections of the report that the WALPINHTNI REEF could be damaged.

Preservation and Management Measures (Page 469)

The site protection processes for the consultation stage requires more discussion and clarification in the EIS.

The report also states that consultation will take place with traditional owners to agree on appropriate mitigation measures associated with the potential disturbance to WALPINHTNI REEF during the off-shore pipeline installation. This contradicts earlier assertions that the proposed pipeline route was positioned deliberately to avoid sensitive areas. Again, discussion is required on possible routes away from the reef.

Table 13.1. – Summary of Economics of Land Use Impacts

Aboriginal Heritage

Authority Certificates are necessary for all earth-disturbing activities.

Section 14

The apparent delay in completing the Social Impact Management Plan (SIMP) is of concern. This plan should be submitted and endorsed by the regulator prior to the commencement of construction. This plan should include:

- A Communication Strategy to ensure **all** affected persons are informed, have the opportunity to have their concerns addressed in an appropriate manner.
- A plan which looks at maximising realisation of the economic opportunities identified in Appendix M.
- A review mechanism which assesses the success of mitigation strategies adopted to minimise negative impacts.
- A reporting mechanism to the regulator.

It is noted by officers from the Community Development Sport and Cultural Affairs that there is increasing concern amongst the community at Wadeye regarding the size of the plant. This links to the need for effective communication with all local stakeholders' and not just the affected land holders.

The issue of access to alcohol should be thoroughly investigated as it has the potential to significantly impact upon the local community.

Comment is required here on sacred site disturbance (eg WALPINHTNI REEF) as a possible social impact.

It is noted that a Social Impact Assessment Plan (SIMP) will be developed in consultation with the affected community and other key stakeholder organisations. DHCS would like to be included as a stakeholder to ensure that the SIMP addresses health impact assessment. DHCS has multiple programs with an ongoing commitment to the Wadeye Community, hence it is important that health input is sourced across DHCS programs, not just the Health Centre.

Issues of particular concern to DHCS include:

- Community interaction with the non-indigenous workforce particularly with regard to alcohol and drug issues. Wadeye is a "dry" community with respect to alcohol and there is no information in the EIS about the availability of alcohol to the project workforce.
- The SIMP should refer to evidence of the social & health impacts of the Alcan and GEMCO plants on their respective local indigenous communities.
- Access to petrol supplies at the project site by members of the Wadeye Community.
- Ongoing monitoring of air emissions and water quality in the project area.
- Mechanisms for complaint response by the Wadeye Community.
- Impact on the Wadeye Health Centre, particularly since there will be approximately 250 personnel during the construction phase of the project.
- Employment opportunities for the Wadeye Community during the construction and operational phases.

The proponent will need to have formal discussions with DHCS concerning the expectation of service (if any) from the Wadeye Health Centre.

Section 14.5 Management Strategies/Way Forward (Phase 2)

The following comment would be more relevant to Local employment strategies than the EIS forum.

With an operational life span of 30 years could consider the benefits of have specialised /apprenticeships available for local residences. The use of such initiatives may enhance engagement and acceptance from the local community.

Section 15 Environmental Management

The EIS has identified the environmental issues of concern to Conservation and Natural Resources Division, but have not developed management plans outlining how these issues will be addressed. These plans are identified and outlined throughout the EIS, and for some of the plans a framework is presented in Chapter 15. These need to be further developed and approved prior to construction.

The plans relevant to Conservation and Natural Resources, Department of Infrastructure Planning and Environment are:

- Turtle Management Plan
- Lighting Management Plan
- Rehabilitation Management Plan
- Sediment and Erosion Control Management Plan
- Drilling Environment Plan
- Waste Management Plan
- Acid Sulphate Soils Management Plan
- Fauna Management Plan
- Exotic Species and Weed Management Plan
- Groundwater Protection EMP
- Pipeline Flooding and Hydrotesting Procedure
- Pipeline Pre-commissioning Procedure

In addition, Table 15-1 identifies proposed monitoring programs associated with some of the above EMP's. These monitoring plans are required but have yet to be developed.

Erosion and Sediment Control Plan is mentioned in several locations throughout the EIS, but the actual plan is not provided. The ESCP needs to address the beach area (especially the dunes), the pipeline corridor, plant site and road works. The ESCP needs to be submitted for review and approval prior to construction.

Section 15.1 Summary of Proposed Monitoring

A plan is required for the monitoring of sacred sites during construction and to ensure all Authority Certificate conditions have been met.

Section 15.2 Environmental Management Plans

It is suggested that environment plans (EP) for pipeline activities will utilise the *Petroleum (Submerged Lands) (Management of Environment) Regulations 1999* for the length of the pipeline license ie, from the wellhead platform to the processing plant site boundary. The EP's will outline environmental performance objectives, standards and measurement criteria within the construction and operations pipeline corridor.

Table 15-2 Commitments Id no. 49 (page 488) indicates that a Road Maintenance Plan will be prepared. This commitment should include that the Road Maintenance Plan will apply to public roads (ie the route from Darwin to Wadeye). Additionally, this Plan does not appear to be mentioned elsewhere in the EIS (notably in section 13.3) and it would be useful for the proponent to provide a Framework Road Maintenance EMP, similar to the Framework Traffic EMP. The Road Maintenance Plan should include measures which will ensure that current levels of service are maintained during construction and plans for reinstatement on completion of work.

Table 15.14 Framework for Exotic Species and Weed EMP The EIS gives a commitment to the development of an Exotic Species and Weed Management Plan which includes a monitoring component. This plan must be developed in detail and approved prior to commencement of any construction activities.

Exotic plants and weeds have been identified on site, and there is the potential for the introduction of more species during the construction phase. These plants have the potential to create the largest terrestrial impact if not properly managed, especially as the Blacktip facility will eventually link in with the Trans-Territory Pipeline. This provides a corridor across the NT through which exotic plants and weeds may rapidly spread if not properly managed.

Table 15-17 Framework Traffic Management Plan (page 507), Management issues, dot point 3, needs to acknowledge damage to NTG roads used as haul roads (as well as municipal roads as stated).

The Framework Traffic Management Plan should also include:

- minimising restrictions to community access as a result of construction traffic, obtaining all relevant approvals and providing adequate advance notice of any potential disruptions to access.

- that the use of any NT managed roads by non-complying vehicles will be subject to approval from DIPE Road Network Division.

- any construction or impacts on NT road infrastructure will need approval from DIPE Road Network Division.

Section 16.2.4

Safety Risk Management Measures

A 'safety bridging document' should be prepared between Woodside and it's contractors to ensure that safety management systems are aligned.

Has pipeline design considered the potential for future increased capacity for petroleum developments utilising the export pipeline as a carrier to processing facilities?

Section 16.6 Emergency Response Plan

Will a copy of the Emergency Response Plan be forwarded to Northern Territory Emergency Services?

APPENDIX A

Operational Noise Impacts

This report uses the current Australian Standards for environmental noise during the construction phase. Further noise monitoring at the commissioning and operational phases should occur in accordance with Australian Standards.

APPENDIX B

Technical Appendix B: 37 (also in main body of report). 'Nearly three times as many crustaceans were collected as polychaetes'. This seems highly unusual, and might reflect the sampling process. eg. screen size (1 mm rather than a more thorough 0.5 mm) and the fact that the samples were not fixed in formalin, the recommended fixative for soft-bodied animals. The worms may simply have turned to mush before laboratory identification could be done.

Looking at the figures in Appendix E (of Technical Appendix B). it is apparent that the figures relate to abundance not diversity. In terms of number of taxa, there are only slightly more Crustacea than Polychaeta. This is not unusual. Given the inappropriate fixative used in the study and the possibility of undercounting the polychaetes, it is not valid to describe the composition of the infaunal community along the pipeline route as 'unusual'.

Appendix B – Volume 2

General comment

What processes should be put in place to protect the environmentally sensitive mangroves and associated fauna from possible sediment overloads, oil spillages and other deleterious impacts, both during and after the construction phase?

The data in Appendix B are grossly inadequate to support the claim (Page 68) "Intertidal and subtidal infauna is species rich". In fact, the data presented, reveal a highly impoverished community compared to, for example, Darwin Harbour.

Why is there no mention of the rare, narrow-range endemic mollusc *Littoraria ianthostoma* in the Executive Summary? Surely this extra-special, rare species ought to be monitored very carefully and perhaps be monitored especially during, and after, the construction phase. This species is mentioned on Page 32, but its importance and the necessity for conservation are ignored.

The sampling of offshore infauna using only (subsamples from) 35 Van Veen Grab samples is grossly inadequate to get any impression of the community. The Proponent should have used video surveys in conjunction with trawls and dredge samples.

The offshore and intertidal habitats change dramatically seasonally. Therefore samples should have been obtained both in the Wet and in the Dry season. Indeed, a strategy for long-term monitoring is clearly called for.

Gastropod shown in Fig. 7H is *Terebralia semistriata*. Significantly (Page 31) the observed density of this indicator species was low (Page 53) and it was not observed in the southern mangrove forest. Why was there no replication at each sampling station?

Page 37 states that Van Veen Grab samples will be unsuccessful on reefs. Why were the reefs not sampled by other methods?

Given the rationale outlined previously regarding the limited nature of the survey there are insufficient grounds for the claim “the project area is unlikely to support significant benthic communities”.

By extension the undertaking a statistical analysis (an NMDS ordination) for a grossly undersampled benthic community is meaningless.

Prawn trawlers were noted operating in the area of the proposed pipeline. So why was no attempt made to investigate the species (both target and bycatch) they were taking?

The anecdotal observations of vertebrates for only three days – is inadequate.

The genus name *Clypeomorus* is consistently misspelt (as “*Clypeomorphus*”) on Page 51.

The identifications for the molluscs is grossly inadequate. For example, all known species of littorinids in Australia are strictly intertidal, so the identification of “Littorinid sp1” definitely has to be wrong. Who knows what “Mollusc sp1” through “Mollusc sp4” might be? Such serious mistakes highlight the inadequacy, and by implication unreliability, of the faunal sampling program.

Appendix C

A single survey (on 4 June 2004) to assess the coast at the impact site for sea turtles, dugongs, and sea grasses is totally inadequate.

This report contains only anecdotal comments on dugongs and seagrasses in the area.

How will turtles and dugongs be affected by the construction of the offshore pipeline?

Appendix F

The field surveys for the floral analyses were conducted during the Dry seasons of 2002 and 2003. This is inadequate as several species of plants remain dormant underground or as seeds during the Dry Season. A series of replicate samples urgently needs to be taken prior to disturbance during the Wet Season.

Table 2 (Page 7) lists 21 weed species (notably Gamba Grass and Olive *Hymenachne*) that occur in the project area and in the areas that will be used for accessing landfill. The Proponent must develop a strategy to minimise the establishment and further spread of these weeds, some of which are serious environmental weeds.

The epiphytic orchids of the genus *Dendrobium* are well known in the Northern Territory. Therefore some explanation should be provided for the inability of the consultant to identify the *Dendrobium* plants occurring in the impact area to the level of species.

Appendix G

Without any doubt, a single survey for biting insects conducted in the middle of the Dry Season (3 June 2004) is not adequate to draw any definite conclusions.

The significant information from the technical research paper (Whelan 2002) dealing with exotic mosquitoes arriving on seagoing vessels could have been summarised without the incorporation of the entire report.

Appendix H

The single field survey in the Dry Season (1-5 June 2004) is inadequate, so it is not surprising it only recorded less than half the number of terrestrial vertebrates from the area in the NT Fauna Atlas. For example only 2 (out of 9) species of frogs were found. No mammals at all were trapped during the survey.

The pictures of habitat types provided are unnecessary because they repeat those present in other appendices.

Appendix L

Table 1 (Page 7) records “many species’ of fishes as Key Resources from offshore habitats,

Table 1 (Page 7) indicated the traditional owners consider molluscs, crustaceans, fish and mangrove works as Key Resources from the mangrove habitat, yet the Proponent failed to assess them.

Page 10. Where is the data to support the claim “Country damaged during the laying of the undersea pipeline, shore crossing and pipeline corridor to the gas plant **would recover in a relatively short period**”? In the event that marine pests or weeds (like the noxious *Calotropis procera*) gain access, then there would be permanent and irreversible alteration to these habitats.

Appendix M - Social Impact Assessment

5.15 Potential social impacts of upgrades to roads and increased traffic (page 42) highlights Traditional Owners and community members concerns regarding road safety issues associated with construction traffic.

A number of suggestions are made to improve road safety, including a requirement for all construction workers to undertake an orientation course to highlight the different ways in which local Aboriginal people use roads, particularly the main access road from Darwin. Road safety has not been acknowledged as a management issue in the Framework Traffic Management Plan and the need for road safety orientation for workers regarding off site issues is not addressed in the Traffic Management Plan or in the Social Impact Management Plan. Similarly the need for a bilingual road safety awareness campaign has not been considered. A more comprehensive consideration of road safety issues and proposed management strategies is required.

Appendix P.

This is supposed to be a framework for monitoring the offshore area etc. It is very brief, more a sketch than a framework as it is very light on plans and does not say what it WILL do, just what it MIGHT do. Monitoring as proposed here does not include: colonisation by marine fauna on artificial platforms or verifying presence/absence of marine pest species. It should include discussion of these.

GENERAL COMMENTS

Processing Specifications

Please provide specifications for gas to be exported to Gove and processed condensate to be loaded at the offshore mooring.

Access Requirements

As a pipeline license is not yet in place for the proposed activity, prior to conducting any further work in the NT/P 66, NT/P 67 and vacant acreage please ensure that appropriate legislative authorities related to access are in place. Consultation is required with the operators of permits through which the export pipeline will traverse.

Air Emissions

Modelling of emission concentrations in vicinity of the gas plant during worst case operational scenario ie, a gas release equating to substantial loss of containment. Under this scenario what is the risk to the township of Wadeye?

The following are issues, which require further clarification:

- establish the meteorological conditions which represent the worst case scenario for the Wadeye township if loss of containment occurred and control of critical systems could not be regained;
- timeframe in which control of the facility could be re-established if critical equipment failed; and
- are manual overrides ie, hand operated isolation valves too be installed in the processing system as an emergency redundancy measure?

It is noted that Table 16.1 identifies that hydrocarbon leak/fire/explosion and condensate tank fire has been considered in the preliminary safety assessment. However, pp 521 establishes that formal safety assessments are yet to be conducted for the proposal including fire and explosion analysis.

Flaring

The following issues related to flaring should be addressed:

- impacts on aircraft movements utilising Wadeye air strip;
- control of air traffic at Wadeye; and
- coordination for aircraft movements if flare operation is an issue.

Environmental Parameters Governing Design Criteria

Internal waves

The Western Australian branch of the Global Ocean Observing System published a draft paper entitled 'Timor Sea Focus Area and PIT' in 28 August 2002. The focus of the paper was a 'so called high frequency current phenomena' (pp 1 WAGOOS 2002). The interest for the offshore hydrocarbon industry was the impact that these currents may have on engineering design. Has the proponent considered the presence of high frequency currents as a criterion for detailed design engineering studies to be undertaken for the offshore component of the Blacktip project?

In consideration of the strong tidal influence on the current regime within Joseph Bonaparte Gulf, what further environmental investigations will the proponent conduct in relation to the presence of high frequency currents at the proposed location? It is indicated in that Figure 2 of the WAGOOS 2002 draft paper that the Blacktip project area is within or adjacent the southern boundary of the focus area for the Timor Sea.

Redundancy in Pipeline Design

The potential for the development of other petroleum facilities in the Joseph Bonaparte Gulf and their importance to the future energy demands for Darwin/Northern Territory is identified and acknowledged in dot points 2 and 3 on pp 136 Chapter 5 of the EIS.

Has pipeline design considered the potential for future increased capacity for petroleum developments utilising the export pipeline as a carrier to processing facilities?

Development of unofficial highways

The issue of preventing the pipeline corridor from developing into an unofficial access way is identified but no solution to preventing such a development is provided. The proponent may have seen this as more of an issue with the Trans Territory pipeline but there is a proposed corridor from the plant to the beach which would not otherwise exist. The development of that access way into a thoroughfare is not addressed.

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Northern Land Council

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NLC COMMENTS ON THE DRAFT EIS BLACKTIP PROJECT NOV 2004
For NTG and Commonwealth EIS assessors

Specific Issues

1. **Traditional Owner Approval**
   Where the EIS suggests or advises anywhere that the traditional Aboriginal owners (the TOs) have approved of any impacts or proposed works on their land, please be advised that TOs have not approved of any use of land or works or impacts on the land. The TOs have over 2003-2004 approved survey works to take place to allow Woodside to gather information on the land to support environmental and project feasibility studies but no consent has been given for any part of the project on Aboriginal land to proceed. In addition, the TOs are currently in the process of being advised of the location of all of Blacktip's proposed land uses as it is only now, with the release of the draft Blacktip EIS that a clear and detailed description is available. Many of Woodside's land-use requirements were previously unknown to the NLC and traditional owners.

2. **Timing of Project**
   The Project Schedule in figure 1.3 is frivolous, as it requires a FID made in April 2005 with all Government approvals in place. The EIS approval process time line is 4 months out of date (November submission of draft EIS, not June). There is substantial on ground consultation required with TOs concerning the project parameters and there are no statutory agreements yet in place between the NLC and Woodside for either this project or the closely associated Wadeye to Gove gas pipeline. Many of the milestones for Blacktip will likely need to coincide with those of the TTP project. It is unlikely that FID for Blacktip will occur separately to the approvals for the TTP project and therefore the schedule should also identify key TTP milestones such as the approval of the TTP EIS and issuing of the pipeline licence.

3. **Traffic Management Plan**
   The EIS fails to recognise the high level of social impact and safety issues that a radical increase in road use between Daly River and Wadeye (900%) will bring to the region and the physical impact on the current road surface. The EIS advises simplistically that impacts will only occur during the dry season (ES page 12) knowing that this the only time of the year when local people can travel by vehicle with any assurance of arriving at their destination.

   As senior Yek Diminhin traditional owners have commented to the NLC:

   > *"Its important that we understand the humbug that will be created on this road for two years. No good just humbug for two years and leave the road as it is now…what benefit in that?"*

   All road traffic associated with the Blacktip gas Plant project has to travel through the Daly River Crossing which in the dry season is occupied by tourists camping in the confined space at the crossing. The road, (better described as River sand heaps graded out with some flagging,) travels directly through the area allocated for camping. The impact of construction traffic for the TTP Pipeline is greater

than the gas plant and accumulative total vehicle movements will prohibit the safe camping use of the crossing by the NT people and tourist's who visit the camping area each year.

This matter will need to be addressed well before the first dry season, taking into account it will occur for three dry seasons.

There is no quantitative data on truck movements or advice on current pavement quality along the main road, yet the Social Impact Assessment carried out early in 2004 identified the risk of increase in injury and death during the construction period. "Disruption" is the term used in the EIS to describe impacts on local users. The NLC at this stage of the project considers the numerous large vehicle movements required for the Blacktip and the Yelcherr Beach to Gove gas pipeline would create a real risk of road accidents involving local drivers potentially resulting in severe injury or death. This amounts to more than "disruption" mentioned in the EIS.

The NLC advised Woodside prior to submission of their draft EIS that "*there were no numbers presented of large truck movements or their impact on the road surface or any statements on road upgrading, only advice about maintaining the current road surface. Much of the main road surface would be reduced to thick bulldust in areas of minimal sheeting by the truck movements creating unsafe conditions for other road users. Page 465 advises that vehicle speeds would be kept to as low as possible to reduce dust impact. This management method would impact on local users by increasing travel times. The EIS needs to consider whether overall access road upgrading is an optimum economic and social means of substantially contributing to reducing impacts on the road and other users. The EIS on page 120 advises that a road study will be undertaken for Blacktip and incorporated into the EIS once available. Page 431 recognises the combined impact on road surface and road users by concurrent construction of the proposed gas pipeline to Gove. Heavy use of the pipeline ROW moves some traffic issues elsewhere but also means the ROW would need a higher standard of upkeep then simply maintaining a graded surface ie greater expense for pipeline construction. Increased ROW use for the pipeline project potentially moves costs from the Blacktip project to the pipeline project.*"

The above advice on road impacts and road upgrading have been ignored-not even dismissed as irrelevant. It is possible the EIS treats road traffic management and road use impacts at a shallow level at this stage of project development for political and financial reasons. Woodside may have fair commercial reasons for doing so but not if failure to disclose the real potential impacts of traffic increase for proper analysis by stakeholders potentially threatens the well being of other road users.

The EIS does not recognise that increased traffic on the Daly River to Wadeye road and other roads will pose a significant safety risk to local residents using these roads.

Quantitative data on truck movements allied with the gas pipeline project, their impacts on other road users and road surfaces and management

strategies should be provided and analysed by Woodside and a Traffic and Road Management Plan agreed with stakeholders before any approval of the final EIS.

Clearly, the combined effect from the Daly River crossing to Wadeye of road use for the purposes of construction of both the Blacktip project and the Trans Territory Pipeline will, over a period of two years have a significant and substantial disruptive and negative social and economic impact for current road users. Anyone travelling for family or domestic purposes, anyone travelling for work related purposes, any travel associated with existing commercial or service industries or agencies will all be affected by what could well be a three fold increase in travel time. This is major regional disruption. Commercial entities and service agencies will need to plan how they will operate in this new travel context and may need to examine the economic implications. Neither the SIA report nor this draft EIS appropriately recognises or quantifies this impact.

4. **Shell midden and pipeline route.**
The draft EIS advises on page 21 of the Executive summary that construction of the pipeline will be through the beach middens (Shell midden 1) and the impacted area of the midden will be subject to salvage archaeology prior and during construction. P 285 of the EIS advises the consulting archaeologist, C Crassweller considers that the site has a high archaeological significance. Page 457 advises that it is a registered archaeological site and advises that a part of the midden will be destroyed. Woodside requests a permit to destroy the site on p 469. There are 38 separate parts of Vol 1 of the EIS that provide information on the shell middens.

The consulting Archaeologist in figure 2, on page 18, Vol 2 in the Archaeology and Historic Heritage report has recommended a pipeline route through the midden in a sand dune behind Yelcherr Beach. Woodside has moved the route to the south further into the midden. The NLC understands that Woodside have moved the pipeline route to avoid the rocks and reef at either side of the bay.

There has been no information or discussion by Woodside in the draft EIS of the advantages and disadvantages of using directional drilling to bring the sea pipeline onshore and avoid any impact to nesting turtles, the archaeology site or to roosting or nesting shore birds. Woodside has advised it needs the beach area for its project as a lay down area. The lay down area overlays the beach access track-see figure 4.6b in EIS. **Woodside should be requested to provide reason why directional drilling should not to be used to avoid these impacts.**

5. **Plant Water**
Fossil water from the Blacktip gas field will be included in the gas stream bought on shore to Yek Maninh country for treatment and disposal. The amount of this produced water (PW) will oscillate with the maturity of the stacked gas horizons from which gas will be extracted with increases up to 1119m^3 a day from mature reservoirs with annual totals up to 136,382m^3 based on annually derived averages of 373M^3 per day. The EIS does not advise on the predicted hydrocarbon content of the contained discharge water. If Government discharge regulations can not be met on commissioning and operation of the current proposed disposal system, it is

unlikely that Woodside would turn around and put in a land based bio-degradation system-the environment and the regulations would be asked to adjust. Hence it is important to resolve best practice for PW disposal at this early stage of plant design.

The EIS advises that the PSLA specifies that the oil concentration must be below 50mg/L (assume per litre of water), with a 24 hour average below 30mg/L. If it were assumed that these would be the discharge rates and hydrocarbon content, there would be a discharge of 1,119,000 litres of water per day x 30mg= 33,570,000 mg of oil per day. This is about 33.57 kg per day on high discharge days or 4090 kg per year (4 tonne) based on the averaged annual discharge of 136,382m3. This submission questions that up to 4 tonne of hydrocarbons slow released over a year at an nearshore discharge point will not have a level of environmental impact on marine biota in the nearshore environment even if no impact can be demonstrated when such releases take place 100 kilometre or more offshore at existing fields.

The Executive Summary on page ES9, advises PW will be treated onshore to meet legislative standards, piped 3km offshore and that discharge location and the design of the PW plant have been selected to ensure no adverse impacts occur from this discharge. The NLC in earlier comments to Woodside raised the issues of oil sheens, food tainting and onshore disposal. There has been no evaluation of the environmental advantages and disadvantages of onshore disposal in the EIS. Nor has there been any consideration of alternative locations for offshore disposal, particularly in relation to Walpinhthi Reef. The EIS advice on tainting and oil sheens is that they are both possible under certain conditions.

The baseline hydrocarbon survey in the mangroves at Maninh Point turned up total recoverable hydrocarbon values in the 2 to 27 mg/kg range for C10 to C36 hydrocarbons[1]. The EIS advises it is likely the hydrocarbons originated from Petrel and Tern wells, which are known to leak hydrocarbons. Tern is 150k from Maninh Point. It is difficult to rely on the detailed dilution and current modelling in the EIS justifying offshore hydrocarbon disposal within 3 or 5 kilometres of the shore when the same EIS advises that a low level hydrocarbon source 150k away is likely to be contaminating mangrove sediments at Maninh Point.

p. 117 refers to the preferred offshore discharge location to be 3-5 km offshore. However, Walpinhthi Reef is closer to the discharge location than this and the potential impacts on this reef need to be considered.

One of the basic problems with offshore disposal is that once disposal has occurred and where adverse impacts follow, the contaminants cannot be bought back from the marine environment as they would be no longer under Woodside's control. The Blacktip PW composition is unknown until actual operation commences. Woodside, among other things, is relying on the assumption that the quality of the PW will equate to other PW effluent from current offshore hydrocarbon production sites.

[1] Page 17 Vol 2 Appendix B

The NLC considers that the assessment of hydrocarbon impacts should consider the cumulative impacts of the PW, Hydrocarbon Spills and background hydrocarbon from Tern and Petrel rather than considering these matters separately. It is also noted that as winds are typically onshore during the wet season, the risks are greater at that time of the year.

The NLC also notes that despite the request that the EIS show clearly the location of the PW outfall in relation to the Walpinhthi Reef sacred site, this has not occurred.

Section 7.3.2 in relation to Seabed Habitats and Communities provides no information on the ecology of Walpinhthi Reef.

There are areas within the EIS where prevention and management arrangements are left to the regulations. For example on page 363 there is a statement in relation to Produced Water that "the PSLA specifies that the oil concentration must be below 50mg/L etc". The EIS must make clear what regulations would apply if the offshore disposal option were to apply.

Yek Maninh traditional owners and adjacent landowners, Yek Nangu and Yek Kinmore, have all expressed concern to the NLC about the proposed discharge of Plant Water in seas adjacent or near to their lands. Traditional owners see no reason why the project should be presented to them encumbered, as it currently is, with worry about potential future impact upon their marine based food resources.

The NLC considers:

1. **Woodside should be required by Government to address, to same level detail it has for the offshore disposal, the option of onshore treatment and disposal as practiced in southern Australian states at current operating gas plants**;
2. There is a need to define adverse impacts from the TOs perspective and assess whether the detailed design can meet their criteria. Oil sheens (p 359 Vol 1) are possible and their visual impact and movement to shore in hunting areas may be unacceptable to TOs. Non- tainting of traditional marine animals in the mangroves can not be guaranteed (mangrove worms, oysters, other shell fish and crabs);
3. The specific details of the onshore treatment process supporting an offshore PW disposal system should be subject to engineering assessment by Government and the NLC.
4. If offshore disposal is eventually put in place, commitments should also be in place from Woodside to revert to land disposal where, in the view of the TOs, adverse impacts from offshore disposal occur during the project life. Monitoring of traditional marine foods for tainting would be essential to validate, or otherwise, the claims of the EIS, monitoring must include the ecotoxicological studies recommended by Woodside's consultant on page 8 Appendix J, Vol2 of the EIS;
5. If an offshore disposal system is eventually put in place, a more distant offshore disposal point should be implemented as a part of that best practice

given there is still a risk that a 3 kilometre discharge point may not in some circumstances achieve no impact in the shore zone;

6. A Produced Water Management Plan (as noted in the EIS) for either offshore or land disposal of PW should be agreed by key stakeholders before approvals are given by Government for the project to proceed.

6. **Oilspills**

P. 363, Section 11.1 deals with QRAs for oil spill scenarios. Spill modelling of a small $8m^3$ condensate spill would bring 136 kg oil max to each 100m of beach and no more than 1kilometre impacted overall- eg on a conservative basis of 1 in 3 years, less than ~10 times during a 30 year project. The model demonstrates hydrocarbon deposition on Yelcherr beach. Woodside still advise on page 374 that the chance of a small spill is remote as there will be only 4 condensate tanker loads a year. The EIS needs to link the mathematics of their spill model with the number of tanker loads.

The EIS should make it clear what spill containment and clean up equipment Woodside would have stored at Wadeye or the proposed gas plant to manage small local spills.

The EIS gives a commitment to produce a Blacktip onshore oil spill contingency plan before commencement of construction. The NLC needs such a plan now to discuss with TOs to explain risk and remediation actions.

Yek Maninh, Yek Ngangu and Yek Kinmore traditional owners have all expressed concern to the NLC about the potential for the project to impact on their lands and food resources through insufficient attention to ensuring that oilspills cannot occur and, should they occur, insufficient attention to arrangements to ensure effective and immediate containment and management of such spills such that their resources are not impacted.

7. Employment and Training

The EIS places T & E in Woodside's proposed Social Impact Management Plan (SIMP) and is made a part of a consultation program it wishes to implement. As much as a SIMP may monitor the impact or benefit of a T & E Plan, it should not be carried in the SIMP consultation process-it is a far too important an issue to be caged in a proposed Woodside controlled process for SIMP development.

Indigenous employment & training is not adequately covered to the detail sought by the EIS guidelines. T&E is a fundamental social and economic issue and the EIS does not even describe basic timing factors that would affect the success or failure of any T & E program for indigenous people, matters already covered by the NLC with Woodside. Eg a minimum of 6 months lead-time is needed before construction is scheduled before construction is planned. The Woodside Project Schedule has onshore plant construction planned for Q2 and Q3 of 2005 and no T & E plan is in place despite NLC urging. Either Woodside is not serious about its Timetable or is not serious about T & E or hopes to pass T & E onto a contractor or an assignee.

The EIS guidelines seek that local indigenous employment be addressed. While the EIS recognises the success of the TCA-NLC targeted training programs in the construction of the Alice Springs to Darwin railway (p33 Vol 1) it does not mention any potential arrangement involving this training scheme.

It would be useful if the EIS had presented a graph of the expected workforce numbers over the construction and operation period and a broad breakdown of positions and skills needed to fill those positions.

8. Waste Management Plan

There are 34 references in Vol 1 of the draft EIS to preparation of a Waste Management Plan but nowhere is there information on a disposal strategy, except for some types of hazardous waste. It is important to the NLC and the proponents to know what may be the potential land use requirements of this plan so environmental assessments can be carried out consultations over future land use can occur with TOs.

9. **Aboriginal Cultural Sites**

13.2 page 459. The EIS advises that great care was taken to avoid disturbance to any sites during the planning and site selection phase of the project. This assertion is contradicted by two and perhaps three examples where project proposals encroach on sites in the area already advised to Woodside by the NLC. In this respect the draft EIS is misleading concerning Woodside's intentions for sites in the area. Woodside need to explain its intentions. (The NTG AAPA has received an application from Woodside for a construction approval certificate. The AAPA will need to be satisfied before issue of a certificate that all site clearances and issues have been resolved to the traditional owners and the NLC's satisfaction).

At section 4.5.4 the Draft EIS advises that:

*"It will be necessary for the laybarge to anchor in several different locations in the nearshore area. As illustrated on **Figure 4-8**, this will require anchoring within the boundary of a site known as Walpinhthi Reef identified as being culturally sensitive (**Section 9 & 13**)".*

The NLC is not satisfied that it is technically necessary for the laybarge to anchor within the restricted area boundary and advises that traditional Aboriginal owners are unlikely to wish to compromise the integrity of their sacred site.

10. EMPS

Much of the operational success of the Project in respect of environmental impact minimisation will depend on the detailed application of the EMPs referred to in the EIS. These EMPs are yet to be drafted and approved by Government and Government will assess most outside of the public comment process. Moving a very considerable volume of impact mitigation strategies and actions into documents in the non-public forum defeats the purpose of the legislation requiring public presentation of the EIS.

The EIS advises on page 478 that EMPs will be consolidated into a single overarching document and will be submitted to the relevant authorities for approval **prior** to construction. The NTG EIS Guidelines sought that strategic draft EMPs be provided with the draft EMP. This has not happened.
The below is a list of EMPs that the NLC advises it will need to be satisfied with, inter-alia, prior to providing its approval to Woodside to commence construction of the project. The compression of timelines to meet an April 2005 FID date for the project suggests that the quality of the EMPs identified below that need to be produced ahead of that date could well be compromised.

Cultural Heritage Management Plan
Traffic Management Plan
The Social Impact Management Plan.
Produced Water Management Plan
Vegetation Management Plan
Waste (hazardous and non-hazardous),
Dust, Noise, Light
Sediment and Erosion Control
Groundwater Protection
Terrestrial Fauna
Oil Spill Management Plan
Biting Insects (fire management issues)
Exotic Species and Weeds
Rehabilitation, including the Revegetation Management Plan
Fire
Turtles
Flaring and Greenhouse Gas (focus on flaring)
Relevant nearshore Marine EMPs
The Marine and Onshore Environmental Monitoring programs

As the NLC would be involved in the assessment and approval of many aspects of EMPs, it would make sense for the NLC to work with Government, as well as the proponents, when assessing the developing draft EMPs prior to Government giving its approval to them.

Woodside when discussing environmental information on page 40 propose to translate certain project information into Murinbatha. The NLC would support the translation of key EMPs with an overview of the operation of the EMP system for distribution by the NLC to TOs and affected people.

11. Stakeholder Engagement

Woodside states in this public draft EIS document on page 35:

> "*With the exception of communities on Aboriginal land, all community consultation has been undertaken by Woodside. On Aboriginal land, consultation was controlled by the NLC. This has restricted the ability of Woodside to freely manage community consultation in these areas in accordance with the Woodside consultation methodology*".

Woodside also advise on page 40 of the draft EIS that it:

> "*will seek to establish direct relationships with the TOs so as to facilitate ongoing consultation in accordance with Woodside's consultation methodology*".

The NLC considers that these statements ignore the fact that Woodside has a pecuniary interest in the land and this development. It also ignores the fact that Federal Parliament has decided it is in the public interest to have development proposals of this nature mediated by land councils on Aboriginal land.

On Page 44-45 Woodside advise that it will be implementing an indigenous consultation program on the contents of the EIS. The NLC is conducting those consultations with Traditional Aboriginal owners & Thamarrur at Wadeye may conduct its own workshopping of the draft EIS. Woodside has presented its EIS and will have opportunity to explain its position in the EIS supplement in response to comments by the NLC and any other indigenous bodies.

Woodside advises at p12 of the Executive Summary to the Draft EIS that the project has adopted a three phase approach to potential social impact issues associated with the development of the Blacktip Project, that the first phase of the process involved an independent consultant compiling a Social Impact Assessment Report to assist Woodside in identifying potential social impacts in addition to providing valuable information to the statutory regulators responsible for overseeing the approvals processes and that the second phase of the process involves Woodside developing a comprehensive Social Impact Management Plan in close consultation with the affected community and other key stakeholder organisations. At p13 the draft EIS goes on to advise that at the time the Draft EIS was finalised (October 2004), only the first phase had been completed, with the proposed Social Impact Workshop (an integral part of the development of the Social Impact Management Plan) tentatively scheduled for November 2004.

Prior to release of the draft EIS the NLC had been advising Woodside that their proposed SIA Workshop and the proposed timing were inappropriate. Subsequently, traditional Aboriginal owners have advised the NLC that until such time as they have had opportunity to visit appropriate functioning gas plant(s) they can see no value in participating blind in SIA workshops and have no interest in doing so.

12. Greenhouse Gases

The Project Description section of the EIS does not provide details on the composition of the gas. It is understood that the nitrogen content of the Blacktip gas is around 8 %. While the document discusses CO_2 emissions, it doesn't consider the greenhouse implications of the nitrogen content of the gas, nor how greenhouse emissions could be reduced.

13. Gas or electricity to Wadeye

The location of the Gas Processing Plant near Wadeye would provide an ideal opportunity for the supply of gas for power generation to Wadeye or supply of electricity from the plant to Wadeye. The EIS does not consider these options.

14. Onshore as opposed to offshore processing

The EIS compares the technical arrangements for both onshore and offshore processing but does not compare the two options from an environmental impact perspective.

15. Offshore Reef

Section 7.3.2 in relation to Seabed Habitats and Communities provides no information on the ecology of the rocky ridge 1-1.5 ks from shore , or Walpinhthi Reef.

16. Noise

1. The noise level readings obtained at the proposed plant site and described in Appendix A of Volume 2 of the draft EIS are not representative of noise levels normally evident at this location, rather, they are likely to have been elevated by virtue of placement of the recording device at the edge of the site immediately adjacent to the Injun beach road. Noise level recordings were then obtained during a period when the road was experiencing abnormal use as a result of a number of surveys being conducted from a camp location established at near Yelcherr Beach. There were 8 NLC vehicles and a number of Blacktip survey vehicles utilising the Injun beach road either directly in transport associated with surveys or indirectly in terms of transit from the camp to Wadeye for supplies, communications etc. In normal circumstances the NLC considers it unlikely that more than one vehicle per day would transit this road past the proposed plant site location.
   Noise level recordings for the plant site should either be redone or recalibrated to eliminate nearly all of the recorded traffic noise. The draft EIS does not present a true picture of current noise levels at the proposed plant site.

2. Item 6.4 of the draft EIS at page 163 makes references to the Tchindi Camp Ground as a reference point for Aboriginal camping and potential noise impact. This place is an artefact of non-Aboriginal map making. The focus on this locality is highly artificial in regards to Aboriginal land use and EIS impact assessments. Yek Maninh use and camp along the length of their coastline (inclusive of Yelcherr Beach and Injun Beach, not just at Tchindi). Any conclusions based on the assumption from the EIS that the TCG is where Aboriginal people may be impacted by the project operation is misleading.

   Page 2 of Appendix A (Environmental Noise Assessment) advises of the limitations of the conclusions drawn in the event of changes in project parameters, including “changes in the proximity to sensitive human receptors”. As indicated above, it is an error to assume Tchindi Camp Ground as anything other than a name on a map and that Injun

Beach and Yelcherr Beach and associated mangroves are frequented for hunting and gathering purposes and camping during such activity throughout the year. It is these closer localities when occupied or 'in use' that are the sensitive human receptors for the purposes of appropriate conclusions about noise impacts during construction and operation. Injun beach is less than 1km from the plant site boundary and within the 30-36dba noise contour and Yelcherr within the 24-26 contour.

Traditional Aboriginal owners have commented to the NLC that: "we use Yelcherr all the time…some of us had even been thinking of setting up a tourist operation…we've even talked of moving here ourselves more permanently".

Section 6.4, page 164 of the draft EIS states that there will be a minimum level of noise during general day to day operations. However at page 167 it states that during normal operations noise levels at the plant boundary will not exceed 82 dB(A) ie this is noisy and means the amenity of the surrounding countryside will impact on local users. 82 dBA is the upper limit of noise that people can work in without hearing protection.

3. From Volume 2, Appendix A, Blacktip Project – Environmental Noise Assessment, we learn that: "There is the possibility that an underground valve may be located at the shore crossing...During venting, gas may be released at this location".

   There is no reference in the main body of the draft EIS to this proposed underground valve which may be located at the shore crossing or to the assertion in Appendix A of Volume 2 that during venting, gas may be released at this location". Traditional owners have not been advised of this proposed "underground venting valve". There is no discussion in the draft EIS of the noise or other impacts associated with a gas venting valve at the Yelcherr Beach shore crossing.

4. Frequency of "flaring" and noise associated with it is unclear. Page 12 of Appendix A refers to, amongst other descriptions of when flaring will occur during plant maintenance, "Flaring will occur quarterly, for a period of 1to 24 hours." No clarification of what is meant by "quarterly" is provided.

17. Construction Access Requirements

1. Airstrip to Plant site proposed all-weather access road

The process of Blacktip undertaking the topographical surveys associated with the proposed development highlighted for traditional owners the on-ground reality of what was proposed in relation to this all-weather access road. The result of that understanding elicited particular concern regarding what traditional owners considered to be unnecessary destruction of trees and comment to the effect that "we don't want three (3) roads…the pipeline ROW, this all-weather access road

and the existing Injun Beach track…better that they combine the ROW with their access road".

Traditional owners have expressed concern about destruction of trees associated with the proposed 30m Trans Territory Pipeline (TTP) right of way (ROW) paralleling this proposed all-weather access road with its own potential clearance of trees over a 50m wide corridor. The topographical survey also demonstrated for traditional owners that the the straight lines associated with construction of this access road would mean that the existing Injun Beach track would not simply be upgraded but in substantial part left untouched meaning, essentially, three immediately proximate and parallel routes to Yelcheer.

The NLC recommends combining the TTP ROW with the proposed all-weather access road from airstrip to plant site. This would effectively mean that for a distance of approximately [x]kms that the ROW would need to be 40m wide instead of 30m. Significantly less destruction of tress would be involved than in the current proposal. Blacktip have verbally advised the NLC that such an option would carry unacceptable construction safely risks. The NLC does not accept that safety issues could not readily be addressed.

2. Temporary use of existing track through Men's Ceremony Ground

Woodside's application to the Aboriginal Areas Protection Authority for an Authority Certificate covering construction activity refers to: "temporary use of the existing track leading south from the airport junction to the Kultchil for access for construction of the new, permanent, all weather access road". The draft EIS Executive Summary, when discussing impacts on Aboriginal cultural sites at p21, fails to make any mention of the planned use of access roads within the restricted area of the Men's Ceremony Ground at Wadeye. Further, the NLC has been unable to locate any reference in the remainder of the draft EIS to this proposed use of a track inside the men's ceremony site restricted area.

The apparent lack of description in the draft EIS of precisely what is intended by the reference in the AAPA application to "temporary use" makes it impossible for the NLC to properly consult with traditional owners over this apparent change of scope.

The NLC is not currently of the view that any "temporary use" of access through the restricted area of the men's ceremony ground will be necessary for "access for construction of the new, permanent, all weather access road". The NLC is of the view that access for construction of the all-weather access track, the proposed "pioneer construction camp" and clearing of the proposed Plant site can all be readily effected by use of the access route alignment already identified by traditional owners as avoiding infringement on sacred sites.

3. Minor light vehicular use of existing track to Yelcherr Beach

Woodside's application to the Aboriginal Areas Protection Authority for an Authority Certificate covering construction activity refers to: "minor light vehicular use of existing track to Yelcherr Beach". There is, however, no

reference in the draft EIS to such proposed use or more detailed description of "minor" or proposed duration of use. Clarification of this matter, should such use be intended, is necessary.

18. Beach temporary lay down areas

The EIS identifies that two temporary lay down areas of 100m by 50 m each will be required near the shore crossing construction site. These will be large areas of disturbance possibly requiring upgrading to hard stand, particularly if the beach area is to be used for a barge landing as proposed in the EIS. The EIS does not consider the alternatives nor how these areas will be rehabilitated.

19. Beach Barge Landing & Haul Road between beach and Gas Plant

At 4.5.10.3 the draft EIS advises that, depending on the selected method of construction, there may be a requirement to bring in large loads and that due to restrictive road access the preferred option for large loads would be transport to the pipeline shore crossing location via flat top or landing barge. The draft EIS further advises that in both cases it is expected that some earthworks or ground improvements would be required and that in the event that the barge landing option is used a temporary corridor parallel to the shore approach, of approximately 50 m wide, will be required to facilitate landings.

The draft EIS also advises that while the beach barge access may be required for some loads, use of barges is not confirmed. However, in the event that beach barge access is required then a Haul road between the beach and the gas plant would need to be constructed within the pipeline ROW to a standard suitable to transport pipe lengths and shore pull machinery and equipment.

Traditional Aboriginal owners have commented to the NLC that: "they didn't tell us about this one…how would they get over the dunes and off the beach…do they plan to bulldoze the dune or build up off the beach and if so with what from where?"

Table 4.4, Project Schedule, indicates that construction using heavy machinery is intended to commence as soon as possible each dry season, i.e. from the commencement of the 2nd quarter, this precludes construction commencement via road access given that such access across the Daly River is unlikely before the end of May/early June and thus, despite references in the draft EIS to 'not confirmed' the Yelcherr Beach barge access and haul road to the Plant site will be required if the construction schedule identified in the draft EIS is to be followed.

If it is that the barge landing at Yelcherr Beach is not confirmed then the project schedule should be amended to reflect more realistic construction commencement dates and the impacts of further compression of construction timelines (limited to dry season road access June to-mid December) should also be identified.

The draft EIS should have clearly described the proposed beach barge landing and associated construction methodology as well as describing the particularities of the proposed haul road between the proposed barge landing and the plant site.

Construction of the proposed haul road within the ROW should also address safety concerns during construction given Woodside's concerns about similar road construction within the ROW when such construction has been proposed by the NLC in relation to the proposed all-weather access road.

20. Biting Insects – proposed annual burning of swamps

The draft EIS advises, at section 12.3.5 Fire, that:

> ". Burning of the swamps north and south of the pipeline and plant (Swamp 1 at 1.5km north and Swamp 2 at 3km south) will be required in the dry season when the grasses and other vegetation have dried sufficiently, in order to reduce and mosquito breeding habitat (Section 12.4)"

Further, the draft EIS advises, at section 12.4.1 Biting Insects – Impacts, that:

> "Biting insects pose two types of problems. They cause a nuisance because of their bites, and they can cause a health risk to workers involved with the Blacktip Project and the Wadeye community…"

And, at 12.4.1. Biting Insects – Preventative and Management Measures, that:

> "Elimination of natural mosquito breeding sites in the area surrounding the onshore gas plant is not feasible, however mosquito larval reduction measures will be implemented to assist with the control of mosquito populations. These include:
> - The annual burning of Swamps 1 and 2 (**Figure 8-9**) as soon as possible after the swamps dry out. Burning reduces shelter for mosquito larvae, which allows predator access to larvae.
> - A mosquito larval control programme will also be established during the construction phase using the larvicide methoprene 30 day residual pellet formulation. This larvicide will be applied before the October monthly high tide and reapplied after every 30 days of water inundation in the breeding site until the end of January. This control programme will be continued during the production phase of the Blacktip Project if warranted.

The NLC notes that no previous advice, prior to the release of the draft EIS, was provided to traditional owners to suggest that the proponents may wish to burn their swamp country. As a consequence some traditional owners have questioned the need, suggesting that: "They never asked us that..what for they want to burn…mosquito belong to that country, he was here before them…no matter they burn there will still be mosquitos…leave him alone…they don't need to burn".

Similarly, some traditional owners have expressed affront and responded with comments such as: "Nobody has spoken to us about this…what do they know about burning and who do they think they are assuming that they are going to burn our country… we've been burning country for thousands of years…if country needs burning we will burn".

The NLC would suggest that some substantive work will need to be done in relation to the development of an agreed EMP for biting insects.

21. A 30 year Project with a 75 year time frame

Woodside has advised the public that it is seeking a 75 year leasing arrangement with the NLC yet it is proposing a 30 year project. This has created an issue of inter-generational equity among the TOs of the proposed project area. TOs see real problems in committing the next and future generations of landowners to a gas plant on their land. The EIS does not consider the problems that Woodside's leasing objectives create for TOs.

While it is assumed that Government is assessing the project for 30 years and not for 75 years, traditional Aboriginal owners are particularly concerned about potential cumulative environmental impacts over a 75 year period and the lack of any discussion of this in the draft EIS.

22. General comments

The EIS is a document that appears to be written to beg the need for further supplementary data and delay before Government can approve the EIS. Woodside should be capable of producing a substantive document.

COMMENTS PAGE BY PAGE.

1. Page ES21 Table ES 3. There is no mention of the potential safety impact in the infrastructure and transport section
2. Page 12 Vol 1, Note that the NTG has not determined the procedures for administrating a gas plant under the Waste Management and Pollution Control Act 1998. The NTG is requested to advise the NLC of those procedures once they are developed as the NLC will seek to understand Government regulation of the site in relation to its own contractual involvement with the site.
3. Page 24: Woodside has advised the public that it is seeking a 75 year leasing arrangement with the NLC yet it is proposing a 30 year project. This has created an issue of inter-generational equity among the TOs of the proposed project area. TOs see real problems in committing the next and future generations of landowners to a gas plant on their land. The EIS does not consider the problems that Woodside's leasing objectives create for TOs.

   It is assumed that Government is assessing the project for 30 years not for 75 years. The NLC seeks affirmation, or otherwise, from Government on this matter.

4. Page 31**:** Woodside claim to apply the ALARP principle to its decision making processes in relation to environmental standards. It has failed to do this in relation to PW disposal by not giving consideration to best practice

disposal in southern states of PW to onshore hydrocarbon contaminant systems.

5. Page 32. The EIS claims socio-economic benefits to/for remote areas of the NT and indigenous communities. These potential long-term benefits have not crystallised for indigenous people from the direction of the proponents. Gas to communities from the Blacktip field has no net benefit to communities and initial public offers to indigenous people of supply of gas to their communities were withdrawn to TOs in the field due to problems with Blacktip gas reserves. The infrastructure associated with the Blacktip and the Wadeye to Gove gas pipeline offer no special infrastructure spin-offs to indigenous communities. For example, road use during construction would impact heavily on indigenous road users, but there are no offers to leave better roads behind after the project or even a proposal to promote such a policy in Government to enhance economic development through better communications. It has been left to indigenous people themselves to attempt to create potential economic benefits or value adding projects associated with this project. Eg substantial indigenous equity in the gas pipeline, sealing of the Daly River to Wadeye road and a bridge over the Daly River.

   The proponents write about employment and training for indigenous people yet its project time lines and lack of substance in the EIS on T & E actioning work against success in this important area of social and economic development for indigenous people.

6. Page 39**.** The EIS lists in Table 3.1 a summary of consultations that Woodside participated in on Aboriginal Land. The EIS does not record meetings attended by Woodside with key TOs and the NLC on Friday 3rd September where Woodside presented to TOs the first print of a video of their project in Murinbatha and English. At those meetings special conditions were placed on Woodside by the TOs of the proposed gas plant area for the conduct of its detailed engineering and surveying work in support of the project. Although this was a difficult meeting for Woodside as reflected in EIS statements over its intent to implement its own consultation methodology, it still stands as a record of Woodside opportunity to interface with TOs and could have been listed in the Table.
7. Page 40**.** Woodside advise that it intends to implement its own consultation methodology with TOs and its intent to engage TOs in the development of Environmental Management Plans (EMPs). The NLC is responsible for developing the EMPs with TOs in consultation with Woodside. The NLC does not accept Woodside's consultation methodology and any suggestion in the draft EIS that the NLC has accepted such is only in the view of the writers and not the NLC or the TOs.

   On Page 44-45 Woodside advise that it will be implementing an indigenous consultation program on the contents of the EIS. The NLC is conducting those consultations with Traditional Aboriginal owners & Thamarrur at Wadeye will be conducting its own workshopping of the draft EIS. Woodside has presented its EIS and will have opportunity to explain its position in the EIS supplement in response to comments by the NLC and any other indigenous bodies.

8. **Page 48-PW treatment and export.** Comment is made on Woodside's proposal to dispose of hydrocarbon contaminated water offshore in the starting general comments in this document. TOs nor the NLC, until production of this EIS, were not adequately briefed on this means of disposing of PW. Woodside were requested by the NLC to address the option of onshore disposal in this EIS but the EIS fails to do so.
9. Page 48-49, Table 4.1. A 0.5 hectare pioneer construction camp is required, prior to construction of the main camp inside the gas plant footprint, a 1 hectare construction waste facility and a beach pipe laydown area of 100*100 metres (1 hectare). TOs have not been consulted over this land use request.
10. Page 49-construction of waste facility. Woodside wish to place this facility over 1 hectare of the plant footprint area. TOs will need to be advised of this aspect of the plant footprint area.
11. Page 53-the Project Schedule. This schedule is unrealistic as site preparation commences in the second qtr of 2005. Unless Woodside plans on only contracting local council construction, road access will not be possible across the Daly River until late June in the second qtr with the earliest work starting in the 3rd Qtr 2005.
12. Page 72. The EIS advises there will be a total lease life of 75 years negotiated with the NLC. The project production and export facilities are being designed for only 30 years. After or just before 30 years, the project may or may not have a future
13. Page 78, 4.5.6. There is no Figure 4-6b. Re laydown area for the shore pull winch operations the two temporary lay down areas of 100 x 50 metres are very large and there is no consideration of the alternatives. Is the beach needed or the dune area where the midden is present?
14. Page 83- Figure 4.9 is misleading, as the beach would have been trenched before the pipe is winched ashore.
15. On Page 117 and in Section 9.4 the EIS advises that it is envisaged that supplies & equipment will be transported to the site by road from Darwin during the dry season & by barge during the wet season and Section 4.5.10.2 further advises that the existing boat ramp in Sandfly Creek is an option in terms of importing some materials during construction and provisions such as spare parts and lubricants during operation, subject to satisfactory arrangements being made with the Wadeye community. There is no discussion, however, in relation to the degree of potential use and the potential impacts of such use of this existing fortnightly barge service which currently forms the primary means of Wadeye regional supply during the wet-season. What, for example, is the capacity of the service to manage increased demand without potentially impacting on existing users?
16. Page 130 It may be best to remove some pipelines when decommissioning, for example the pipeline at the shore crossing, particularly if it could be exposed due to erosion later.
17. Page 131. Refers to decommissioning of the proposed Blacktip Project expected to occur approximately 30 years after start up. However, at page 24 it states that the length of the lease will be 25 years, plus two further rights of renewal of 25 years each. It should be noted that neither the Traditional Owners nor the NLC have agreed to such a lease arrangement.

18. Page 156- States that potentially contaminated stormwater will be mixed with the PW, treated and discharged via the PW pipeline. How will the potentially contaminated stormwater be identified, isolated and treated?
19. Page 163. There are references to the Tchindi Camp Ground as a reference point for Aboriginal camping and potential noise impact. This place is an artefact of non-Aboriginal map making. The focus on this locality is highly artificial in regards to Aboriginal land use and EIS impact assessments. Yek Maninh use and camp along the length of their coastline, not just at the TCG. Any conclusions based on the assumption the EIS or readers may make from the EIS that the TCG is where Aboriginal people may be impacted by the project operation is misleading.
20. Page 164- states that there will be a minimum level of noise during general day to day operations. However at page 167 it states that during normal operations noise levels at the plant boundary will not exceed 82 dB(A) ie this is noisy and means the amenity of the surrounding countryside will impact on local users. 82 dBA is the upper limit of noise that people can work in without hearing protection.
21. P 191. There are rocky shoals at the north and south end of Yelcherr beach. The southern shoal was surveyed and observations were made of increasing faunal species density and diversity toward the seaward area of the rock platform than found in the near shore environment. As established elsewhere in the EIS, the fauna of these rock platforms would be vulnerable to oil spills from the offshore condensate loading system. The EIS needs to detail in the Oil Spill management plan how an oil slick could be prevented from reaching the rock platforms, the location of equipment to achieve such prevention and an evaluation of the impact if oil reached (as possible in the computer modelling) the rocky platforms and the expected impact on habitat obligate species living on the seaward edge of the rocky platforms.

22. The first draft of the EIS provided to the NLC EIS on page 219 7.3.3 stated that an epiphytic mangrove Littorinid endemic to the Joseph Bonaparte Gulf should not be affected by impacts resulting from the Blacktip project. It was requested that this statement should be qualified. What are the potential impacts-presumably oil? Would the Littorinid avoid impact from an oil spill or from low level oil in diluted PW water because it suspends itself above the watermark? Other invertebrates would not avoid oil impacts. The above questions were answered by removal of the statement from the public EIS. It must be now assumed that it could be impacted.

23. Page 184. Macroalgae is an important food source for many organisms and is not given appropriate consideration. Furthermore, many rely on the habitat based on macroalgae, not just for a food source (such as dugongs and turtles), but as a normal habitat (such as signathids, which are extremely poorly researched for N Aust) and also as a nursery habitat.

    The EIS baseline surveys (limited at best) not finding any is not sufficient, particularly in view of the advice on page 212 that "*there has been no comprehensive mapping of marine macroalgae distribution in the vicinity of the shore crossing or pipeline route".* The obvious conclusion is that the survey should be done prior to construction approval.

The seagrass survey methodology is questionable. Grab samples are not the best for this type of survey as seagrass distribution is often patchy. It is also difficult to assess, without knowing the details of the sample technique, whether the grab sampling data has any value. Traditional Owners have reported the presence of seagrass growing off Yelcherr beach at very low tides, yet the EIS, to the contrary, does not recognise such local advice.

24. Page 193. Re fish. Darwin harbour species information is only partly relevant as it is stated that the project area is in a different habitat to Darwin. It is questionable whether the desktop information provided is sufficient on its own on which to make confident statements on impacts in the project area.

25. Page 255 The field survey missed the late dry season major migratory visits from Asia to the shores of the NT, (eg Waders-March/April & Sept/October) so the current data has a strong seasonal bias. Eg The EIS advises on page 285 that "*no migratory species have been recorded in the onshore project area in field surveys, but 8 species are likely to occur*". The non-recording of migratory birds is not surprising in view of the above migratory dates. The data is inadequate. Additional survey work in the appropriate migratory seasons would determine the level to which the beach area is used as a first landfall and a staging post for bird species migrating from Asia. Such surveys during the appropriate season would most likely add to 8 migratory species predicted in the EIS eg Ruff have been noted in Darwin this year and the Asian Dowitcher, Phalarope and SE Asian Passerines could turn up in the project shore area.

    There are few places along any coastline where sea birds would be prepared to roost, be it for breeding or an evening roost. The shore area affected by the project needs to be assessed by field survey for its use as a landing area for migratory birds, and use as a roosting and foraging area by seabirds, waders and water birds. There is little sense in compiling an incomplete bird list and then attempt to analyse how proposed activities might affect key habitats or assess impacts that may vary depending on seasonal or diurnal utilisation of the project area. (See also comment 31 below).

    Any potential spills and subsequent remediation plans in the Oil Spill Management Plan must take into account the role that the local area, including the project area, has in hosting bird species and populations. It does not help prepare management plans if the EIS has dismissed local water and shore birds as insignificant in the project area. Any spill plan must not rely upon key equipment having to be flown in during an emergency.

26. Page 295 Figure 9.10 should show the location of the PW outlet in relation to Walpinhthi Reef.
27. Page 354. What is the chemical composition of scale formation inhibitor? If this inhibitor is to end up in PW water, then its potential impact on the receiving environment needs to be known.

28. Page 321- In relation to Northern Territory Local Businesses and services, there is no discussion of the relevant local businesses and services that exist at Wadeye.
29. Page 364 Would an additional risk of a hydrocarbon spill come from a rupture of the subsea export pipeline or condensate pipeline through such causes as anchor strike?
30. Page 329 section 10.3 The environmental impacts of a fire or explosion at the gas plant is a risk which does not seem to have been properly addressed in the EIS. See also comment on the lack of important QRA information in the EIS

31. Page 362. The EIS advises that Oysters can be tainted at concentrations as low as 10 ppb. The EIS advises that tainting can not occur as the maximum modelled discharge rate in the nearshore environment indicates that hydrocarbon concentrations will be below 5 ppb. This is a very poor factor of safety to base assurances and is not acceptable.

    The EIS on the next page explains how ocean disposal of PW is a common practice throughout the industry. The EIS fails to explain that nearshore ocean disposal is not a common practice and is prevented in southern states at operating gas plants. This a crude and misleading means of defending nearshore disposal and should be addressed through Government requiring the proponent to carry out a detailed study of an onshore biological PW disposal system.
32. Even though there is a low abundance of dugong in the project area, the presence of these animals is still significant given their conservation status. The EIS advises on page 372 that "*in the absence of any data to the contrary, dugong must be considered to be potentially sensitive to oil with the predicted environmental consequence the same as for dolphins and whales".* The EIS does not evaluate how dugong would respond to effluent from a plant water outfall, as well as the impact that the outfall could have on seagrasses that are available in the project area (TOs have observed seagrasses at very low tides offshore from Yelcherr. This evaluation should be carried out. TOs and other decision makers such as Government should be aware if the project is likely to create an avoidance area for dugong in making their assessment of the cost – benefit of the project.

33. Page 393 Vol 1 lists 5 impacts requiring a higher level of assessment. This list should include:
    (a) marine contamination from the PW outfall;
    (b) road use impacts (highest impact on residents expected from the project)
    (c) EMP assessment processes
    (d) Oil spill frequency and management
    (e) Provision of further baseline EIS data

    Page 396 Refers to support vessels to the trading tankers. Would these support vessels assist with all moorings at the condensate mooring?
    Page 382 refers to impacts from noise and vibration. Will there in future be any likelihood of compression being placed on the offshore platform and therefore increasing the noise levels?

34. Page 395 & 402. Revegetation: On these pages there are references to "quick revegetation". Eg clayey sands landward of the beach. It is possible to work out from the EIS that quick revegetation consists of returning of overburden and removed soils seed store and dead vegetation. This may not be sufficient and a more active means of surface erosion control may be needed for certain areas in preparation for the following wet season eg surface binding methods such as hydro mulching.
35. Page 404. Seabird roosts: Information is needed from Woodside on seabird roosting sites recorded in proximity to the proposed pipeline landfall site that are said to be of low significance. This evaluation of significance is disputed. On Page 285 of the initial draft EIS it advised that there are some sea bird breeding roosts (ie terns[2]) recorded in proximity to the proposed pipeline landfall site with numbers in the low hundreds. Roosting terns in such numbers are not insignificant. Additional information is needed on what "proximity" means on the ground. Eg on the dune area behind the beach or elsewhere? Location information will help resolve this issue. The NLC would not wish to unknowingly be party to impacts on seabird roosting sites without there being an agreed management plan in place acceptable to major stakeholders.
36. Page 415- States that waste management procedures will be in accordance with Woodside's Waste Minimisation Policy and Guidelines and the Environmental Standards and Aspirations document. Copies of these documents should be provided in the appendix to the EIS
37. Page 416 Re Wadeye landfill. In a number of places in the EIS the Wadeye landfill is proposed as a possible receptacle for various wastes. The capacity of the landfill facility at Wadeye needs to be assessed for its suitability for waste disposal from the project. There is potential business opportunity here for the council if planned appropriately but also a problem issue if the landfill is unsuitable for coping with development of the Blacktip project.
38. P. 427 in relation to other combustion products, further information on the nitrogen levels of the gas and combustion products should be provided.

39. P434; Noise standards are for indoors-TOs do not quite live indoors at the beach camping areas.

40. 13.2. Page 453. The EIS claims that hunting and fishing will not be curtailed as a result of the Blacktip project (IMPAXSIA 2004). This is nonsense and is the view of the researchers, not of the TOs or the NLC, particularly in the construction phase when construction activities simply on safety grounds will require restriction on public movements. Eg TOs would be impeded travelling along the track beside the beach while lay down areas and pipe trenching and pulling operations are involved. Acceptance of this impact by the TOs is of course a part of the compromise they may make in seeing the project proceed. As the statement stands, it is misleading.

41. P. 454 the EIS does not satisfactorily identify and deal with the road safety issues, which will arise with, increased traffic.

[2] The EIS does not advise the tern species.

42. P. 456- is there any risk of anchor strike with the pipeline?

43. The EIS advises on page 453 that the area affected by the project is not considered significant by TOs when compared to the lands available for hunting and fishing. This conclusion is simply one about plant communities and their abundance in the estate of the TOs and the current preparedness of the TOs to consider reaching mutual settlement over forest areas of their estate needed by the proponents. The EIS fails to point out that conditional on destruction of forest areas is achievement by the parties of an agreement that makes it worthwhile losing that area of their estate.

44. Page 517. Woodside has not presented a map showing the societal risk factor contours (or industry risk factors) surrounding the gas processing plant. The EIS simply advises that the societal risk contours satisfy the acceptance criteria. This information is required to advise TOs and to guide current and future land use and land use planning in the area of the onshore project. The contours, as in most industrial situations, will have an impact on land values and this is unknown while the contours are not made available in the EIS.

Northern Territory Police

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COMMISSIONER'S OFFICE

EN2004/0067-D2004/001101206 : Your Ref

HQ2003/0563 : Our Ref

Ms Lyn Allen
Executive Director Environment and Heritage
GPO Box 1680
DARWIN NT 0801

Dear Ms Allen

I refer to your letter dated 2 November 2004 regarding the draft Environmental Impact Statement (EIS) from Woodside Energy Ltd for the development of the Blacktip Gas Field. The relevant units of the Northern Territory Police Force have considered the EIS and no specific areas of concern have been identified.

I note that the social impact of the project has been covered in Section 14 of the *Social Impact Assessment* and that Woodside proposes to develop a Social Impact Management Plan to cover issues such as project communications and traffic management.

The only remaining concern relates to security measures for the housing of construction equipment near the site of the onshore facility. I understand that this matter was raised at a meeting held in December and assurances given that this will be adequately catered for.

I look forward to your further advice in respect of this matter.

Yours sincerely

Bruce Wernham
Acting Commissioner of Police

12 January 2005

Environment Centre of the Northern Territory

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Blacktip Project: Draft Environmental Impact Statement, Woodside, October 2004.

A submission by the Environment Centre of the Northern Territory.

Overall Comments

The Environment Centre NT is the peak non-government conservation body in the Northern Territory. We have some major concerns about the Blacktip Project as laid out in the Environmental Impact Statement. First and foremost we consider it to be premature to approve this project on environmental grounds when the associated Trans-Territory Pipeline (TTP) project is currently going through a separate EIS process. There is an obvious need to step back and examine the cumulative impacts of the three related projects – Blacktip, TTP and the Alcan alumina refinery expansion at Gove. Indeed we note the following statement in the EIS that confirms the inter-relatedness of these projects : 'The Blacktip Project is linked to two other major proposed projects…Without the Blacktip Project, Alcan's proposed gasification of the refinery will be delayed…Should the Blacktip Project not proceed the TTP will not proceed and vice versa' (*5.2. No Development Option*, p136). None of the EIS's we have seen so far considers the cumulative impacts of the three projects. We therefore strongly recommend that approval for Blacktip is contingent upon a much broader strategic environmental review of the three related projects taking place.

Specific Concerns

We also have some more specific concerns about the Blacktip Project which are detailed below. We believe these are sufficient justification in themselves for the project not to receive environmental approval at this stage.

- It is highly probable that, despite the listed mitigation measures, the local turtle population at Yelcherr Beach will be severely impacted by loss of habitat, noise, and lights. Onshore construction of the pipeline will occur in the dry season when the flatback turtles are nesting. According to the EIS, there are possibly less than 20 turtles which nest on Yelcherr Beach. Flatback turtles are also said to be 'common throughout northern Australian waters' (*7.3.9. Sea Turtles*, p203). Why then is it listed as vulnerable? There is also evidence, according to local Aboriginal people, of an Olive Ridley turtle nest found at a nearby beach (p204). This was reported during the survey period (*Appendix C*: p6). According to Appendix C, it is anticipated that they would nest on Yelcherr Beach as well. Olive Ridley turtles are listed as endangered under the International Red List 2000 and the EPBC Act (*Appendix C*, p8).

- There is no discussion in the EIS of the cumulative impacts on the seafloor and benthic and fish communities of all the different drilling wastes such as cuttings, water-based muds and their chemical additives. Drilling waste, including 5764 cu metres of mud and 689 cu metres of drill cuttings, will be largely discharged to sea (*4.4.2. Well Construction*, p59).

- 90,000 tonnes pa of greenhouse emissions will be produced during the normal operations phase. But there is no estimate of flare emissions during

commissioning and the early phase of operations which 'will be significantly higher' (*6.3.1. Greenhouse Gases*, p161). 4.5Mtpa of greenhouse emissions will result from Blacktip gas and condensate being used as a fuel source by Alcan and other consumers. Considering 2.2Mtpa of this will result from Alcan's alumina refinery expansion (refer to the Alcan EIS 2004), most of the remaining emissions will result from the consumption of condensate overseas. This is highly significant and represents a 0.6Mtpa increase in Alcan's current emissions as well as a substantial increase in the NT's contribution to global greenhouse emissions. The greenhouse benefits of this project are being overstated in the Executive Summary (pES2). The EIS also states that if required, potential climate change impacts will be investigated in the Greenhouse Gas Management Plan (*12.6.1. Greenhouse Gases*, p427). This should indeed be a prerequisite and is currently a glaring omission.

- Woodside has not yet decided where the packaging and general construction waste will go. It has not assessed if Wadeye landfill has sufficient capacity. Very little detail about the hazardous waste generated in construction phase is provided, especially the quantities of waste (*6.2.1.3 Hazardous Waste*, p156). Hazardous waste will 'most likely' be returned to Darwin in the commissioning phase (p158). This needs to be clarified before any approvals are given for this project to proceed.

- No Social Impact Management Plan (SIMP) is in place yet. There are a lot of social impacts identified that will have negative consequences as well as there being obvious deficiencies in consultation processes. There seems little reason for confidence that a further 2 day workshop, leading to the development of an SIMP, will adequately address these issues. Again one has to question the speedy approvals process for this and related projects (*14. Social Impact Assessment*, p471-475).

- 21 management plans are still to be developed! No approvals should be granted until the bulk of these are completed (*Tables ES-1, ES-2, ES-3, Executive Summary*, pES-15 to ES-21) .

- Some design details of the Project are not confirmed yet e.g the flare at the onshore gas plant (*4.7.2.2. Excess Gas and Flare*, p114).

- There will be two laydown areas on the beach approx 100m by 50 m, yet the exact location is not yet confirmed (*4.5.6. Shore Crossing*, p78). We wonder if this is due to the turtle nesting sites, but no explanation is offered.

- It very much sounds like the offshore platform will be dumped at sea ('decommissioned') – see *4.9.4 Wellhead Platform*, p130-131. The options are given as either dumping in deep water as an 'artificial reef' or leaving on-site with the top removed. Both options will permanently alter the marine environment, which is unacceptable. The platform must be completely removed. Yet there is no discussion of this option in the EIS.

- Noise offshore at the Jack-up could reach 182 db and be detected up to 30km away (*6.4.3. Construction Phase Emissions*, p165). This seems very excessive and

is likely to be of detriment to marine mammals. The area is potentially dolphin and whale habitat (*7.3.7. Whales and Dolphins*, p195-196). Noise associated with the laying of the pipeline at sea has not even been modelled yet as the exact equipment and vessels that will be used are not currently known. Dugong are known to inhabit areas closer to shore (*7.3.6. Dugongs*, p194).

- There are habitats where threatened species could be found i.e. false water-rat, Northern Brush-tailed phascogale, Red Goshawk, Brush-tailed tree-rat - but none were recorded during the fauna surveys. Field surveys in the region have been extremely limited (*8.3.1. Regional Ecological Setting*, p230). No fish surveys were completed in offshore areas it appears, as the only information provided is from outside the Joseph Bonaparte Gulf (*7.3.5. Fish*, p193). With such limited information it is impossible to adequately assess the impacts on wildlife, including protected species.

- A spill of 100,000 cubic metres of condensate (complete rupture of tanker) 'will not be allowed to happen' says Woodside (*11.19. Hydrocarbon Spills*, p366). Therefore it does not even bother to provide an assessment of this worst-case scenario. This is not good enough. Accidents do happen and the risks must be properly assessed and considered. Furthermore, a contingency plan must be developed.

  Instead in the main report only an 8 cubic metre spill is modelled as this is 'likely to occur'. Under this scenario 900 kg of condensate became stranded on shorelines affecting about 1 km of beach, but is expected to evaporate and disperse within 3 days. What, however, are the likely impacts within that 3 day period? The EIS also states that the modelling indicates that even for large spills, oil does not extend to the important turtle nesting sites around Cape Hay and Point Pearce (*11.19.2. Effects on Biota*, p372). But what about the effects on Yelcherr beach nesting sites?

- Modelling of a 500 cubic metres spill of heavy fuel oil is not discussed in the Main Report. Appendix K notes, 'adverse effects from a heavy fuel spill are more likely to be related to coating of wildlife dwelling on the water surface, smothering of intertidal organisms, and long-term sediment contamination'. 400,000kg of oil were predicted to be washed ashore and would impact 50km of beach. This is a significant risk which requires serious consideration. Instead the EIS glosses over this risk.

- The EIS states that 'source levels of the highest components of humpback whale song are 192 dB re 1 Pa^2, above the levels generated by drilling and support vessels, indicating that noise generated by drilling will not have an impact on whales' (*11.22. Noise and Vibration*, p382). This does not necessarily follow logically. What about the duration of the noise?

- 2ha of sand dune habitat will be disturbed and 74 ha of tropical savanna woodland will be cleared. These figures do not include disturbance arising from borrow pits or the upgrade of access tracks to the project area (*12.3.1. Vegetation Clearing and Habitat Loss*, p400-401). What will this entail? There are no details provided

in the EIS. Cycads, a protected species, also occur in the savanna woodland to be cleared.

- Nearshore export pipe laying activities may impact the area in the vicinity of the offshore Walpinhthi Reef. There are no details provided as to the level of impact on the reef yet it is acknowledged that this is a sensitive Aboriginal cultural site (*13.9. Aboriginal Heritage*, p459). Discussion of what might be part of the Cultural Heritage Management Plan is somewhat vague. Will Woodside support projects to strengthen environmental cultural values, knowledge and practices or not? (*13.10.3. Summary of Impacts and Management Measures*, p464).

- The EIS does not say how much employment will be generated (*13.12. Economic Environment*, p465). However it is stated that there will be only a minimal number of fulltime jobs after the construction phase (*Exec Summary*, pES2). Only 12% of the predicted $450 million in capital will be spent in the NT. The revenue benefits to the Australian economy during operations are not even quantified (*13.12. Economic Environment*, p466).

- The offshore risk assessment apparently satisfies 'Woodside's corporate acceptance criteria'. (*16.2.3. Summary of Potential Impacts*, p517). How do we know? There is no detail provided in the EIS Main Report or the Appendices. What are the possible consequences of a hydrocarbon explosion at the onshore gas plant? We are told that onshore 'societal risk contours satisfy the acceptance criteria'. What does this mean exactly? There is an unacceptable lack of information provided about the risks of major accidents in the EIS.

- We also have serious concerns about the following impacts. Approval should not be granted until best-practice management plans are developed to prevent and/or mitigate each of these.

    - the 1-1.4 kilometre wide construction corridor for the pipeline offshore. An estimated 200,000 cubic metres of material will be displaced during trenching (at least).

    - produced water from the onshore plant to be discharged at sea approximately 3km offshore. Up to 7800 bpd of produced water is to be discharged during the start up phase of the pipeline.

    - fauna falling into the pipeline trench during construction.

    - Weeds being introduced into the Wadeye area by workers, trucks etc.

<u>Summary</u>

This EIS is incomplete and inadequate. It does not provide a sound basis for any government approval of the project. It does, however, raise many serious questions about the impacts of gas-based industrialisation in the Northern Territory. ECNT therefore strongly recommends that, together with the TTP and the Alcan expansion, the Blacktip Project undergo a much higher level of strategic environmental assessment.