



SHERWIN
IRON

Supplementary Environmental Impact Statement

Prepared for: Sherwin Iron (NT) Pty Ltd

Prepared by: EcOz Environmental Services



2014



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1 Introduction

1.1 Purpose of this document

The purpose of this Document is to provide a response to submissions received during the public review period on the Draft Environmental Impact Statement (EIS) for the Sherwin Creek Iron Ore Project. The Draft EIS was submitted by Sherwin Iron (NT) Pty Ltd (Sherwin) on Saturday 14 December 2013. The Draft EIS entered a six week statutory public review period from 14 December, with an additional eight days to cover the Christmas and New Year period, the review period ended on 3 February 2014.

Submissions were received from Non-Government Organisations and the Northern Territory Government. Further to this, it should be noted that the Northern Territory (NT) Environmental Protection Authority (EPA) included matters of National Environmental Significance in its submission. Submissions made on the Draft EIS during the review period are addressed in this Supplementary Document, please refer to Section 2.2.

1.2 Structure of this document

This document comprises the following main sections and supporting information:

- Public submissions and responses from Sherwin
- Updated commitments table
- Supporting appendices.

1.3 Assessment process

This document will be combined with the Draft EIS and together they will become the final EIS. The final EIS will be jointly assessed by the NT Government and Federal Government under the Northern Territory *Environmental Assessment Act 1982*, the *Environmental Assessment Administrative Procedures 1984* and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

A further 35 days is taken for the minister to make a determination on the proposal, including any suggestions or recommendations concerning conditions that should apply to the proposal in order to minimise potential environmental impacts and to protect the environment. An Assessment Report will be prepared containing the Minister's determination and advice and this is forwarded to the approving Minister for consideration and subsequent release of conditions.

Sherwin Iron will then be required to submit a Mining Management Plan to the Department of Mines and Energy for approval, before commencement of mining is permitted.

2 Comments and Responses

2.1 Summary

Submissions were received from the following organisations:

- Amateur Fishermen's Association of the NT (AFANT)
- NT Department of Health
- Department of Land Resource Management
- Tourism NT
- Environment Centre NT
- Environmental Defenders Office NT (Inc.)
- Northern Land Council
- Department of Lands, Planning and the Environment (Planning Division)
- NT Department of Primary Industry and Fisheries
- NT Department of Mines and Energy
- NT Environment Protection Authority.

There were a total of 148 submissions from the above 11 organisations. Most submissions received were with regard to the Environmental Management Plan (13 submissions), biodiversity management (15 submissions), water management (23 submissions) and transport/traffic management (27 submissions).

The Department of Lands, Planning and the Environment (Planning Division) had no objections to the proposal and are therefore not discussed further.

2.2 Response to submissions

Sherwin has elected to address each individual comment rather than providing a collation of environmental information. To this end comments were tabulated for each organisation with a response provided underneath. To allow for easy feedback and discussion comments are numbered in no particular order.

Appendices are referenced throughout and are provided at the end of the main document.

2.2.1 Amateur Fishermen's Association of the NT

No: 1

Comment:

It is disappointing that a more detailed and comprehensive EIS which outlined what works, clearing and earth moving has been undertaken on site as part of developing the bulk sample and what additional works will be required to move to the next stage of production. It would also have been relevant to include up-to date information and observations on hydrology at the site and how the existing works had handled the early wet season rainfall.

Response:

Works, clearing and earth moving undertaken as part of the Bulk Sample operation were assessed under a Mining Management Plan and are not relevant for the Environmental Impact Statement or Supplementary Report. It is envisaged that major additional works will not be required to move into a mining phase apart from that detailed in Section 2.7.2 of the Draft EIS.

At the time of the Draft EIS submission, the Sherwin site had not received significant rainfall - information detailing seasonal rainfall and any erosion and sediment control issues and management on site will be detailed within the Mining Management Plan to be approved prior to the commencement of mining.

No: 2

Comment:

The main issues that AFANT has with the project relate to social impacts and unacceptable risks.

We have a number of serious concerns with the proposal as it is outlined and believe that the following issues need further consideration and an adequate response:

- Transport and road user safety;
- Decline in the recreational fishing tourism and visitor experience to the Roper river region
- The timeline for transport and road upgrades is unsatisfactory;
- Site layout and water risk on site;
- Question the ability of the mine operation to have no discharge of waste water during wet seasons;
- Water runoff from mine operation areas (crushing loading and waste rock piles) outside of mine pit;
- Potential impact from future operations and options that are planned but outside the scope of this EIS;
- Any upgrades to road infrastructure, bridges, crossings or flood ways must meet best practice fish passage; and;
- Onsite mine water must be included in broader catchment water planning and allocation process.

AFANT notes the risk assessment in the EIS identifies that the risk of traffic collision from the project is extreme and we have concerns that unless further management measures are implemented the risk cannot be substantially addressed.

Response:

This question has been separated and addressed individually below.

No: 3

Comment:

Transport and road user safety

Response:

Management of transport and road user safety is of paramount importance to Sherwin Iron. A Traffic

Management Report and Traffic Impact Statement were submitted with the Draft EIS (Appendix L of the Draft EIS). While some information in these reports was outdated by the time the Draft EIS was submitted, the management strategies remain the same. Sherwin Iron has an agreement with the Northern Territory Government (NTG) for use of the Roper and Stuart Highways to transport 1.5Mtpa (million tonnes per annum) and safety of all road users was the primary consideration in developing this agreement.

No: 4

Comment:

Decline in the recreational fishing tourism and visitor experience to the Roper river region

Response:

Sherwin Iron recognises the importance of recreational fishing to the tourism industry in the Northern Territory and that recreational fishermen will continue to seek access to the Roper River and nearby coastal areas. Sherwin Iron also recognises that the increased volume of mine-related traffic will be perceived as an impediment to tourists' experience of the Northern Territory's remote areas. Matters related to access to the region by tourists were considered in the wider scope of development of the Traffic Management Plan (Appendix L of the Draft EIS).

No: 5

Comment:

The timeline for transport and road upgrades is unsatisfactory

Response:

Sherwin Iron is currently in negotiations with the Northern Territory Government regarding proposed upgrades to the Roper Highway.

No: 6

Comment:

Site layout and water risk on site

Response:

It is unclear what the specific concern is with regards to site layout and water risk on site, therefore Sherwin is unable to respond to this comment.

No: 7

Comment:

Question the ability of the mine operation to have no discharge of waste water during wet seasons

Response:

Small volumes of stormwater from the sedimentation ponds will discharge (following treatment to remove suspended sediments) into the local drainage systems downstream of the mine site during the wet season. Water balance calculations for low, average and high rainfall indicated that there will be no discharge from the open pits.

No: 8

Comment:

Water runoff from mine operation areas (crushing loading and waste rock piles) outside of mine pit

Response:

An updated erosion and sediment control plan (ESCP) will be submitted prior to construction and will include further information on sediment basin application and design, stabilisation of outlets for sediment basins, culverts and level spreaders (including supporting drawings), a schedule for staging of ESC works throughout site development, construction detail of the proposed sediment weir, further information and typical drawings for rock lining of drains, locations of proposed diversion bunds and sediment fences on drawings, review and possible upgrade of sediment containment measures, more details regarding the selected method(s) for soil stockpiles, drain and road margins, disturbance associated with installation of ESC works, or stabilisation of drainage outlets, ESC management requirements of dispersive soils. Maintenance provisions will include regular inspections of ESC works, plus inspection following major storm events, and definition of responsibilities for personnel allocated to inspection and maintenance work, including removal of sediment or ESC works repair. Inspection and maintenance activity will also include receiving waterways downstream of outlet structure discharge.

An inspection template will be developed for use by allocated personnel, with a copy of this template included as an attachment to the ESCP.

Works will be carried out by a Certified Professional in erosion control and all hydrological design calculations will be reviewed by a suitably qualified engineer.

No: 9

Comment:

Potential impact from future operations and options that are planned but outside the scope of this EIS

Response:

At this stage it is difficult to determine cumulative impact from any future project expansion or development by Sherwin as it is not clear where or when this might occur. Cumulative impacts have been discussed based on what is known or assumed in Section 3.9.1 of the EIS.

No: 10

Comment:

Any upgrades to road infrastructure, bridges, crossings or flood ways must meet best practice fish passage

Response:

Any upgrades to road infrastructure, bridges, crossings or floodway's will comply with general principles in: Kapitzke 2010 *Culvert Fishway Planning and Design Guidelines* and Fairfull & Witheridge 2003 *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* - see Section 3.1.1 of the EIS.

No: 11

Comment:

Onsite mine water must be included in broader catchment water planning and allocation process.

Response:

The mine does not intend drawing water from the ephemeral Sherwin Creek and will rely on ground water resources to meet the project water demand. Broader catchment water planning and allocation is a function

of NT Government, although it is noted that the percentage of the whole Sherwin Creek catchment that will be disturbed is relatively low (i.e. approximately 4%).

No: 12**Comment:**

AFANT notes the risk assessment in the EIS identifies that the risk of traffic collision from the project is extreme and we have concerns that unless further management measures are implemented the risk cannot be substantially addressed.

The major collision risks are as follows:

- Roper Highway condition; narrow pavement, limited ability to move of the road in some areas, narrow and obscured vision areas as well as road width at culverts and bridges;
- Stuart Highway; increased road trains and limited overtaking opportunities from Mataranka to Darwin; and 100 quadruple road train truck movements per day, 50 return trips increasing to up to 200 truck movements per day in the next stage after a road upgrade to the Roper Hwy.

AFANT believes that the only acceptable and safe option for the project ore transport is for a major upgrade of the Roper Highway from a sealed single lane to a dual highway with multiple overtaking lanes. The upgrade should include line marking, surfaces and shoulders all to a relevant standard (fit for use).

The Stuart Highway also needs to be addressed so as to include suitable areas for passing and increased overtaking lanes to be installed.

Governments both NT and commonwealth must also provide financial and infrastructure support as not all of the increased mining traffic will be a result of the Sherwin mine with other mines vastly increasing heavy vehicle traffic in this area.

As Government is promoting the areas for development this promotion and industry encouragement must come with the required investment in infrastructure. There has been a lack of investment from Territory and Commonwealth Governments in key infrastructure in mining areas like the Roper region. Transport and communications infrastructure are also required to make these areas safer to the general public and should be invested in at the time operations are establishing or being approved.

In the Roper region three mines are already operating; all increasing the traffic and risks on the regions narrow and degraded roads.

The question that must be asked when considering this approval is; what is the value of a human life on the Roper Highway and what investment government and Sherwin iron are going to make to address this real and present risk.

Governments have stated that they are open for business for mining development. This undertaking needs to come with real commitments to provide adequate infrastructure to protect both human life and the environment.

Response:

Sherwin Iron is currently in negotiations with the Northern Territory Government regarding proposed upgrades to the Roper Highway to determine the safest options for all road users.

No: 13**Comment:**

AFANT does not believe some of the socio-economic risks have been adequately addressed in the draft EIS, in particular the impact on other industry's like recreational fishing tourism, the recreational fishing tourism

sector is one of the fastest growing sectors of the NT tourism industry.

The increased risk of vehicle accidents and increased heavy vehicle traffic will have a real impact on the tourism experience of visitors in the Roper River area as well and those traveling on the Stuart Highway.

Concerns with road safety and lack of a positive experience that will come from visitors traveling the regions roads needs to be considered not just as a risk issue to road users but also as a negative to the attractiveness of the NT as a traveling destination.

Response:

In making its assessment of the potential impact on the tourism industry, Sherwin Iron was not able to identify specific quantifiable data relating to the number of fishermen, or tourists in general, accessing the Roper River or using the Stuart Highway, so an industry specific response could not be prepared. Instead, Sherwin Iron came to a reasonable conclusion that the impacts experienced by fishermen seeking to access the Roper River and nearby coastal regions would not be significantly different to those experienced by other users of the road. Consequently, the EIS contained a strong focus on the management of risks related to travelling the Roper Highway between Mataranka and the entrance to the mine site, without seeking to differentiate between different groups of users.

Sherwin Iron's Traffic Management Plan is designed to mitigate the risks and through that address any negative perceptions road users may have of the project and the way it is being managed.

2.2.2 Department of Health

No: 14

Comment:

Chapter 1.10.2: Please include the *Public and Environmental Health Act 2011*. This Act will apply for the registration of accommodation, and design approval for the wastewater treatment facility, as well as in general assuring that no public health nuisance arises during the construction phase and actual operation of the project.

Also include the *Food Act 2004*. This Act is applicable to any commercial food preparation area associated with the site. The Act also requires food business registration with the Department of Health. A bacteriological water sample and chemical and metal suite is required as part of the proponents submission for food business registration.

Response:

The *Public and Environmental Health Act 2011* should have been included in the list of relevant legislation. This Act will apply for the registration of accommodation, and design approval for the wastewater treatment facility, general sanitation, mosquito prevention, rat exclusion and prevention as well as prevention of any public nuisance during the construction phase and actual operation of the project.

The *Food Act* was included in Chapter 3 section 3.2.1 - Food Hygiene, but was missed on the Legislation list.

No: 15

Comment:

Chapter 2.8.4 : Water - It is stated in the draft EIS that the potable water supply will be treated by Reverse Osmosis and then disinfection by ultraviolet light (UV). It should be noted that UV has no residual disinfecting action and therefore the UV system should be installed as close to the point(s) of use as possible. If potable water is to be distributed between the mine site and the accommodation camp the use of at least one UV disinfection system at each site should be considered.

Response:

Sherwin acknowledges this comment and will ensure that appropriate disinfection systems for potable water are installed. Separate systems will be installed at the camp and mine site. In addition, potable water at the mine site will be obtained from water bottle dispensers.

No: 16

Comment:

A modular waste water treatment plant with water recycling to irrigation and dust suppression has been proposed. A site specific design approval will need to be obtained from the Environmental Health Branch prior to the commencement of any works.

Response:

Sherwin acknowledges this comment and will ensure that the Department of Health (DoH) Environmental Health Branch is consulted prior to installation of waste water treatment and recycling facilities on site.

No: 17

Comment:

Appendix F1: Water Management Plan 1.2.1

The EIS states 'Under section 57 of the NT *Water Act*, any bore drilled within the water control district (WCD)

requires a bore construction permit, except for mining operations. A bore located outside a WCD does not require a construction permit, noting that under the same Act, a Northern Territory licensed driller must be used to drill the bore.

This statement implies no action is required outside a water control district however under the Public Health (Nightsoil, Garbage, Cesspits Wells and Water) Regulations if a bore is to be drilled outside of a water control district notification must be received by the Department of Health.

Response:

Sherwin's interpretation of the Public Health (Nightsoil, Garbage, Cesspits Wells and Water) Regulations (July 2011) is that notification must be provided for wells, which under the regulations 'includes any underground water storage, tank or reservoir'. Ground water supply bores are not wells and Sherwin cannot find any reference within the regulations to WCD's, as is implied in the comment.

No: 18

Comment:

DOH Fact Sheet 700: Requirements for Mining and Construction Projects

The proponent and contractors must take note of the current DoH Fact Sheet 700: Requirements for Mining and Construction Projects available at:

http://health.nt.gov.au/library/scripts/objectifyMedia.aspx?file=pdf/16/49.pdf&siteID=1&str_title=RequirementsforMiningandConstructionProjects.pdf

It is the responsibility of the proponent to obtain DoH approvals and licences for the mining site. It is the proponent's responsibility to alert DoH Environmental Health of the commencement of works and in this case, the proponent will be required to contact either Karla James or Chris Blow at the DoH Environmental Health Office in Katherine:

Karla James: ph. 8973 9061 or karlajames@nt.gov.au

Chris Blow: ph. 8973 9062 or christopher.blow@nt.gov.au

Response:

Sherwin Iron will gain approvals for both the mine camp kitchen/food preparation areas and the mine camp accommodation areas. It will also comply with the *Food Act* as discussed in Chapter 3 section 3.2.1 - Food Hygiene.

No: 19

Comment:

Radiation Protection

Radiation is a potential issue and has not been mentioned in the draft EIS. If the operator has any material that is a radiation source, as defined under the *Radiation Protection Act*, the operator must apply for all relevant authorities under that Act. It is the responsibility of the operator to apply for all relevant authorities. If naturally occurring radioactive material (NORM) is found on site, it may, possibly, require appropriate authorities to possess it.

For more information, the proponent should refer to the following internet location:

www.nt.gov.au/health/radiationprotection

Response:

There are currently no radiation sources used on site and none are in the current plans. There are also no known or expected sources of NORM associated with this deposit or associated waste material.

2.2.3 Department of Land Resource Management

No: 20**Comment:**

Appendix E, Erosion and Sediment Control Plan (ESCP), proposes a number of erosion and sediment control (ESC) works including sediment basins (Section 6.2). These have been sized as both Type C and Type F10 basins. To provide direction for construction and to assist accurate project costing, the Department recommends that basin type is clarified for each location shown on drawings SK02 - SK06.

Typical drawings are required for basin types, including emergency spillways and detail of basin outlets/dewatering provisions. Further information on sediment basin application and design is contained in the International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control Guidelines (2008), Book 2, Appendix B. Further information about IECA publications can be found at www.austieca.com.au. The Department also recommends that outlets for sediment basins, culverts and level spreaders are stabilised to ensure receiving waterways or downslope areas are not at risk from accelerated erosion, with detail described in the ESCP and displayed in appropriate typical drawings.

The Department recommends the preparation of a schedule for staging of ESC works throughout site development. The Department strongly recommends that all proposed works within the ESCP are planned by a Certified Professional in Erosion Control (CPESC, refer www.austieca.com.au), and all hydrological design calculations are reviewed by a suitably qualified engineer.

In addition to rock filter darns (i.e. rock check dams) Section 6.1 refers to sediment weirs, with locations shown on Drawings SK03 and SK04. A typical drawing/construction detail of the proposed weir type is required. Further information and typical drawings are also required regarding rock lining of drains. Locations of proposed diversion bunds and sediment fences (Section 5.22) for topsoil stockpiles should be indicated on Drawings SK04, SK05 and SK07. With regard to potential sediment discharge from the north-western side of the subgrade stockpile to adjacent tributaries of Sherwin Creek, the Department suggests review and possible upgrade of sediment containment measures

With regard to stabilisation of disturbed soil surfaces, Table 9 in Section 5.2 lists a number of methods. More detail is required regarding the selected method(s) for soil stockpiles, drain and road margins, disturbance associated with installation of ESC works, or stabilisation of drainage outlets. The Department also recommends that any area of soil disturbed during site construction (not subject to future works) be progressively rehabilitated by revegetation, mulching or other appropriate means, to the satisfaction of the Department of Mines and Energy.

Section 5.2.1 refers to the use of gypsum where sodic (dispersive) soils may be encountered. The Department recommends further detail is provided about the assessment and ESC management requirements of dispersive soils. Further information can be found in the IECA Best Practice Erosion and Sediment Control Guidelines (2008), Book 2, Appendix C.

The Department recommends that maintenance provisions include regular inspections of ESC works, plus inspection following major storm events, and definition of responsibilities for personnel allocated to inspection and maintenance work, including removal of sediment or ESC works repair. Inspection and maintenance activity should also include receiving waterways downstream of outlet structure discharge. The Department also recommends that an inspection template be developed for use by allocated personnel, and that a copy of this template is included as an attachment to the ESCP.

Response:

An updated ESCP will be submitted prior to construction and will include further information on sediment basin application and design, stabilisation of outlets for sediment basins, culverts and level spreaders (including supporting drawings), a schedule for staging of ESC works throughout site development, construction detail of the proposed sediment weir, further information and typical drawings for rock lining of

drains, locations of proposed diversion bunds and sediment fences on drawings, review and possible upgrade of sediment containment measures, more details regarding the selected method(s) for soil stockpiles, drain and road margins, disturbance associated with installation of ESC works, or stabilisation of drainage outlets, ESC management requirements of dispersive soils. Maintenance provisions will include regular inspections of ESC works, plus inspection following major storm events, and definition of responsibilities for personnel allocated to inspection and maintenance work, including removal of sediment or ESC works repair. Inspection and maintenance activity will also include receiving waterways downstream of outlet structure discharge.

An inspection template will be developed for use by allocated personnel, with a copy of this template included as an attachment to the ESCP.

Works will be carried out by a Certified Professional in Erosion Control and all hydrological design calculations will be reviewed by a suitably qualified engineer.

No: 21

Comment:

With regard to mine site rehabilitation, the Department suggests that the proposed revegetation trial work be conducted at the earliest opportunity and not be delayed for two years, to optimise the development and availability of site specific methodology for progressive rehabilitation. This would probably require the formation a dedicated trial area at the outset of the project to simulate soil, substrate and slope conditions likely to be encountered during future rehabilitation.

Response:

Sherwin commit to beginning rehabilitation trials during 2014. An experimental design for trials will be developed within three months of the commencement of mining. Field trials will begin during the 2014/15 wet season. The trial design will simulate soil, substrate and slope conditions likely to be encountered during future rehabilitation.

No: 22

Comment:

Macro invertebrates

The macroinvertebrate survey sampled three sites, but only one site was within Sherwin Creek. This cannot be represented as adequate pre-mining data to determine the extent of post-mining changes in macro invertebrate community structure. However, the data does highlight the presence of the family *Leptophlebiidae*, which may provide a focus for monitoring the effects of acid mine drainage in Sherwin Creek.

Macro invertebrate taxa are mostly identified to family level only, consequently there is little to no basis to suggest that this provides an inventory of macro invertebrate diversity, nor adequate evidence of the absence of significant aquatic invertebrate taxa (if only because lists of such taxa do not currently exist in the NT).

Response:

Sherwin acknowledges that multiple sampling sites within Sherwin Creek may provide a more comprehensive understanding of the macroinvertebrate community structure. In conducting baseline macroinvertebrate assessments, Sherwin undertook sampling and laboratory identifications in accordance with the nationally-recognised 'AUSRIVAS' sampling and analysis methods (Lamche 2007), which specifies at least family level identification. In a study comparing family versus genus taxonomic resolution, Lamche and Fukuda (2008) concluded that 'the best correlation between the genus and family level models was found on a subset of data obtained in a partly metal polluted catchment, suggesting that the family level

model is as good as detecting moderate to strong impact as the genus level model.' As stated in the comment, in the absence of any lists of significant aquatic invertebrate taxa in the NT, it is not possible to assess whether they may be present in Sherwin Creek.

No: 23**Comment:**

Fish

The fish survey sampled eleven sites within Sherwin mine tenements, with data also included from an additional site in the main-stern of the Roper River from a previous survey. Only two of these sites are within Sherwin Creek, and it is unclear whether others are within hydrologically analogue streams which might serve as control streams within a program to monitor impacts from mining activities. Surveys of Sherwin Creek sites identified seven fish species, all common and widespread species. Sherwin Creek does not provide habitat for a diverse fish assemblage and is very unlikely to provide habitat for significant species such as Freshwater Sawfish. The claims made in the report are valid and reasonable.

Response:

Acknowledged.

No: 24**Comment:**

Water Management Plan

The surface water monitoring program consists of monthly sampling at seven sites, six of which are distributed on Sherwin Creek, with the seventh on a control creek. Two issues have been identified. Firstly, the program is based on a monthly schedule and is not continuous (using loggers) or event-based. The second issue is one of data interpretation; without ecological measurements (e. g. macro invertebrates within an adequate experimental design) it is hard to decipher what the ecological significance of variation in water quality might be.

The 'baseline' water quality data for Sherwin Creek presented in Table 1-3 is very limited in terms of number of sites and the number of sampling occasions and cannot be used to define pre-mining conditions. Two sites in Sherwin Creek, sampled on the same day (17/5/2012) had %DO of 1.1% and 73%, and Total Nitrogen of 2.8 mg/L and 0.1 mg/L. Locally derived water quality trigger values would be useful, but preferably the data used for derivation should be limited to flowing waters and/or account for seasonal variation.

Response:

Sherwin has updated the Water Management Plan (WMP) to include event-based sampling of field parameters (i.e. pH, electrical conductivity, turbidity, dissolved oxygen), which will involve at least weekly monitoring during flows in Sherwin Creek (Supplementary EIS Appendix B). The WMP has also been updated to include an annual macroinvertebrate monitoring program on Sherwin Creek (i.e. upstream and downstream of mine) and on a nearby reference stream, which will enable the assessment of potential impacts of the mine on aquatic health. As stated in both the original and updated WMP, site-specific trigger values will be developed based on reference site data.

No: 25**Comment:**

While only six flora sites and five fauna sites were sampled (Appendix H1, Figure 7 and Appendix H2, Figure 2) in the total footprint area of 350 ha, other available biodiversity data for the surrounding region and expert

knowledge of the regional distribution of significant flora and fauna suggest the risk of significant impact to regional biodiversity values is low.

Response:

The sampling covered all the habitats present at Deposit C. In addition 57 survey plots within the Sherwin Iron exploration leases examined the fauna and flora on a larger scale. The EIS agrees with this conclusion that 'the risk of significant impact to regional biodiversity values is low'.

No: 26

Comment:

The *Weeds Management Act* states that the owner and occupier of land must - (a) take all reasonable measures to prevent the land being infested with a declared weed; (b) take all reasonable measures to prevent a declared weed or potential weed on the land spreading to other land. It is recommended that prior to commencement of works, any machinery, equipment, vehicles and any materials such as fill being brought on site is clean of weeds and or weed seeds.

Response:

As per the actions in Section 5 of the Weed and Pest Management Plan submitted with the EIS; Vehicles/equipment will be washed down and inspected with details entered into a register. Vehicles will be certified weed free before entry into the project area. Sherwin add this as a specific commitment, i.e. they will install a wash-down facility, specifically designed and located for the prevention of the spread of weeds, which will adhere to the Queensland *Checklist for Clean-down Procedures* and Queensland Guideline for the *Construction of Vehicle and Machinery Wash-down Facilities for Vehicle Wash-downs*, before the onset of mining.

The facility will be inspected annually and as a part of the annual weed survey that Sherwin previously committed to in the EIS. Sherwin has also previously committed to control of weeds, and clarify that this will occur on an annual (at a minimum) basis at the end of the wet season. Weed control will be carried out across the site, which will include the wash-down area.

2.2.4 Tourism NT

No: 27

Comment:

Drive market traffic on the Roper Highway will increase over peak tourism period (i.e. the dry season) and travellers may be towing caravans, camper trailers and be unfamiliar with travelling on Territory roads and around road-trains. Road-trains travelling in convoy down the Roper Highway at 80kmph on a 3.8m wide road present a risk to tourist vehicles, and vice versa.

Whether the construction of three overtaking sections along the Roper Highway is sufficient to mitigate this risk, or if it would be preferable to advance upgrading the road to a double lane sealed road, is a question for the Department of Transport.

Response:

Sherwin Iron is currently in negotiations with the Northern Territory Government regarding proposed upgrades to the Roper Highway.

2.2.5 Environment Centre NT

No: 28**Comment:**

This EIS deals with stage one of the Roper River Iron Ore Project. The EIS states that the Sherwin Creek project is likely to be the first stage in the development of a much larger project. The original Notice of intent (NOI) and EIS guidelines included the Hodgson Downs deposits and yet this EIS refers only to Sherwin Creek deposit C. There is concern that future stages will not be required to undertake the same level of environmental assessment as this stage.

As the EIS does not look at the entire project, it is difficult to capture the cumulative impacts. As a result the proponent does not see any cumulative impact risks on regional ecosystems, perception of the region as remote and wilderness, and on key habitats. How will cumulative impacts be properly assessed in terms of the overall Roper River Iron Ore project? We would like clarification on future stages of the project requiring the same level of scrutiny as this EIA process, and for future approvals to be dependent upon the cumulative impacts at that stage.

Response:

The NOI submitted to the Northern Territory Government was for the larger project and the EIS Guidelines were developed for this project. A Section 14A (1) (a) variation was submitted to the EPA on 14 June 2013 notifying the NTEPA of a modification of the project to the more modest project described in the EIS. The EIS addresses the entire Sherwin Creek Iron Ore Project.

Cumulative impacts have been assessed based on what is known or assumed at this stage and is presented in Section 3.9.1 of the EIS. Should Sherwin develop a wider Roper River Iron Ore Project then part of this assessment process will require discussion of the risk of cumulative impact.

No: 29**Comment:**

Energy Generation - We are disappointed that Sherwin Iron has not committed to the use of renewable energy for mining operations, including electricity generation for the camp and the offices and workshop. The energy requirements of the mine are not substantial compared with other mining operations, a total of 800kw according to the proponent. Such a small amount of energy can be easily provided through different solar photovoltaic (PV) options, and cost competitive with diesel generation. The proponent should detail how they investigated alternative sources of power. The EIS guidelines specify that the proponent must detail alternative sources of energy generation, including a discussion as to why the chosen option is preferred to another. Currently the information given is inadequate.

We have had a number of discussions with different solar companies that can easily provide the energy needs for the project. Furthermore, some offer easily transportable modules that are cost competitive to diesel use. The transportable modules would allow easily shifting to new deposits over the life of the Roper River Iron Ore project. The initial capital costs of investing in this form of energy could be reduced if partnerships were made from NT government, and ARENA funding sought. Therefore, this option needs to be investigated further, and would make the company far more acceptable to the community. Such a commitment would also help to promote renewable energy uptake for other mines. The Environment Centre NT would be happy to assist Sherwin Iron explore alternative electricity generation options for the project.

Australia's uptake of renewable energy in the mining industry has lagged behind other mining nations, such as Canada, South Africa and Chile. Given the high price volatility of diesel, and the rising costs over the lifespan of the mine, it makes both economic and environmental sense to pursue a solar option further. Solar PV can not only offer significant cost reductions from diesel, but solar energy can also help to increase the

lifespan of diesel engines used in hybrid arrangements for backup and night-time loads.

Response:

At this stage Sherwin will not be reviewing further options for power generation at site beyond the two discussed in the alternatives section of the EIS (Section 2.9.7). Sherwin Iron acknowledges that solar photovoltaic (PV) systems may be suitable for part of its energy requirements and also represents a useful option for further offsets. However, other options (e.g. diesel, geothermal, hybrid systems) must also be considered. Ultimately, the systems to be used as power sources for the mine and potentially for nearby communities will be selected according to generating capacity, cost effectiveness and reliability of production (in all weather conditions). Should solar PV options be considered viable in the future then Sherwin will review energy generation at that stage. Sherwin believes that they have adequately addressed alternative energy sources in the EIS.

No: 30

Comment:

Environmental Offsets

Since the release of the draft EIS, the final EPA guidelines for offsets are now available. We acknowledge that consultations for appropriate offsets will take time in order to effectively engage with local Traditional Owner groups.

However, as a result of there being no formal commitments in the chapter on commitments in the EIS it is difficult for the EPA to consider this aspect of the project.

The proponent does not make any explicit financial commitments, and there needs to be some other measures put in place to ensure this occurs in time. One option that could be integrated into the discussions, is the potential for a small solar PV plant that could deliver energy needs to the mine, and also in the future to local communities such as Ngukurr.

An offsets package could train local people to operate and maintain the station, and deliver the energy needs of the community, thereby reducing reliance on diesel use. Similarly, discussions could be had with Western Desert Resources to co invest in a plant that could provide both mines energy needs as well as the surrounding local communities.

There is also no mention of habitat offsets to replace the clearing of vegetation that contains threatened species such as gorge habitat for the Buff Robin.

Response:

At this point, Sherwin Iron does not expect the project to generate residual or long-term environmental impacts, so in consultation with Traditional Owners, Sherwin Iron has developed a suite of socio-economic offsets as alternatives to those of a strictly environmental nature. These have been described in detail in the Social Impact and Cultural Heritage Management Plans. Many of these represent significant financial commitments, but further consultation and development of these is required before the full extent of required financing is known. Other socio-economic and environmental offsets may become required as the project progresses and these will be addressed at the appropriate time.

Sherwin Iron acknowledges that solar photovoltaic (PV) systems may be suitable for part, if not all, of its energy requirements and also represents a useful option for further offsets. However, other options (e.g. diesel, geothermal, hybrid systems) must also be considered. Ultimately, the systems to be used as power sources for the mine and potentially for nearby communities will be selected according to generating capacity, cost effectiveness and reliability of production (in all weather conditions). Irrespective of which system is selected, training of local people in operation of the power station will be considered because it meets Sherwin Iron's wider local and Aboriginal employment commitments.

The Buff-sided Robin was originally listed under the EPBC Act as *Poecilodryas superciliosa cerviniventris*

(Derby White-browed Robin). Christidis & Boles (2008) subsequently elevated this subspecies to the species *P. cerviniventris* (northern Australia) which is present within the project area. This species is not considered threatened under NT legislation and is no longer listed as Threatened or Migratory under the EPBC Act, as the subspecies *P. superciliosa cerviniventris* was delisted from the EPBC Act on the 26/11/2013. As this species no longer has any threatened or migratory listed status, Sherwin Iron are not required to prepare habitat offsets related to this species.

No: 31

Comment:

Biodiversity and habitat

The residual risk of impacts on terrestrial and aquatic habitat quality in the form of weeds from clearing remains high after management actions. Greater effort should be undertaken to manage this risk to reduce it from a residual risk of high to at least medium.

Response:

As per the actions in Section 5 of the Weed and Pest Management Plan submitted with the EIS; Vehicles/equipment will be washed down and inspected with details entered into a register. Vehicles will be certified weed free before entry into the project area. Sherwin add this as a specific commitment, i.e. they will install a wash down facility, specifically designed and located for the prevention of the spread of weeds, which will adhere to the Queensland *Checklist for Clean down Procedures* and Queensland *Guideline for the Construction of Vehicle and Machinery Wash down Facilities for Vehicle Wash downs*, before the onset of mining.

The facility will be inspected annually and as a part of the annual weed survey that Sherwin previously committed to in the Draft EIS. Sherwin has also previously committed to control of weeds, and clarify that this will occur on an annual (at a minimum) basis at the end of the wet season. Weed control will be carried out across the site.

Sherwin commit to informing neighbours within 7 days if new pests or weeds are identified on site.

No: 32

Comment:

Furthermore, impacts on biodiversity and habitat should take into account the cumulative impacts of the intended future stages of the Roper River Iron Ore project, not just the small area of Deposit C.

There were found to be two threatened species and ten near threatened species in the survey area under the TWPC Act. In addition there were three species listed as migratory under the EPBC Act. Furthermore, there is a potential of 25 threatened species that could occur in the exploration lease area.

Response:

Should Sherwin decide to pursue the larger Roper River Iron Ore Project, then assessment of cumulative impacts will form part of that submission and be assessed based on what is known at that time.

While it is acknowledged that the Buff-sided Robin will lose some of its gorge habitat, this is not considered a significant impact as there are other gorges nearby as well as riparian vegetation along the Roper River, therefore cumulative impact for this species is not considered relevant. The project will only remove 0.65 hectares of dry monsoon rainforest habitat.

No: 33

Comment:

The survey areas do not seem to cover the proposed camp area or impacts that are likely to have been incurred from the construction of haul roads. Further survey work should be undertaken in these areas to determine impacts. However, it is likely the impacts have already been incurred given the allowance for bulk sampling ahead of any environmental approvals.

Response:

Approximately 62 survey plots in eight different study areas were surveyed throughout the Sherwin Iron Exploration Leases. Though plots were not specifically at the proposed camp area, the 2011 surveys are within the same vegetation type as the proposed camp area (refer to Appendix H1 of the Draft EIS, Figure 3 and 7).

No: 34

Comment:

Rehabilitation and mine closure

There remains significant risks of rehabilitation failures after management measures are put in place. These should be required to be strengthened to reduce the likelihood of failure. The biggest risk comes from failure in implementation or failed activities. Furthermore, there remain high risks from PAF materials after management measures are put in place. Are there more stringent measures that could be put in place to reduce this risk?

Response:

To ensure that rehabilitation is successful Sherwin commit to beginning rehabilitation trials during 2014. An experimental design for trials will be developed within three months of the commencement of mining. Field trials will begin during the 2014/15 wet season. The trial design will simulate soil, substrate and slope conditions likely to be encountered during future rehabilitation. PAF materials are not considered high risk particularly after the mitigation activities are implemented.

No: 35

Comment:

Concern over bulk sampling

The Environment Centre NT has previously expressed concern over the fact that significant mining is occurring already under the veil of bulk sampling. We understand the need for bulk sampling to occur in terms of assessing project viability, however we are concerned that there is minimal environmental approval conditions attached to bulk sampling. Given the large amount of bulk sampling currently being undertaken, it is difficult to see how the company and the NT government are employing Ecologically sustainable development (ESD) principles. Bulk sampling obviously creates significant disturbance to the landscape and this is happening prior to the EIS process that identifies environmental values and risks that need attention.

Response:

The approval for the bulk sample is from a process separate to the EIS for the mine. Within the EIS, however, the entire area to be disturbed, which includes the area for the bulk sample, has been considered.

2.2.6 Environmental Defenders Office NT

No: 36

Comment:

The report notes that “gorge habitat” will be affected by the development. Notably 25 hectares of gorge habitat will be removed. Of that 25 hectares .65 of a hectare of dry monsoonal rainforest will be removed. In our submission the development should be amended to avoid any removal of “gorge habitat”, and at the very least should be amended to protect the .65 hectares of dry monsoonal rainforest that it is proposed be removed.

Appropriate buffering and independent oversight should be provided during all land clearing to ensure that no gorge habitat or dry monsoonal rainforest is cleared.

Response:

The mine plan is to clear 25 hectares of gorge habitat including 0.65 hectares of dry monsoonal forest. Neither of these habitats is protected under current legislation and they are very widespread in the region.

No: 37

Comment:

The Draft EIS notes that ‘dry monsoonal rainforest’ is considered a sensitive vegetation community. This classification is “due to its species richness, supporting approximately 13% of the Northern Territories flora species whilst occupying just 0.2% of the Northern Territory land area”.

The Draft EIS places specific emphasis on the economic favourability of approval of the development, however, economic arguments should not outweigh the removal of this kind of vulnerable vegetation community that supports a vast array of unique ecosystems.

It is important to note that during the survey the area to be cleared was found to support EPBC Act migratory species, including the Near Threatened Buff-sided Robin (*Poecilodryas cerviniventris*).

Appropriate buffering and independent oversight should be provided during all land clearing to ensure that no gorge habitat or dry monsoonal rainforest is cleared.

Response:

The impacts of clearing at Deposit C have been assessed as low following mitigation measures (refer to Chapter 3, Table 3-6 of the Draft EIS). The dry monsoon rainforest is considered a sensitive vegetation community which is not listed as Vulnerable under current legislation. The Buff Sided Robin was originally listed under the EPBC Act as *Poecilodryas superciliosa cerviniventris* (Derby White-browed Robin). Christidis & Boles (2008) subsequently elevated this subspecies to the species *P. cerviniventris* (northern Australia) which is present within the project area. This species is not considered threatened under NT legislation and is no longer listed as Threatened or Migratory under the EPBC Act, as the subspecies *P. superciliosa cerviniventris* was delisted from the EPBC Act on the 26/11/2013.

All areas to be cleared will be delineated prior to the clearing operations. This ensures that areas to be cleared are restricted to the minimum required (refer to Appendix D, Table 3.2.4 of the Draft EIS).

No: 38

Comment:

We do not agree that the clearing of sensitive habitat (gorges) is “inconsequential” by virtue of other gorge areas being located nearby.

Response:

Noted; however, this is not a protected habitat under current legislation and is common in the area.

No: 39

Comment:

We note that in Appendix H1, the Draft EIS notes that approximately 25 threatened species could potentially occur within the boundaries of the Deposit C. Of those 25 threatened species the Draft EIS found that 12 of them 'May' inhabit the site.

In addition to the above three migratory species were found during the survey.

Given the developer cannot rule out the potential for a high number of threatened species (including three critically endangered species) to inhabit the site, priority should be given to areas of the site that are likely to provide habitat to those species. It is noted that no accurate picture is given by the Draft EIS about the actual presence or otherwise of threatened species due to "the results of the surveys are only a snapshot in time, and do not allow for temporal variations or species migration".

In light of the above, and the uncertainties present due to resource constraints in the flora and fauna surveys, the principal of ecologically sustainability development, as outlined in section 3A of the *Environment Protection and Biodiversity Act 1999* should apply.

All areas of habitat that could potentially support threatened or migratory species should be adequately protected from clearing.

Response:

The Draft EIS notes that 25 threatened species are known to occur within the Gulf Falls Upland Bioregion (refer to Appendix H1 of the Draft EIS). A bioregion is a distinct region based on climate, geology, landform, native vegetation and species information. The Gulf Falls Bioregion covers an area of 118,480 km². Of the 25 threatened species that are known from the bioregion, 13 species were discounted from living at or near the development site due to reasons of ecology or distribution (Appendix H1 of the Draft EIS gives the details of this for each species). Of the remaining 12 threatened species that may inhabit the site, none were found during the survey of Deposit C. Of the three Critically Endangered species, only one, the Northern Quoll may inhabit the site. We concluded this because similar habitat (rocky areas) is refugial habitat elsewhere in areas not inhabited by cane toads. However, due to the threatening process of cane toads, the Northern Quoll is probably locally extinct in the area. It should be noted that cane toads (a listed key threatening process under the EPBC Act) were common on the hills and ranges of the development site. The other two species are listed as unlikely on the site due to one being locally extinct, the Golden-backed Tree Rat, and the other, the Bare Rumped Sheath-tailed Bat, not being present despite multiple acoustic surveys for this species (refer to Appendix H1 of the Draft EIS).

No: 40

Comment:

The *Environmental Protection and Biodiversity Act 1999* requires "all adverse impacts" to be assessed. In our submission inadequate consideration has been given to the potential increases in carbon emissions arising from the development. The Draft EIS appears to only consider greenhouse gas emissions in terms of the energy needs of the site, the emissions generated from mining operations, transport and vehicles. Further detail should be provided in terms of:

- increase in emissions from vegetation clearing; and
- cumulative impacts of emissions from this site and the proposed expansion to other areas of the site.

When making a decision about whether to approve the development and (if it is approved) in developing appropriate conditions, consideration should be given to increases in carbon emissions from vegetation

removal.

Consideration for potentially large increases in carbon emissions from further development of the mining area should be considered as cumulative impact.

Response:

The area of new disturbance identified for the EIS is 315.6 ha. Combined with the bulk sample pit disturbance area, a total of 350.4 ha will be cleared for the proposed development. The vegetation community that will be cleared is Eucalyptus Low Open Woodland. Therefore 350.4 ha of open woodland will be cleared for the development.

The Australian Government Department of Climate Change's National Carbon Accounting System (NCAS) FullCAM tool was used to estimate greenhouse gas emissions from land clearing for the development. This model has been used in a previous study to estimate emissions from land clearing across the Daly River Catchment (Law & Blanch 2009). The methodology used in this report has been used as a guide for the following Carbon emissions estimates from land clearing.

A FullCAM plot was designed to model full clearing of 350.4 ha of Eucalypt woodland with no tree regrowth. A forest system plot was used. Data (including soil type, rainfall and open pan evaporation) was downloaded from the Department of Environment server computer following the input of a single point location within Deposit C.

To determine emissions in tonnes of carbon the total onsite carbon mass two years after clearing was subtracted from the initial onsite carbon mass:

$$= tC \text{ April 2014} - tC \text{ April 2016}$$

$$= 18,912 \text{ t C} - 13,227 \text{ t C}$$

$$= 5685.41 \text{ t C}$$

This can be converted from tonnes of carbon to carbon equivalent emissions (CO₂ t) by multiplying by 3.667.

$$= 5685.41 \text{ t C} \times 3.667$$

$$= 20,848 \text{ t CO}_2$$

Therefore the emissions of CO₂ due to land clearing for the development is 20,848 t, based on the Australian Department of Climate Change FullCAM modelling tool.

Carbon emissions from further development of the mining area are outside of the scope of this EIS. Such emissions will be considered if and when further development occurs and will be documented in relevant environmental approval reports, such as a Mining Management Plan (MMP) or EIS.

2.2.7 Northern Land Council

No: 41

Comment:

Generally, the EIS document and the information enclosed in the appendices gave the impression of being incomplete. It is notable that the Final Guidelines issued by the NTEPA in June 2013, in response to the proponents Notice of Intent (NOI) in late 2012, required the proponent to prepare a description of all relevant matters in relation to a project encompassing two mining sites and new haulage road/s. Instead, the proponent has prepared its draft EIS in relation to a smaller portion of the project, a small portion of the project life and relegated many issues to future studies, future planning and future approvals.

This approach has resulted in an EIS that could be inadequate for understanding the environmental, social and economic impact of Sherwin's project. As the EIS does not address many of the broader requirements included in the Final Guidelines, it makes it difficult to assess the project in the manner envisaged by the *Environmental Assessment Act* (NT) or the Environmental Assessment Administrative Procedures (NT).

Response:

The Bulk Sample project at Sherwin Creek was managed under a Mining Management Plan, administered under the *Mining Management Act*. Any company that proposes to undertake works that would cause "substantial disturbance" (see S.35(3) of the Act) is required to have an Authorisation. Pursuant to section 40 of the Act a Mining Management Plan is to include the following:

- Identification and description of mining activities
- Particulars of the implementation of the management systems to address environmental issues
- A plan and costing of closure activities
- Particulars of the organisational structure
- Plans of current and proposed mine workings and infrastructure and other information as required.

No: 42

Comment:

The EIS should identify all the processes and activities intended for the Sherwin Creek and Hodgson Downs Iron Ore Project and associated ancillary activities, during the life of the Project.

Response:

Currently Sherwin have no definitive plans for the projects beyond the Sherwin Creek Iron Ore project. Any further developments will be subject to assessment under the *Environmental Assessment Act*. The current EIS is only for the Sherwin Creek project and therefore only discusses environmental impacts and risks for this project.

No: 43

Comment:

The EIS should be undertaken with specific emphasis on the identification, analysis and treatment of risks through a whole-of-project risk assessment.

Response:

The preamble to this statement makes reference to the NOI for this project and that the project detail submitted in the EIS is for a more modest project than that outlined in the NOI. As the proponent is only going ahead with this more modest project, with no immediate plans to develop the larger project, they are

only obligated to discuss and analyse impacts from the project that they are developing. However, if the larger project is favoured in the future then another environmental approvals process will be initiated that must consider the broader project including cumulative impacts.

No: 44**Comment:**

The EIS should describe any feasible alternatives to carrying out the proposed activity. These alternatives, including the 'no Project' option, should be discussed in sufficient detail to make clear the reasons for preferring certain options and rejecting others.

Response:

Section 2.9 of the Draft EIS (titled Alternatives) discusses project alternatives. The subsections for this section are: 2.9.1 Not proceeding with the proposal; 2.9.2 Options for ore haulage and export; 2.9.3 Site selection for mine components; 2.9.4 Mining methods and management of wastes; 2.9.5 Rehabilitation methods; 2.9.6 Alternative sources of water; 2.9.7 Energy sources for power generation; 2.9.8 Alternative processes; 2.9.9 Consideration of alternative environmental management measures for key risks/impacts.

We believe that this section comprehensively addresses all considerations for the project.

No: 45**Comment:**

It may be of consideration for the NT EPA and the proponent to:

- Require the scope of the EIS to include all pertinent project plans identified in the Notice of Intent and Final Guidelines; or
- Re-issue guidelines targeted at the assessment of a small -scale project for a limited number of years. The EIS does not include plans beyond 2 years for the transportation of iron ore under the proposed transport plan⁴ and approvals sought could be limited to such a period.

Noting the above issues, it is of significant importance that environmental approvals for this project are limited to the small-scale and short timeframes investigated in this EIS, and not the much wider and longer approvals sought in the Notice of Intent and reflected in the Guidelines.

This submission will now provide detailed comments and associated recommendations on specific aspects of the Draft EIS.

Response:

The NOI submitted to the Northern Territory Government was for the larger project and the EIS Guidelines were developed for this project. A Section 14A (1) (a) variation was submitted to the EPA on 14 June 2013 modifying the project to the more modest project described in the EIS; as the project was made smaller the EPA considered that was appropriate for the EIS to use the Guidelines but to outline the newer, smaller project in detail. This is in Section 2 of the EIS.

Currently there is an agreement between Sherwin Iron and the NTG to utilise the Roper and Stuart Highways for transportation of up to 1.5 Mtpa.

No: 46**Comment:**

The Guidelines for the preparation of the EIS call for detailed submissions from the proponent on the transport options to be considered in relation to the bulk mining and transportation operation. Of importance, the Guidelines required the proponent to consider alternatives in relation to transportation of the bulk

commodity, including:

- Options for ore transport and export;
- Haul road options including the use of a single haul road for both areas or upgrade of the Roper Highway corridor.

There is no detailed consideration of haul road options in the EIS. The EIS only discusses, and endorses, a proposal to use the existing and inadequate Roper Highway. There is no consideration given by the proponent to the significantly different impacts on the public between the option of using road-trains on the existing (and clearly inadequate) Roper Highway, as opposed to the option and possible benefits of the proponent constructing a dedicated haulage road. The lack of consideration of this key issue in the EIS - particularly in light of the proponent proposing to construct such private haulage roads in their original Notice of Intent - renders the EIS inadequate in fulfilling the standards required by the Guidelines and, more generally, the standards expected by community stakeholders.

RECOMMENDATION

Sherwin should fully investigate, document and assess all transport and haul road options, including options such as duplication of the Roper Highway or a private haul road.

Response:

Sherwin Iron continues to explore other options for transportation of iron ore to buyers. Options considered (and discussed in Section 2.9.2) include by road train to a rail siding, and then along rail to Darwin port; by road train to a river head, and then transporting on a barge to a large shipping vessel; and by road train to the Port of Darwin.

The option to build a separate haul road was not considered viable from an environmental and social aspect including terrain and existing pastoral infrastructure and the need for intensive clearing and habitat disturbance.

As discussed in Section 2.9.2, the option to use road trains to take the ore along the Roper and Stuart Highways to the Port of Darwin was considered the best option as it required a smaller timeframe and smaller capital to set up. The only construction required is the upgrading and sealing of Roper Highway to allow higher volumes of ore to be transported out of the mine to be stockpiled at Mataranka for subsequent re-handling and further transport to the Port of Darwin via road trains. This option is ideal for now, and does not close off the opportunity to develop one of the alternatives mentioned above, should one of Sherwin's additional iron ore deposits form a larger project in the future.

No: 47

Comment:

Road Network Capacity

The proponent's own EIS illustrates the inadequacy of the Roper Highway for supporting the development proposed. In Appendix L, the proponent proposes safety measures for the road as a "single carriageway rural road" (per Austroads Guide to Road Designs Part 3: Geometric Design (2010)) capable of 150 vehicles per day. The proponent states that the "total traffic movements on the Roper Highway with trip generation from the Sherwin Iron mine site is in line with the Austroads guidance." However, it is noted in the EIS:

- 2010 data showed an average of 70 vehicles per day; adding Sherwin's 76 movements (identified for the first two years of production) takes the total almost to the limit noted above.
- 2010 data showed vehicles movements fluctuate and in some months average up to 120 vehicles per day; adding Sherwin's 76 movements (identified for the first two years of production) easily exceeds the limit above.
- The proponents conclusion quoted above clearly does not include adding other vehicles identified in

its own the EIS such as the 20 vehicles per day for the AIR (Australian Ilmenite Resources) mine; an unknown number of supply vehicles/fuel convoys and other vehicles that access the WDR mine (presumably the same if not more than for AIR); and the increased use of the road by exploration companies emerging in the past few years (e.g. Imperial Oil and Gas).

Therefore, even taking Sherwin's proposed "single carriageway rural road" safety standards- which a reasonable person would consider inaccurate in circumstances where half the traffic on the road is proposed to be iron ore road trains - the EIS identifies data showing that vehicle use will exceed such standards.

The plans proposed are of significant concern due to overloading the road network, with the risk to road network capacity identified in this EIS as "extreme". It is reasonable to suggest that the extreme inherent risk in the proposal, particularly when adding additional vehicle movements noted but not considered properly by the proponent, could create unsafe and possibly fatal driving conditions for the general public on the Roper Highway.

Response:

Sherwin Iron is currently in negotiations with the Northern Territory Government (NTG) for traffic management, including upgrades on the Roper Highway. Of primary concern was the issue of road user safety.

No: 48

Comment:

Further, and of immense concern to local stakeholders, the above proposal only considers an additional 76 vehicles by Sherwin, such number required for the haulage of 1,000,000t of ore per year for the first two years. The proponent seeks approval for mining at its Deposit C location for "an expected mine life of approximately 6 years", with possible expansions that could significantly extend mine life. Transporting 3,000,000t of ore, as is proposed in Phase 3 (or year 3) onwards would likely triple or at least double the number of Sherwin haul trains required. However, the proponent has no plan or proposal as to how this could safely occur. The proponent states:

Alternative transport arrangements are being planned and are expected to be in place by the end of the 2 year period with options including the construction of a haulage route parallel to the Roper Highway and then by train from the Mataranka or Katherine area or use of barge down the Roper River.

At other points in the EIS, the proponent states its belief that the Roper Highway will be significantly upgraded to a "double lane sealed surface"- but does not say by whom, when or how.

Overall, it is inadequate to seek environmental approval for the mining and transportation of iron ore for a period of up to 6 years or more without the proponent identifying how such ore will be transported to market after year two or beyond 1.5 million tonnes per annum.

RECOMMENDATIONS

- The data and studies provided in the EIS to justify phases 1 and 2 use of the Roper Highway by haul trains are inadequate and do not demonstrate acceptable levels of risk.
- The proposed use of the Roper Highway to transport up to 1 million tonnes per annum appears of extreme risk to the public and other haulage options should be assessed.
- The proponent is required to document and assess transportation plans for ore for the whole life of the project.

Response:

Sherwin Iron currently has approval to transport up to 1.5 Mtpa of iron ore along the Roper Highway. If alternative transport options are not available or as yet undecided, then Sherwin Iron will continue to transport only up to 1.5 Mtpa along the Roper Highway. If Sherwin Iron wants to go above the agreed

1.5 Mtpa then they will need to renegotiate the traffic management planning or develop an alternative route.

No: 49

Comment:

The Lack of Transport Management Planning

The limited transport plans outlined in the EIS also raise significant concerns. The proponent, at various points in the EIS, refers the reader to the 'Traffic Management Plan' in Appendix L. Appendix L, however, is constituted by two very brief 'Traffic Management Statements' which do not provide requisite details and which in turn refer the reader to the 'Traffic Management Plan' for further detail. For example, Appendix L notes that many of the existing bridge crossings are not designed to requisite safety standards for the haulage proposed by Sherwin: "The bridges for Strangways, Sayle, Packsaddle and Fizzer Creek do not have adequate sight Refer to the Traffic Management Plan for further detail". It is very problematic that a serious safety concern regarding deficient line of sight at bridges is raised and then said to be solved by a Traffic Management Plan that does not appear to be included in the EIS. Indeed, at other points in the EIS, the Traffic Management Plan is said to be something that will be negotiated at a future date with the Department of Transport. The proponent provides insufficient detail in identifying issues of high to extreme risks in the traffic management plan.

Response:

These issues have been raised and discussed with NTG and Sherwin has an agreement to use the Roper Highway for transport of 1.5 Mtpa of iron ore.

Further to this, Sherwin Iron believes that the management detailed in Appendix L of the Draft EIS is appropriate. For example, the Traffic Management Report details bridge safety for inadequate sight distances at bridges can be assisted by the installation of Vehicle Activated warning Signs (VAS) to be erected on each of these approaches; warning drivers of approaching traffic (see section 3.2.2.2 of the Traffic Management Report - Appendix L of the Draft EIS).

No: 50

Comment:

The EIS does not provide meaningful discussion of options for ensuring the safety of the public from the proponents transportation project. The first of the two Traffic Impact Statements notes that the document only covers "generic issues" associated with the movement of heavy vehicles. The discussion of traffic management issues is not detailed and there is no consideration of options for each high-risk safety problem identified. Key safety issues identified include:

- horizontal curves not wide enough to allow Sherwin's heavy vehicles to safely drive them;
- eight single lane bridge crossings, most of which fall below sight standards required; and
- a dangerous lack of shoulders, including headwalls 2 metres from the road preventing exit/entry to the road.

Recommendation: The proponent should identify each safety issue on the road, including bridges, lack of shoulders and blind spots and consider options to duplicate or bypass such dangerous areas.

Response:

Within the Traffic Management Report, the issues identified here are discussed and mitigation strategies recommended (refer to Sections 3.2.2.1 to 3.2.2.3). Sherwin Iron will operate road trains and carry out road maintenance recommendations in accordance with the existing Traffic Management Report (Appendix L of the Draft EIS). Sherwin will complete further traffic management planning and consultation with NTG prior to annual haulage exceeding 1.5Mtpa.

No: 51**Comment:**

There is no discussion in the document of any alternative plans to ensure safety (other than briefly recounting the proposal the proponent seeks approval for). There is no discussion about duplication of key sections of the road, or of dangerous bridges, or of creating by-passes of particularly dangerous blind-spots. It would be reasonable to expect the proponent to investigate these options - which clearly would be safer options - and expect detailed explanation of why the proponents proposal is to be preferred.

Response:

Management is included in the Traffic Management Report. Section 3.2 discusses various options for management including warnings at bridges, installing overtaking lanes and road maintenance. Sherwin will conduct a condition survey of the length of the Roper Highway, including shoulders, prior to commencement of any haulage as part of an increase in tonnage above 1.5 Mtpa. Approval from all stakeholders would be sought on the exact scope and detail of the survey prior to commencement.

No: 52**Comment:**

There are other issues identified but then not given any consideration by Sherwin. Fauna strikes, for example, are identified as a high residual risk. The proponent discusses safety awareness training for its drivers, but does not discuss any mitigation options such as fencing. There should be specific measures proposed for mitigation of higher numbers of cattle strikes. The proponent identifies "a number of unmarked tracks", many with a lack of visibility. Such tracks are used by local members of the community, particularly traditional Aboriginal owners, to access country and the proponent provides no details about managing safety issues and access to such tracks because "no traffic was observed" on these tracks when the relevant author drove the Roper Highway. Of considerable concern is the proponent providing no management strategies at all to ensure safety at the pedestrian crossing used by school-children at Jilkminggan. The NLC disagrees with the proponent's conclusion that doubling the traffic through such crossing is "not expected to have major impact". The Northern Land Council (NLC) believes the proponent should commit to ensuring safe crossings at Jilkminggan for school children, including consideration of a pedestrian bridge.

Recommendation: The proponent should consider appropriate management strategies to protect local community road users, including safe access to and from unmarked tracks and consider options for pedestrian crossings at Jilkminggan such as a pedestrian bridge.

Response:

Noted. Due to the length of the Roper highway fencing is not considered a viable approach to reducing cattle strikes.

Due to the relative infrequency of the traffic, a pedestrian crossing at Jilkminggan is not warranted.

No: 53**Comment:**

Appendix L also appears to be out-of-date and lacking key information which should be provided in this EIS. For example, the proponent notes that it will be conducting Bulk Sampling between June and September 2013 and that a "condition survey of the length of the Roper Highway, including shoulders" would be completed by the end of this phase. No such survey appears to have been conducted, or if it has it is not included in the EIS. At other points in the EIS, Sherwin provides no tangible details about how and what road maintenance will occur over the life of the project, noting only that a "condition survey" will take place before commencing Phase 2 (1,000,000t per year of transportation) and that "an asset management program with all stakeholders" will be formulated for the "management and continued function of the Roper

Highway". Such investigations should already have occurred and their outcomes used to define a tangible road maintenance program in this EIS - it is inadequate that these proposals to generate ideas on road maintenance are presented as road maintenance strategies.

Recommendation: All studies or records of road use during the Bulk Sample period should be compiled and included.

Response:

The bulk sampling project is still underway. The condition survey is to be undertaken before the end of the bulk sampling phase.

A section of the Roper Highway that runs from the Sherwin Creek Iron Ore project for 12 km towards Mataranka has been regularly graded and maintained for the duration of the bulk sampling project, in addition the following works have been done by Sherwin to improve road safety:

- Sherwin has erected information signage at the Mataranka end of the Roper Highway and at the Roper Bar side of the mine site turnoff for public view, as well as Electronic Signage at both these sites;
- Shoulder restoration has taken place on the bitumen section of the highway 2 km west of Moroak Station eastward over a 50 km section; reforming of several sections of the 12 km dirt road leading to the mine site turnoff; and resealing of some bitumen sections.
- To improve safety convoys have two escort vehicles, one with Electronic signage indicating number of trucks in the convoy and one with written convoy signage. All vehicles are equipped with 40 channel radios and the escorts call up oncoming traffic to warn them of the approaching convoy.

No: 54

Comment:

HYDROLOGY AND WATER QUALITY WATER MANAGEMENT PLAN and GROUND WATER REPORT
Monitoring

The "baseline" surface water data provided included collection from site G9035112; presumably the groundwater-fed lower reaches of Sherwin creek. The surface water monitoring sites proposed in the plan should include this site or one in an equivalent downstream location to 09035112.

Response:

Sherwin has updated the WMP to include a site on the lower reaches of Sherwin Creek at the same location as the NT Government monitoring site G9035112 (Supplementary EIS Appendix B).

No: 55

Comment:

The map showing groundwater monitoring bores does not show them in relation to key landforms such as the pit, stockpiles, waste dumps and tailings storage facilities. The Plan states; "It is likely that additional environmental monitoring bores will be required to adequately monitor potential effects of specific infrastructure and locations and these will be determined upon completion of detailed design and provided prior to commencement of mining."

More detail should be provided in the Supplement EIS, including a map of proposed monitoring bores in relation to the mining area. Commitments should reflect such details provided in the plan.

Response:

It is possible that specific locations of mining infrastructure will change prior to operations; therefore the locations of groundwater monitoring bores may change. Sherwin commits to determining appropriate locations for additional environmental monitoring bores as part of the Mining Management Plan approval

process.

No: 56

Comment:

Supply Infrastructure

Despite proposing to use water captured in sumps in the open pit to alleviate demand on groundwater supplies, the proposal to capture and store water using in pit sumps during operations has not been clearly described or demonstrated to be viable. Supplementary information should demonstrate the viability of the proposed in pit sumps to effectively mitigate demand on groundwater resources, and include:

- i. Discussion of implications of capturing and storing water on the structural and geochemical stability of pit walls, backfill walls and in-pit waste piles;
- ii. detailed description of the rock type of the proposed sumps, whether and what type of lining is required to limit permeability; and
- iii. specific advice on risks including slumping, contamination, impacts on groundwater, and impacts on operations.

The Supplement EIS should stipulate whether the in pit sumps are intended remain in perpetuity post mine closure or be rehabilitated.

The Water Management Plan states that water caught and stored in the pit ".will be the primary source ... " of the required 17ML/a of water for dust suppression on the Haul Road/Open Pit/ROM. This is inconsistent with the Ground Water Assessment which states that the proponent intends to meet all operational water requirements using ground water, including the 17ML/a Haul Road/Open Pit Mining/ROM allocation. If a proportion of the total water requirement will be met from water stored in pit sumps, a rationalised estimate or calculated quantity should be provided and reflected in the commitments.

Response:

In the absence of ground water influx, rain falling into the pit has not been included in the water balance: it is relatively small in quantity (0.2 ML/a in Year 1 to 2 ML/a in Year 6 for a high rainfall scenario) and variable depending on actual rain. However, Sherwin recognises that this water is readily available as a preferred first source for dust suppression. An added advantage is that ground water will be used less for dust suppression when captured rainfall is available and facilitate aquifer recovery due to recharge from rain prior to the dry season, at which time ground water will be used at their long-term sustainable capacities. Water balances have been updated (refer updated Water Management Plan - Supplementary EIS Appendix B) for the open pits (for dry, average and wet seasons) to include rain-runoff captured at the western high wall of the open pit (where small sumps will be constructed to install pumps to pump water into the water carts) to alleviate demand on groundwater resources. This water will be available from the start of the rainy season (January through to May for average rain and June in the case of high rain) as a consequence of seepage losses and evaporation. Given the low predicted volumes of potentially acid forming materials in the open pit, the quality of this water is expected to be excellent and suitable for dust suppression.

There is little if any implication of capturing and storing water on the structural stability of pit walls, backfill walls or in-pit waste piles, as their slopes will be less than 37°. The high-walls, at least across the depth of water, will comprise competent bedrock.

The proposed sumps will be dug in the floor of the open pit into sand-silt-mudstones and no lining will be required, as bore testing data indicated that the permeability of the formations at depth varies between 6.0E-06 m/s and 7.2E-08 m/s, which may be regarded as semi-pervious to relatively impervious. Evaporative losses exceed seepage losses and consequently, there is little benefit in lining the pit floors to store water for longer periods.

The risks of slumping (low angles, stable landforms in competent bedrock), contamination (geochemically stable with PAF materials absent) or impacts on groundwater and operations are considered low. However, the open pit water quality and potential erosion/slumping will be monitored.

The sumps will be backfilled upon closure.

The statement in the EIS Water Management Plan that water caught and stored in the pit "...will be the primary source ... " of water for dust suppression on the Haul Road/Open Pit/ROM was incorrect (i.e. it will be supplementing groundwater resources) and this is reflected in a revised water balance in the updated Water Management Plan (Supplementary EIS Appendix B).

No: 57

Comment:

Demand

The water account provided in the Water Management Plan suggests a likely water deficit, and indicates a reliance on wet season recharge of water stored in pit sumps as a result of this deficit. This reliance carries a level of risk as rainfall can be unreliable between years and the collection and storage of water in pit sumps has not been quantifiably identified. In order to reduce the risks associated with groundwater depletion, any approval of the proposal should be provisional upon the proponent defining adequate water resources.

Response:

There is a water deficit and Sherwin is currently investigating additional groundwater resources to address this deficit, noting that the revised water balance in the updated Water Management Plan (Supplementary EIS Appendix B) indicates a higher water requirement than initially estimated. However, there is no reliance on wet season recharge of in-pit sumps but using this water as a preferred first source (i.e. when/if available) will reduce the demand on groundwater resources and allow aquifers to recover during the wet season. Sherwin therefore consider the risks associated with reliance on rainfall as inconsequential and remains committed to defining adequate sustainable ground water resources developed and implemented to prevent over-exploitation and/or depletion.

No: 58

Comment:

The Water Management Plan should provide a rationale of the water demand estimates. It is impossible to assess the requirement estimates in relation to the anticipated water supply and proposed mitigation measures, because there is no information justifying the operational requirement estimates. For example, dust suppression accounts for almost half of the projected water demand at 17ML/a, but the EIS and Water Management Plan do not provide any information regarding Litres of water required per metre of road or the scheduling of watering activities for dust suppression purposes. The water demand estimates should include an allocation for the rehabilitation phase or justification of why an allocation is not required.

Response:

Reference should be made to the revised Water Management Plan (Supplementary EIS Appendix B), where a rationale and assumptions for the water demand estimates are provided. The demand for water during rehabilitation and closure is estimated at 20 % of the operational water demand, since rehabilitation will be undertaking progressively as mining progresses. The final rehabilitation will be restricted to the areas disturbed during the last year of mining and removal of mine infrastructure (i.e. plant, ROM, workshop and camp).

No: 59

Comment:

Groundwater Depletion

Groundwater depletion is described in the Draft EIS Risk Analysis to be of minor environmental consequence and unlikely. The medium term sustainable yields calculated for production bores SPB01-SPB007 total 1.35L/s; the total operational water requirements are estimated to be 2.1L/s. While the Ground Water Assessment estimates short term sustainable yield at 42.5ML/a, the medium to long term yields are estimated at 12ML/a - 26ML/a. This is less than the total operational water requirement estimate of 35ML/a. Given the inconsistency between the scope of the Draft EIS (a 6 year Direct shipping ore (DSO) operation), and the scope of the actual project envisaged (a significantly larger and longer term project the operational details of which are not included in the EIS), water supply resources need to be assessed in relation to medium to long term, rather than short term sustainable yields.

The estimated water requirement exceeds sustainable yields of known water resources, and the proposal to mitigate risk of depletion by in-pit capture and storage is undemonstrated. Therefore, it is unreasonable to describe the likelihood of over exploitation as unlikely. Recoveries of groundwater levels are said to be slow, constraining long term sustainable yields, and so the claim that depletion creates only minor and temporary environmental impact needs further justification or reconsideration. Analysis of risks associated with groundwater depletion yields higher risk scores than those provided and the Risk Analysis should be amended in the Supplement EIS to reflect this.

The Groundwater Assessment recommends modelling and setting operational parameters, contingency measures in case of depletion, and setting requirements for closure. The EIS and associated Water Management Plan state that "...Sherwin will ascertain / set operational controls for ground water exploitation (i.e. sustainable safe yield, allowable drawdown and distance to zero drawdown)". Approval of the proposed operations should be provisional upon the identification of water resources that are equivalent to the Project's determined requirements, the setting of operational controls for ground water exploitation, and a contingency plan for response to resource depletion. This information should be described in an amended Water Management Plan and presented for public comment.

Management

The Water Management Plan states that the mine is exempt from requirements to apply for licences or permits to drill bores or to extract water. The Water Management Plan is therefore a key instrument to manage ground water exploitation, and yet it fails to provide necessary information on several aspects of the proposed water management plan (described above).

Response:

Although there is currently a shortfall in the water supply for the project, Sherwin is committed to ensuring that over-exploitation of the available ground water resources does not occur. The current proposal is for a 6 year DSO operation and any future expansion will need to be assessed upon its own merits. Short term sustainable yields were calculated to demonstrate that the project may proceed in the short term (i.e. 6 to 12 months), whilst further investigations to secure additional groundwater resources are undertaken.

Recoveries of groundwater levels are slow, constraining long term sustainable yields and this has been accounted for in setting sustainable yields to prevent depletion and/or over exploitation.

The recommended modelling and setting operational parameters, contingency measures and requirements for closure can only be implemented once the resources have been found. Sherwin acknowledges that approval of the proposed operations could be provisional upon the identification of sufficient water resources for the project.

No: 60

Comment:

RECOMMENDATIONS

- Any approval of the proposal should be provisional upon the proponent defining water supply sufficient for the Project's determined requirements.
- Approval of the proposed operations should be contingent on the proponent setting operational controls for ground water exploitation, and defining a contingency plan for response to resource depletion. This information should be described in a completed Water Management Plan and presented for public comment.
- The Water Management Plan should provide a rationale of the water demand estimates.
- The water demand estimates should include an allocation for the rehabilitation phase or justification of why an allocation is not required.
- Supplementary information should demonstrate the viability of the proposed in-pit sumps to effectively mitigate demand on groundwater resources, and include:
 - discussion of implications of capturing and storing water on the structural and geochemical stability of pit walls, backfill walls and in-pit waste piles;
 - detailed description of the rock type of the proposed sumps, whether and what type of lining is required to limit permeability; and
 - specific advice on risks including slumping, contamination, impacts on groundwater, and impacts on operations.
- The supplement should stipulate whether the in-pit sumps are intended to remain in perpetuity post mine closure or to be rehabilitated.
- If a proportion of the total water requirement will be met from water stored in-pit sumps, a rationalised estimate or calculated quantity should be provided and reflected in the commitments.
- The surface water monitoring sites proposed in the plan should include this site or one in an equivalent downstream location to 09035112.
- The NLC suggests that a system of constant sampling is a more thorough approach to surface water monitoring. Continuous sampling allows for automatic alerts if trigger values are exceeded.
- Supplementary information should include a map of proposed monitoring bores in relation to the mining infrastructure and area. Commitments should reflect such details provided in the plan

Response:

NOTE: As this comment is a compilation of NLC's other comments, the response below is also a compilation of previous responses to individual comments.

Setting of operational parameters, contingency measures and requirements for closure will occur once sufficient groundwater resources have been identified. The updated Water Management Plan (Supplementary EIS Appendix B) includes the rationale for water demand estimates. Water balances (for dry, average and wet seasons) for rain-runoff captured at the western high wall of the open pit (where sumps will be created to install pumps to pump water into the water carts) to alleviate demand on groundwater resources have been included in an updated Water Management Plan. This water will be available from the start of the rainy season through to the early dry season as a consequence of seepage losses and evaporation. Given the low predicted volumes of potentially acid forming materials in the open pit, the quality of this water is expected to be excellent and suitable for dust suppression.

There is little if any implication of capturing and storing water on the structural stability of pit walls, backfill walls or in-pit waste piles, as their slopes will be less than 37°. The high-walls, at least across the depth of water, will comprise competent bedrock.

The proposed sumps will be dug in the floor of the open pit into sand-silt-mudstones and no lining will be required, as bore testing data indicated that the permeability of the formations at depth varies between 6.0E-06 m/s and 7.2E-08 m/s, which may be regarded as semi-pervious to relatively impervious. Evaporative losses exceed seepage losses and consequently, there is little benefit in lining the pit floors to store water for longer periods.

The risks of slumping (low angles, stable landforms in competent bedrock), contamination (geochemically

stable with PAF materials absent), and impacts on groundwater and impacts on operations are considered low. However, the open pit water quality and potential erosion/slumping will be monitored.

The sumps will be backfilled upon closure.

The statement in the EIS Water Management Plan that water caught and stored in the pit "...will be the primary source ... " of water for dust suppression on the Haul Road/Open Pit/ROM was incorrect (i.e. it will be supplementing groundwater resources) and this is reflected in a revised water balance in the updated Water Management Plan. Sherwin has updated the WMP to include a site on the lower reaches of Sherwin Creek at the same location as the NT Government monitoring site G9035112. Sherwin has updated the WMP to include more regular sampling of field parameters (i.e. pH, electrical conductivity, turbidity, dissolved oxygen), which will involve weekly monitoring during flows in Sherwin Creek and event-based monitoring. It is possible that specific locations of mining infrastructure will change prior; therefore the locations of groundwater monitoring bores may change. Sherwin will determine appropriate locations for additional environmental monitoring bores as part of the Mining Management Plan approval process.

No: 61

Comment:

ACCEPTANCE OF RESIDUAL RISKS

The NT EPA provided the proponent guidelines for the preparation of the EIS which state:

[The EIS will] explicitly identify those members of the community expected to accept residual risks and their consequences, providing a better understanding of equity issues.

The proponents have not provided explicit identification of who is required to carry residual risks. Of the three nearby communities listed in the EIS, two (including the most populous) are indigenous communities, and both are entirely reliant on the Roper Highway for road access. Indigenous people are likely to be most affected by the mine, and perhaps likely to carry most of the residual risks and their consequences.

The stated intent of this requirement is to provide insight into equity issues, so it is reasonable to expect the proponent to include qualitative analysis of the potential implications for the regional Indigenous population in the context of equitable distribution of the costs of benefits of the proposal.

RECOMMENDATIONS

- The proponent should meet the requirements of the Guidelines by explicitly stipulating those members of the community expected to accept (each) residual risk and its consequence.
- This discussion should include qualitative analysis of the potential implications for the regional Indigenous population in the context of equitable distribution of the costs of benefits of the proposal.

Response:

Risk reduction is an important part of a continuous improvement process that will occur through Sherwin Iron's system of ongoing auditing and project review.

Sherwin Iron has used a risk management approach to identify actions, systems and processes that will identify and reduce the cultural, environmental and social impacts associated with the Roper River Iron Ore Project. However, despite the actions put in place by Sherwin Iron, a certain level of risk to local communities and casual users of the Roper Highway will remain (i.e. residual risk) once the Project commences operations. It is anticipated that these risks will be small and may be further reduced once the project progresses and improved solutions are identified, developed and implemented.

Throughout the duration of the Project, Sherwin Iron and those who live in and access areas close to the mine and the transport route will need to carry any residual risks. However, Sherwin Iron remains responsible to bear the bulk of the cost of finding solutions to reduce any residual environmental and cultural risks directly related to mining and transport of ore.

In addition, there may be some residual social risks, which will be beyond the full control of Sherwin Iron. The cost associated with management of many social factors (such as alcohol, illicit substances, crime and an influx of money) remains the responsibility of the government, communities and individuals. Although Sherwin Iron has put in place a suite of actions and commitments to minimise social risk and will continue to seek ways to help reduce residual social risks, it cannot be held responsible for the outcomes of personal or community choices.

No: 62**Comment:****CUMULATIVE IMPACTS**

The discussion of cumulative impacts presented in the EIS is inadequate; it is lacking detail and the relevant section in the Risks Assessment is not consistent with the risk analysis presented in the rest of the EIS. The EIS proposes no measures to mitigate cumulative risks, and does not rank or score these risks.

Cumulative impacts are of concern particularly because the proposal only describes the first part of a larger project envisioned by Sherwin and, should this larger project proceed, there are likely to be significant changes to the local landscape, and broader ramifications for the region (for example demand on water resources and infrastructure networks). Further to this, three new mines in the Roper River catchment over recent years and substantial interest from the oil and gas industry suggest there is a risk of cumulative environmental impacts as a result of these projects in a relatively undeveloped region.

Response:

The Draft EIS submitted to government was a substantially smaller project than that proposed in the NOI. It is unknown at this stage if Sherwin will proceed with the other project components proposed or indeed in the form that was proposed in the NOI. Consequently it is not possible in the EIS to assess cumulative impacts. However, should the project be added to in any form then the additions will have to go through an environmental approvals process including an assessment of cumulative risk.

No: 63**Comment:**

The Ground Water Assessment calculates known resource medium to long term sustainable yields at between 12ML/a and 26ML/a; these are in excess of the required 50ML/a estimated requirement for Sherwin's proposed DSO operations. Assuming the proposed future DSO operations will be more water intensive (as the ore requires more intensive refinement), cover larger areas (reflective of the known DSO resource), and represent operations over a significantly longer time period, it is clear that there will be significant cumulative impacts on ground water resources from the larger Sherwin proposal alone.

RECOMMENDATIONS

- In Supplementary information the proponent should analyse cumulative risks, and present discussion in a format consistent with the rest of the EIS.
- Discussion of cumulative impacts should include information on key issues, including demand on water resources and infrastructure, regional amenity, socio economic impacts, and quantity and quality of habitat for biodiversity.
- The supplement should stipulate what level of environmental assessment (EIS or other), if any, will be required before Sherwin's expansion of the operation from DSO from deposit C to DSO from other deposits.

Response:

Should Sherwin decide to pursue the larger Roper River Iron Ore Project, assessment of cumulative impacts will form part of that submission and be assessed based on what is known at that time.

The level of assessment for any project is determined by the Northern Territory Government's EPA as part of the assessment process.

No: 64**Comment:**

COMMITMENTS: The relevance of the Commitments table is not explained. We have assumed the table provided is intended to provide a comprehensive summary of the commitments made by the proponent in the EIS, to improve cross-referencing and readability of the document.

The Commitments table is incomplete. This submission has highlighted several commitments described in the body and appendices of the EIS that have not been included in the Commitments table. Inclusion of some commitments in this submission is not intended to inform completion of the table; we have not provided a comprehensive list of those missing. Completion of the Commitments table would enhance readability, enable improved stakeholder engagement, and facilitate efficiency in tracking of the performance of the proponent in relation to the commitments they have made throughout the EIS process. Sections including commitments not referenced in Appendix C include Appendix K1 (the Provisional Social Impact Management Plan), K2 (The Social and Economic Impact Assessment), and K3 (The Stakeholder Consultation Report). Commitments relating to Indigenous employment are not reflected in the Commitments table.

Response:

The intent of the Commitment Table is to give a summary presentation of all commitments made during the approvals process; a Commitments Table is a specific request in the EIS Guidelines. By necessity not all commitments will be found in the table; an example of this would include committing to implementing a management plan; any statements of intent (commitments) found in this management plan are committed to by a commitment to implement the management plan. Subsequently not all management plan commitments are found in the commitments table.

Sherwin Iron commit to complying with and implementing the Provisional Social Impact Management Plan (Appendix K1 of the EIS), The Social and Economic Impact Assessment (Appendix K2 of the EIS) and The Stakeholder Consultation Report (Appendix K3 of the EIS). Key commitments were included in the Commitments Table and additional commitments will come out of the Environmental Assessment process, to be carried through to the Mining Management Plan and subsequent operations.

No: 65**Comment:**

Additionally, Chapter 2 of the EIS states that PAF material will only be disturbed in years 4-6 of the Project, and that further "site-specific characterisation, demarcation, prevention and remediation" will be undertaken in year 3. It is further stated in the EIS "Where PAF materials are encountered during mining will be segregated and managed to prevent interaction with [water] particularly rainfall". These important Acid and Metalliferous Drainage (AMD) risk mitigation measures should also be included in the Commitments table.

Response:

These statements are correct, are detailed in the AMD Management Plan (Supplementary EIS Appendix D) and have been included in the updated Commitments table.

No: 66**Comment:**

Generally, there are inadequate commitments to ongoing liaison with regional stakeholders. Reporting to relevant regulatory agencies is often required under legislation; the proponent should include additional commitments to discretionary reporting on key issues of relevance to regional interests (examples may include

environmental and health and safety incidents, weed and pest invasion, transport, infrastructure, and water resources).

Response:

Reporting will be undertaken as per the Environmental Management Plans (Appendix D of the EIS). Additional reporting will also eventually be done through the publicly available annual Environmental Mining Report which forms part of the Mining Management Plan process, currently this process has not been finalised by the Department of Mines and Energy (DME). In addition to this, Sherwin will also continue to engage with stakeholders as per commitments made in the Social Impact Management Plan - see Appendix K1 (section 2.3) of the EIS.

No: 67

Comment:

The commitments on rehabilitation and waste management in the table are not comprehensive. These commitments should be detailed, quantifiable, and include specifications on when actions will occur.

Response:

In addition to the commitments already made regarding rehabilitation Sherwin commits to the following;

Sherwin commit to beginning rehabilitation trials during 2014. An experimental design for trials will be developed within three months of the commencement of mining. Field trials will begin during the 2014/15 wet season. The trial design will simulate soil, substrate and slope conditions likely to be encountered during future rehabilitation.

Sherwin commit to designing trials on rehabilitation on the subgrade stockpile within three months of commencing mining and begin field trials during the first wet season that sufficient subgrade ore for a trial is available.

Sherwin has committed to monitoring and control of weeds in all areas of the lease including rehabilitation areas. This will be done at least annually.

Sherwin commit to develop closure criteria during the first year of operation.

Waste management will be as per previous commitments. It is considered inappropriate to set exact timeframes for activities, however waste removal will be done in a timely manner as required to maintain a high standard of housekeeping.

No: 68

Comment:

The commitments on rehabilitation and waste management should be detailed, quantifiable, and include specifications on when actions will occur.

Response:

Sherwin commit to beginning rehabilitation trials during 2014. An experimental design for trials will be developed within three months of the commencement of mining. Field trials will begin during the 2014/15 wet season. The trial design will simulate soil, substrate and slope conditions likely to be encountered during future rehabilitation.

Sherwin commit to designing trials on rehabilitation on the subgrade stockpile within three months of commencing mining and begin field trials during the first wet season that sufficient subgrade ore for a trial is available.

Sherwin has committed to monitoring and control of weeds in all areas of the lease including rehabilitation

areas. This will be done at least annually.

Sherwin commit to develop closure criteria during the first year of operation.

Waste management will be as per previous commitments. It is considered inappropriate to set exact timeframes for activities, however waste removal will be done in a timely manner as required to maintain a high standard of housekeeping.

No: 69

Comment:

PEST & WEED MANAGEMENT PLAN

Weed wash down facilities are included in the Pest and Weed Management Plan and are key component of effective weed management. Weed wash down facilities (including their basic design and locations) should be included in Sherwin's commitments, along with stipulation of which vehicles are required to be washed down and when (ideally all vehicles, on entry to and exit from the site).

The Pest and Weed Management Plan and the Commitments table should include a commitment from the proponent to directly inform neighbouring land managers if new pest or weed species are identified on site, within a specified and reasonable period of time.

RECOMENDATIONS

- Weed wash down facilities (including their basic design and locations) should be included in the commitments table, along with stipulation of when vehicles are required to be washed down.
- The proponent should commit to directly informing neighbouring land managers if new pest or weed species are identified on site, within a specified and reasonable period of time.
- The Pest and Weed management plan should stipulate whether the same management regime applies during mine closure and rehabilitation.

Response:

As per the actions in Section 5 of the Weed and Pest Management Plan submitted with the EIS; Vehicles/equipment will be washed down and inspected with details entered into a register. Vehicles will be certified weed free before entry into the project area. Sherwin add this as a specific commitment, i.e. they will install a wash-down facility, specifically designed and located for the prevention of the spread of weeds, which will adhere to the *Queensland Checklist for Clean-down Procedures* and *Queensland Guideline for the Construction of Vehicle and Machinery Wash-down Facilities for Vehicle Wash-downs*, before the onset of mining.

The facility will be inspected annually and as a part of the annual weed survey that Sherwin previously committed to in the EIS. Sherwin has also previously committed to control of weeds, and clarify that this will occur on an annual (at a minimum) basis at the end of the wet season. Weed control will be carried out across the site, which will include the wash-down area.

Sherwin commit to annual monitoring and control of weeds across the mine site which includes rehabilitations areas. Sherwin commit to informing neighbours within 7 days if new pests or weeds are identified on site.

No: 70

Comment:

REHABILITATION AND MINE CLOSURE PLAN

Rehabilitation Objectives

In a disturbed environment one of the major environmental impact mitigation issues is to control invasive

weeds. The explicit controlling of weeds during closure and rehabilitation is not adequately discussed in the EIS.

The NLC regularly conducts consultations with traditional Aboriginal owners in regards to the proposed mine and rehabilitation and closure. Generally, traditional Aboriginal owners request that the final landform surface be easily traversed by foot and not be predominantly made up of large angular rock. The above will ensure that traditional Aboriginal owners can continue their hunting, gathering and other cultural pursuits post rehabilitation. Traditional Aboriginal owners may request some roads and tracks to remain in place, this will be determined at future consultations. The NLC welcomes the commitment by the proponent to consult with and engage local Aboriginal personnel to conduct rehabilitation works such as seed harvesting and re-vegetation.

Response:

Sherwin have committed to annual monitoring of weeds and to control declared weeds in all areas of the lease including rehabilitation areas. Sherwin reaffirms the commitment to undertake consultation with relevant stakeholders (including TO's) and commit to develop closure criteria during the first year of operation. Sherwin reaffirms the commitment to involving TO's in rehabilitation work such as seed harvest and re-vegetation.

No: 71

Comment:

Rehabilitation Zones- Sub Grade Ore Stockpile

The NLC has some concerns upon how successful rehabilitation will be upon subgrade stockpiles and request further information upon how this will occur. Will these stock piles be covered with waste rock or topsoil? What is the risk of metals leeching out from the subgrade ore stockpile? What is the risk of AMD being generated from the stockpile?

The Project Overview states;

Subgrade Ore Stockpile - will be battered off to a stable landform at 20° and deep ripped on contour to minimise erosion of the waste dump face and will be vegetated.

The Rehabilitation and Closure Plan broadly discusses the need for on-site research. NLC would like to see a subgrade ore stockpile revegetation trial plot with a zoo slope constructed on site within 2 years of operation. The results of the trial will inform how appropriate the proposed rehabilitation method is and whether there is a need to make design changes.

RECOMMENDATIONS

- A supplement should provide information on; i) whether subgrade stock piles will be covered with waste rock or topsoil, ii) any risk of metals leeching out from the subgrade ore stockpile, and iii) any risk of AMD being generated from subgrade ore stockpiles.
- A subgrade ore stockpile revegetation trial plot with a zoo slope should be constructed on site within 2 years of operation. The results of the trial should inform how appropriate the proposed rehabilitation method is and whether there is a need to make design changes.

Response:

Sherwin commit to designing trials on rehabilitation on the subgrade stockpile within three months of commencing mining and to begin field trials during the first wet season that sufficient subgrade ore for a trial is available.

The subgrade stockpiles will have no AMD risk and thus leaching will have circumneutral pH's with very low metal concentrations. The materials (residual ore and waste rock) classifying as PAF will be separated from subgrade and managed and contained in a specially engineered PAF Cell (see the AMD Management Plan

Appendix D).

The current grade and AMD assessments indicate that subgrade stockpiles will not contain PAF/reactive materials and therefore do not require specific management, other than erosion and sediment control. However, in the unlikely event that PAF/reactive materials are encountered, they will be treated in accordance with the AMD Management Plan (Supplementary EIS Appendix D).

No: 72**Comment:****AIR EMISSIONS and DUST REPORT**

There are multiple grammatical errors in Appendix M which at times render it difficult to interpret.

The Risk Assessment identifies dust as a potential atmospheric contaminant which presents risk to human health. The EIS claims to have collected baseline data on atmospheric dust, presented this in Appendix M.

The monitoring conducted cannot correctly be described as "baseline" because it was collected after the initiation of bulk sampling operations, and in the sampling period there occurred approximately 8-15 truck movements for bulk sampling". Presumably roads have been constructed to enable truck movement and some form of excavation of a bulk sample has been undertaken, both of which have the potential to affect atmospheric dust concentrations. In tropical environments dust levels vary greatly between seasons, and rainfall varies from year to year; the Dust Report collected data in one sampling period (one month) and so the data provided is not particularly useful in analysis of change or cumulative impacts.

Response:

The sampling event undertaken was a baseline pre-mining sample. It was conducted during bulk sampling and truck movements did occur, however as results show, dust levels during this sampling event were quite low. Further dust sampling will be undertaken around the mining area pre-mining and again once mining has started. If the results from the mining sampling event identify any issues, then Sherwin will set up a Dust Management Plan to rectify any issues with dust.

No: 73**Comment:**

Analysis of ambient dust should include proper consideration and discussion of the conditions in which data collection occurred. The implications for interpretation of such data should be detailed, and if necessary alternative reference sites can be monitored. If possible, reasonable estimates of pre-mining dust levels should be included in supplementary information.

Response:

Noted. The dust levels provided are pre-mining dust levels. Additional monitoring will be carried out around the pit area pre-mining and during mining.

No: 74**Comment:**

There is no information in the EIS or in Appendix M by which the reader may assess how the data collected in the monitoring exercise compares with acceptable levels or qualities of ambient dust for human safety. The Risk Assessment identifies respirable crystalline silica as the key risk to human health presenting high inherent risk unless properly mitigated. The Dust Report does not explain how, or if, respirable crystalline silica is monitored. The Dust Report sites monitoring according to a different Australian Standard (AS/NZ 3580.10.1:2003) than that suggested in the Risk Assessment (AS2985-2004), so it is unclear how the Dust Report is of any relevance to the risk, or the proposed mitigation measures.

Response:

AS2985-2004 should have been AS2985-2009. This standard is Workplace atmospheres - Methods for sampling and gravimetric determination of respirable dust.

Most airborne industrial dusts contain particles of a wide range of sizes. The behaviour, depositions and fate of any particle after entry into the human respiratory system and the response that it elicits depends on the nature and size of the particle.

Occupational hygiene practice commonly differentiates between two size fractions of airborne dust, namely respirable and inhalable dust. Where particles may have toxic effects if absorbed in the nose and throat region or may have toxic effects if ingested after deposition in this region, it is appropriate to measure the mass concentration of inhalable particles in the atmosphere. It may also be apt to measure this size fraction for particles that exhibit no specific toxic effects, namely particulates/dusts not otherwise classified'. AS3640, Workplace atmospheres - Method for sampling and gravimetric determination of inhalable dust, should be referred to for determining inhalable particles in workplace atmospheres.

Respirable particles can be measured when the nature of these particles is such that they exhibit toxic effects primarily when deposited in the alveolar region (deepest reserve) of the lungs. This usually applies to toxic insoluble particles that accumulate in the lungs such as crystalline silica, coal dust and cadmium oxide fumes. AS2985-2009 sets down the method for determining the mass concentration of these respirable sized particles in workplace atmospheres.

AS/NZ 3580.10.1:2003 is the Australian/New Zealand standard for - Methods for sampling and analysis of ambient air - method 10.1: Determination of particulate matter - deposited matter -gravimetric method.

No: 75

Comment:

The Dust Report recommends "keeping stockpiles low so wind is less likely to spread dust", but fails to explain how low. A supplementary report should clarify what slope and height is ideal to minimise dust in the local conditions and how these parameters are considered in the proposal.

The supplement should provide consideration of the alternative of sealing haul roads rather than watering them for dust suppression, with reference to costs and benefits on multiple counts, including:

- Limited water resources (dust suppression constitutes near 1/2 of the demand estimate provided (17 of 35 ML/a).
- The proposed use of public roads reduces the haul roads to relatively short distances.
- The haul roads pass close to staff accommodation areas and worker exposure to dust has been identified as a key risk to human health and safety.

Response:

Sherwin Iron will seal high use haul roads with a polymer that acts like bitumen, refer to Attachment 1 of the updated Water Management Plan (Appendix B).

The stockpiles will be largely rock and it is expected that there will be minimal dust because of this however a dust monitoring program will assess whether this is an issue or not.

No: 76

Comment:

RECOMMENDATIONS

- The proponent should provide a schedule outlining when dust suppression watering will occur and map the locations of these areas according to the schedule.
- The supplement should provide consideration of the alternative costs and benefits of sealing haul

roads.

- If possible reasonable estimates of pre-mining dust levels should be included in supplementary information.
- A supplementary report should provide comparative analysis of ambient dust and human safety standards.
- Approval should be provisional upon the establishment of a dust monitoring program.
- A supplementary report should clarify based on scientific research what slope and height is ideal to minimise dust in the local conditions and should include a discussion of how these findings are considered in the final proposal.

Response:

These recommendations are addressed in the responses above.

No: 77

Comment:

SOCIAL AND ECONOMIC IMPACTS, STAKEHOLDER CONSULTATION AND CULTURAL HERITAGE (Appendix K1, K2, K3 and 02)

Sections 3.6 and 3.7 of the EIS address sections 4.6 and 4.7 of the guidelines set down for the proponent by the NT EPA on the risks of the mine to historical cultural heritage and the socio-economic risks of the mine. There are no commitments outlined in Appendix C that pertain to anything in this section outside of following recommendations outlined in Appendix 01 (the Archaeological report).

No commitments have been listed in Appendix C by the proponent in reference to recommendations made in the appendices concerning the Provisional Social Impact Management Plan (K1) Economic & Social Impact Assessment (K2) Stakeholder Consultation Report (K3) and the Provisional Cultural Heritage management plan (02).

Response:

Commitments contained within Sherwin Iron’s Social Impact and Cultural Heritage Management Plans were erroneously omitted from the summary of commitments in the Draft EIS. The salient commitments are summarised below:

Stakeholder Engagement:

- A commitment to address all interests and concerns related to the project that is raised by stakeholders.
- A commitment to maintaining strong, positive relationships with all impacted stakeholders
- A commitment to maximizing participation of traditional owners in mining operations.
- Community cohesion and safety
- A commitment to having no significant or permanent negative impact on the health of community members
- A commitment to having no significant negative impact on regional or community crime rates
- A commitment to operating all aspects of the mine in a safe manner, consistent with workplace legislation in the NT

Community Development (Social Capital)

- A commitment to maximizing the involvement of local community businesses in the Project through developing their skills base and contracting to them where possible.
- A commitment to building work skills and capacity amongst local Aboriginal people so that they may be able to obtain employment at Sherwin Iron or elsewhere.
- A commitment to maximising participation of traditional owners in mining operations through direct

employment, contracting to community businesses and local Aboriginal Joint Ventures.

Community Development (Infrastructure)

- A commitment to avoiding access to Aboriginal Land Trust Areas unless authorized to do so
- A commitment to minimising impacts on environmental values
- A commitment to having no negative permanent impact on community and regional access through its activities
- A commitment to having no negative impacts on availability of housing in local communities
- A commitment to having significant negative impact on existing community health services through its activities
- A commitment to having no ongoing negative impacts on supply of goods and other services to communities
- A commitment to having no long-term negative impacts on regional tourism ventures

Cultural Heritage

- A commitment to management of all archaeological sites in accordance with the Heritage Act (NT):
- A commitment to protection of Sacred Sites in accordance with the Aboriginal Sacred Sites Act (NT)
- A commitment to protection of contemporary culture by developing a program to assist with protection of the area's endangered languages;
- Working with traditional owners to manage their cultural heritage and encourage its ongoing transmission to future generations;
- Recording and protecting proprietary traditional knowledge ;and
- Not disrupting ceremonial activities.

Specific actions related to each of these commitments are described in more detail within the associated management plans presented in Appendices K1 and O2 of the Draft EIS.

As part of its commitment to continuous improvement, Sherwin Iron will further develop procedures, policies, protocols and plans relevant to each of these commitments as the Project progresses. Traditional Owners will be consulted and involved when these are being developed and implemented throughout the Project's life.

No: 78

Comment:

Appendices K 1 and O2 are listed as provisional plans yet the form that the provisions they are under is not qualified and neither is the length that the provisional plans will be in place under this plan. The EIS should be a standalone document, however the level of information provided in the EIS is inadequate for this purpose.

There is no commitment made in appendix C to ongoing consultations with the stakeholders identified in appendix K3.

Response:

The Cultural Heritage and Social Impact Management Plans are subject to future modification, which means they remain 'provisional'. Stakeholders require a high level of flexibility in the form of provisional plans so that any modifications or additional outcomes identified into the ongoing consultation process can be included in future versions.

Sherwin Iron's continuous improvement system and review schedule for the Provisional Plans means that

each provisional plan and sub-plan they contain are subject to review on an annual basis. In this context, these plans are likely to remain subject to alteration and will therefore remain provisional for the duration of the Project. Sherwin Iron anticipates however, that the rate of any change to each Plan required will diminish as the Project progresses, but will keep this process flexible to ensure that the ongoing and future needs of stakeholders continue to be met.

Sherwin Iron's commitments in respect of ongoing consultations with stakeholders are highlighted in Section 2.0 the Stakeholder Engagement Plan, provided as part of the Provisional Social Impact Management Plan. They stipulate six-monthly meetings with key, non-indigenous stakeholders and quarterly or annual community awareness sessions.

There is also a provision within the Mining Agreement through which Sherwin Iron is committed to regular and ongoing meetings with Traditional Owners. These are scheduled to occur on a quarterly basis.

Direct engagement will also be supported by a web-based system through which stakeholders can communicate directly with Sherwin Iron.

In summary, Sherwin Iron is committed to regular consultation with all key stakeholders across the duration of the Project.

No: 79**Comment:****RECOMMENDATIONS**

- That the proponent commit to the recommendations in the relevant sections of the EIS for the social and economic impacts, cultural management and stakeholder engagement of the mine over the entire operation period.
- That the proponent finalise management plans that will exist over the length of its operation that will handle challenges identified as well as any that were unforeseen.

Response:

Specific actions related to each of these commitments are described in more detail within the associated management plans presented in Appendices K1 and O2 of the Draft EIS.

As part of its commitment to continuous improvement, Sherwin Iron will further develop procedures, policies, protocols and plans relevant to each of these commitments as the Project progresses. Traditional Owners will be consulted and involved when these are being developed and implemented throughout the Project's life.

No: 80**Comment:**

ENVIRONMENTAL OFFSETS - Under chapter 4 of the EIS the Proponent has failed to demonstrate how it will develop and implement a compliant environmental offsets program at the Sherwin Creek Iron Ore Project. No specific direct environmental offsets opportunities have been identified in the EIS and the general ideas that have been presented about the offsets program are not accompanied by implementation plans, timeframes or other supporting documentation. There is instead only a general commitment given to engage with key stakeholders to develop programs and determine appropriate timeframes. There is insufficient detail provided in this EIS to allow the reader to properly understand and assess the relevance and/or effectiveness of any particular offset proposal or associated activity as described. Any offsets program that is developed once the EIS process is completed will lack transparency, with no opportunity for public review or comment.

Response:

The nature of the mining operation is such that no significant, long-term, negative residual environmental

effects are expected. Rehabilitation and revegetation is progressive and will be well established at the time of Project closure. It is expected that no environmental offsets for the physical environment will be required. Instead, Sherwin has focused on long-term socio-economic and cultural strategies and will spend resources accordingly; to this end Sherwin has an in-confidence agreement with the NLC.

Sherwin believes that these not only represent worthwhile positive economic contributions to an economically repressed area, they also represent viable and practical offsets because through them, communities will be able to develop and retain the capacity and resources to undertake any necessary maintenance should residual impacts to the natural physical environment occur.

Detailed implementation plans, timelines and supporting information for these long-term strategies are provided in the Social Impact and Cultural Heritage Management Plans (Appendices K1 and O2 of the EIS). Within the Social Impact Management Plan is a Stakeholder Engagement Plan, through which Sherwin Iron is committed to ongoing discussions with key stakeholders to ensure that any additional or hitherto unanticipated offsets that might be required during the life of the project can be identified and implemented in a timely and appropriate manner. All additional offsets will be tailored to best suit the feedback received, will be published on the Sherwin Iron website and included in updated versions of the Social Impact and Cultural Heritage Management Plans. By making these documents available on the company's website, transparency will be maintained and the general public will be provided an opportunity for review and comment.

No: 81

Comment:

The information about environmental offsets presented under Chapter 4 of the EIS does not address the relevant criteria as per the guidance notes in the EPA Guidelines. Specifically the Proponent did not identify any potential residual significant environmental impacts resulting from this Project, and has not provided any information as to whether any identified environmental impacts that could not be avoided could be considered as 'significant' under the Environment Protection Biodiversity Conservation Act 1999 (EPBC Act). Additionally the proposed offsets program does not comply with the Australian Government's Environmental Offsets Policy requirement that residual significant environmental impacts be offset, with a focus on direct offsets.

Response:

As discussed above in Comment 80 it is not expected that environmental offsets for the physical environment will be required.

The only unavoidable impact identified during the preparation of the EIS is the clearing of native vegetation. Most of the vegetation types being cleared for this development are open eucalypt woodland which is common and widespread across the region (EIS Appendix H2); the area being cleared (approximately 350 ha) is negligible in the regional context for this habitat type. In addition, a small portion of the gorge habitat would be cleared as part of this project; none of the habitats to be cleared are considered "significant" under the EPBC Act as they do not support any federally listed species. The nature of the mining operation is such that no significant, long-term, negative residual environmental effects are expected. Consequently, offsets to address specific impacts on the physical environment, as described by the Australian Government's Environmental Offsets Policy are not required. In their place, Sherwin Iron has adopted an approach that recognises the inclusion of social, cultural and spiritual elements in the environment and that its operations may have impacts on these. Accordingly Sherwin Iron's suite of offset activities and actions has been designed to help offset any socio-economic, cultural and spiritual impacts that might occur.

No: 82

Comment:

There is no evidence in the EIS of any attempt to identify or quantify the Project's potential environmental impacts and offsets. The proposed offsets provided under chapter 4.3 of the EIS, 'Proposed Offset Options' being considered by The Proponent do not include any direct offsets but instead include a number of non-specific commitments under the categories of:

- Workforce Development;
- Business Development; and
- Community Investment.

In the EIS, the Proponent states that:

Sherwin has undertaken a comprehensive stakeholder consultation process as part of the environmental impact assessment process for the Sherwin Creek Iron Ore Project. This Initial consultation has resulted in the proposed Socio Cultural Offsets with Traditional Aboriginal owners.

However there is no documentation in the EIS about the mentioned consultations and only a very brief description is given regarding the proposed socio-cultural offsets. The level of detail about the proposed environmental offsets program provided under Chapter 4 of the EIS is insufficient and surprising given the Proponent's assertion that a comprehensive stakeholder consultation process has been undertaken in order to develop these offsets.

Furthermore under section 4.4 of the EIS it is stated that the Proponent, in consultation with the Northern Territory Government, will develop an offset proposal that "Delivers lasting environmental, economic and social benefits", despite the fact that none of the proposed offsets programs have identified any direct environmental benefits.

This EIS fails to demonstrate how the Proponent will implement, monitor and review an environmental offsets program that is relevant and has been properly considered and includes quantifiable impacts and outcomes and should include of such programs. The Proponent have failed to identify a single quantifiable outcomes for any of its proposed offset categories included in this EIS and they have not committed to any specific pathways or timeframes for implementation and no performance criteria, against which the effectiveness of the offsets programs can be monitored and reviewed, has been included in the EIS.

Response:

The majority of the EIS is about identifying and quantifying the project's potential environmental impacts. Broadly, the EIS concludes that there is no substantial environmental impact from this project after mitigation activities, hence the belief that environmental offsets for the physical environment are not required.

Additional and more detailed information with respect to Sherwin Iron's suite of socio-economic and cultural offsets is contained within the Social Impact and Cultural Heritage Management Plans attached as Appendices K1 and O2 of the EIS. The salient features of the commitments made in these plans are highlighted below:

Workforce Development:

Specific actions are presented in the Social Capital Plan contained within the Social Impact Management Plan. Sherwin Iron and its contractors have been in ongoing discussion with the NLC throughout Agreement negotiations to identify suitable opportunities for placement of Aboriginal people into the Project's workforce. This includes commitments to:

- development of training opportunities and apprenticeships; and
- achieving a target of 30% Aboriginal employment (with a preference for local people), which is significantly higher than found in the Northern Territory's wider mining industry.

Business Development:

Development of businesses owned and operated by local Aboriginal groups is a key feature of Sherwin Iron's proposals to deliver lasting environmental, economic and social benefits. Specific actions and timelines are presented in the Social Capital Plan contained within the Social Impact Management Plan. This Plan contains commitments to:

- establishment of self-sustaining Joint Ventures and Family Trusts to act as vehicles for Aboriginal owned and run businesses;
- supporting these business ventures until such time as the Aboriginal people operating the businesses have sufficient skills to work alone; and
- contracting future work to these JVs to maintain their sustainability.

Community Investment:

Sherwin Iron expects that it will have a net positive contribution to communities and the region through:

- upgrade of the road network as part of its Traffic Management Plans;
- improving goods and services capacity within local communities to ensure that they can service the mine and the community;
- contributing to improvement of community health services.

Sherwin iron will also be providing a significant direct economic contribution through contract revenues (royalties) that Traditional Aboriginal owners may elect to use to construct additional housing or other facilities of value to each community.

The socio-economic and cultural offsets to which Sherwin Iron has committed reflect the primary outcomes of the Stakeholder Consultation process described in Appendix K3 of the EIS. Sherwin Iron acknowledges that ongoing and further discussions with Traditional Aboriginal Owners are required to ensure that offset activities remain relevant, culturally appropriate and of value to individuals, communities and/or the region. Sherwin Iron will hold consultations throughout the life of mine in accordance with the timeframes, strategies, targets and performance criteria outlined in its Stakeholder Engagement, Community Cohesion and Safety, Community Development (Social Capital) and Community Development (Infrastructure) Management Plans – all of which are contained within the larger Social Impact Management Plan (Appendix K1 of the Draft EIS).

No: 83

Comment:

The NLC recommends that the Proponent make amendments to Chapter 4 of the EIS in consideration of the following comments:

- Identify, describe and quantify (where possible) all known environmental impacts of the proposed Project that cannot be avoided, reduced or mitigated at reasonable costs, and state whether these impacts could be considered as significant under the EPBC Act;
- Identify and describe all direct environmental offset activities, including quantifiable goals, outcomes, implementation plans, performance targets, program monitoring schedules and review timeframes/processes;
- Identify all known risks of failure of management actions and the potential environmental impacts and residual risks that such failures may incur;
- Supply additional and quantifiable information about activities proposed under the socio-cultural offsets program;
- Present and commit to a consultation framework and timeframe towards continued offsets program development and implementation with traditional Aboriginal owners;
- All commitments associated with environmental offsets should be incorporated into the table of

Commitments under Appendix C of the EIS.

Response:

The only unavoidable impact identified during the preparation of the EIS is the clearing of native vegetation. Most of the vegetation types being cleared for this development are open eucalypt woodland which is common and widespread across the region (EIS Appendix H2); the area being cleared (approximately 350 ha) is negligible in the regional context for this habitat type. In addition a small portion of the gorge habitat would be cleared as part of this project; none of the habitats to be cleared are considered "significant" under the EPBC Act as they do not support any federally listed species.

All potential environmental impacts with mitigation and management actions have been presented in the EIS (Chapter 3). Detailed information about Sherwin Iron's socio-cultural offset activities is found in the Social Impact and Cultural Heritage Management Plans, Appendices K1 and O2 of the EIS. In consultation with Traditional Owners, these Plans and processes will undergo continuous modification and improvement as the Project progresses. Consultations will occur through mechanisms described in the Native Title Agreement agreed between Sherwin Iron, the NLC and Traditional Aboriginal Owners and summarized in the Stakeholder Engagement Plan contained within the Social Impact Management Plan.

Each of these activities has identified targets and strategies for reaching those targets, as well as performance management and monitoring measures, all of which are outlined in their respective Plans. A significant part of ongoing consultation with Traditional Aboriginal Owners and their representatives will involve an assurance that these measures remain culturally appropriate and relevant throughout the life of the Project. The Plans are flexible and will remain subject to modification should additional offset activities be identified or completed as the Project progresses.

No: 84

Comment:

ASSESSMENT OF POTENTIAL FOR ACID MINE DRAINAGE (AMD)

The Proponent has undertaken steps to identify where sulphide bearing materials may be present within the Mining Lease (ML), with an appropriate focus on the proposed pit locations. It is prudent that the Proponent undertake the planned ABA testing of the areas to be directly impacted by the proposed pit and mining infrastructure development. If any additional areas are identified where Potentially Acid Forming (PAF) materials are found to be present in the ML, the Proponent should commit to developing a plan to manage all PAF materials appropriately so as to protect local aquifers and surface water catchments and to communicate any proposed amendments to the PAF materials management plan to key stakeholders, including the traditional Aboriginal owners.

Response:

The majority (84%) of samples classified as PAF materials occur outside the perimeters of the proposed open pit and/or are beneath the base thereof and furthermore, the mine waste rock balance (mining schedule) indicates that in a mass balance of 212 Mt, only 0.03% or 59,255t (or 21,550m³) of waste rock has the potential to generate acidity.

A site-specific AMD Management Plan has been prepared and will be implemented when mining commences (refer to Supplementary EIS Appendix D).

No: 85

Comment:

The proposal to utilise locally available Non-Acid Forming (NAF) materials for the purpose of capping and isolating any areas where PAF materials have been identified within the pit has not been sufficiently tested or proven to be considered final. No supporting documentation regarding the physical characteristics of the in

situ NAF materials (i.e. permeability, grain size, etc.), or evidence demonstrating the suitability of this material for proposed capping and isolating application in order to mitigate potential AMD, has been provided in the EIS.

In the absence of any evidence supporting the suitability of the Proponent's proposed AMD mitigation strategy, and considering the EPA's requirement for the EIS to "describe any feasible alternatives to carrying out the proposed activity ... to make clear the reasons for preferring certain options and rejecting others", it is recommended that alternative industry standard AMD management options should be investigated and properly described in the Supplement EIS. Further test work, an analysis of the various AMD mitigation options and disclosure of the costs associated with each scenario, will better assist the Proponent and the general public to properly understand the associated risks, and will assist the Proponent and the EPA to determine the most appropriate AMD mitigation tool for this Project.

Response:

It should be noted that the PAF materials are limited to a relatively small volume predicted to be encountered during Year 4 of the project (21,550m³). It is estimated that all the PAF materials may be contained in a single cell. The AMD Management Plan (Supplementary EIS Appendix D) details the identification, management and treatment of PAF materials that may be encountered/disturbed during the life of the DSO project. Whilst a soil physical and geotechnical assessment is included in the EIS, a geotechnical study of the pit walls and major lithotypes was not undertaken. However, observations made during the current bulk sampling activities indicate that rocks are competent with minor localised shallow fracturing that are unlikely to impact pit wall stability and/or the stability of the PAF cell. Taking cognisance of the location and extent of PAF materials in the open pit, the preferred option for identification and management of PAF materials are by means of careful demarcation, segregation and encapsulation in a cell with slopes between 2% and 3% at the low wall (highest point of the backfilled pit to shed rainfall and be outside pit water; refer Supplementary EIS Appendix D) encapsulated by about 5m thick crushed NAF materials covered by waste rock.

No: 86

Comment:

The EPA Guidelines for the preparation of an EIS for this Project state that "The EIS should be a stand-alone document. The EIS should enable interested stakeholders and the NT EPA to understand the environmental consequences of the proposed development". Due to poor descriptions of the proposed AMD mitigation activities, a lack of supporting documentation and because of its failure to properly describe any of the contingent AMD mitigation options, the EIS in its current form fails in its goal of assisting the public to assess the risks of any AMD mitigation options that may be suitable for this Project and it fails to inform the reader why the preferred AMD mitigation option has been selected and other options rejected.

Response:

PAF materials are limited to a relatively small area and volume (21,550m³) anticipated to be encountered during Year 4 of the project. The AMD Management Plan (Supplementary EIS Appendix D) details the identification, management and treatment of PAF materials that may be encountered/disturbed during the life of the DSO project.

No: 87

Comment:

RECOMMENDATIONS

- In the Supplement EIS, the NLC recommends that the Proponent commit to undertaking test work looking at the suitability of various AMD mitigation methods in order to determine the preferred and most suitable method for application at this project;
- several PAF management scenarios should be identified and described in sufficient detail in the Supplementary EIS to enable to reader to understand the rationale for selecting the preferred AMD

mitigation strategy; and

- all commitments made under Appendix D of the EIS should be incorporated into the table under Appendix C of the Supplement EIS, including the commitment to undertake further test work to identify where PAF materials may be present within the mining area.
- In the Supplement EIS, the Proponent should be required to demonstrate the suitability of any material proposed to be utilised for the purpose of capping and isolating the PAF materials located within the pit by presenting a comparative feasibility assessment of a number material options. In addition to the proposed NAF materials, other materials to be included in this assessment could include locally available clays and any synthetic materials as proven to be successful for such applications.

Response:

The AMD Management Plan (Supplementary EIS Appendix D) details the identification, management and treatment of PAF materials that may be encountered/disturbed during the life of the DSO project. The AMD Management Plan also includes consideration of several options for PAF management and justification for the preferred option.

No: 88

Comment:

ENVIRONMENTAL MANAGEMENT PLAN

The Sherwin Creek Iron Ore Project Environmental Management Plan (EMP) that was submitted by the Proponent as an appendix to the EIS provides insufficient detail and scope as appropriate for a project of this scale. Descriptions of the proposed mining activities and environmental management actions provided in this section of the EIS are too general in nature, alternative management plans are not adequately explored and the rationale for choosing a particular management action is generally absent throughout this section of the EIS. The EMP as presented in this EIS appears incomplete with some aspects of it still in development and yet to be adequately defined. In its current form, without significant improvements, the reader cannot properly assess the effectiveness of the EMP component of the EIS and it does not function as a stand-alone document.

Response:

The EMP at EIS level is a high level document which will be further refined prior to mining commencing, i.e. through the Mining Management Plan process. The detail for management actions is found in the relevant management plans referred to in the EMP; these are generally found as an appendix to the draft EIS. Where management plans are not presented (or detail not complete) this is due to instances where knowledge is not complete and a commitment has been made which will be audited through the MMP process.

No: 89

Comment:

Construction and operation activities and Timing and scheduling

The description of proposed construction and operation activities and development schedule provided here is very basic and does not provide sufficient detail for the reader to adequately assess the potential environmental impacts of the proposed activities. Given the lack of information provided here to describe the proposed mining and mine waste management plan and schedule, additional information that could improve this section include a pit development schedule, including mining sequences based on the pit optimisation block model that clearly show which areas of the proposed pits will be mined and when, rather than just a map showing the final pit area and proposed mining start and finish date as per the current EIS.

Additionally in order to demonstrate the feasibility of the proposed mine waste management plan further

information regarding the development, scheduling and sequencing of mine waste management should also be included in this section of the EIS. Such information should as a minimum include details about the scheduling of the waste management activities, the amount (tonnage) of mine waste to be stored out-of-pit, and information about the location and size of the land required to be utilised for this activity. It should also be clearly stated whether or not the out-of-pit waste dump that will be built during initial pit development will eventually be incorporated into the in-pit waste dump or not, and if so a timeframe is required showing when this is proposed to occur. Ideally the out-of-pit waste dump should be a temporary management action and it should be located close to the pit so that it can eventually be incorporated into the in-pit waste dump.

The Supplement EIS should include additional information about the mine waste management plan. Such information should describe the activities involved and include the scheduling and sequencing of mine waste actions and related land-use requirements

The out-of-pit waste dump proposed to be built during initial pit development should eventually be incorporated into the in-pit waste dump. The Supplement EIS should describe how this will work will be conducted and it should also include the schedule of stated works.

Response:

Detailed information on the pit development schedule is provided in Chapter 2 of the EIS - refer to Section 2.8, Figure 2-12 and Table 2-9. Relevant information will be included in the Final EMP submitted as part of the MMP and the EMP will at that stage become a stand-alone document. Mine waste is discussed in Sections 2.1 and 2.8 of the EIS and in more detail within Appendix G - Acid Mine/Metalliferous Drainage (AMD) Implications for mine waste management (Nov 2013). Reference should also be made to the new AMD Management Plan which details the identification, management and treatment of a relatively small quantity of PAF materials that will be encountered during the later stages (year 4 onwards) of the project and which will be encapsulated in an engineered PAF Cell. The remaining subgrade ore and waste rock have no AMD risk and thus leaching will have circumneutral pH's with very low metal concentrations.

No: 90

Comment:

Environmental management structure and responsibility

The Proponent's proposed Environmental Management Structure (EMS) and related management roles and responsibilities are deficient in several key areas including:

- Inadequate and incomplete definition of Environmental management roles and responsibilities for critical personnel; and
- No defined communication/management pathway for Environmental reporting between the Mine Site (Project Manager) and Sherwin Executive Management (Executive Director).

The EMS proposed in the EIS places the following three positions, Technical Director, Metallurgical Director and Financial Director, highly in the chain of command and has them positioned to intercept all management actions and communications between the Executive Director and the Project Manager at the mine site. Unfortunately no information is provided in the EIS about the individual responsibilities for any of the three mentioned Directors and therefore no indication is given as to which, if any, of these Directors will be included in the environmental management structure for this Project.

Response:

Sherwin is a relatively small company, currently the mine site Project Manager reports directly to the Executive Director. The hierarchy has been amended (see Figure 1 below) to better reflect the environmental reporting pathway. Environmental management roles for the key environmental personnel are provided in Section 2.1.1 of the Draft EIS.

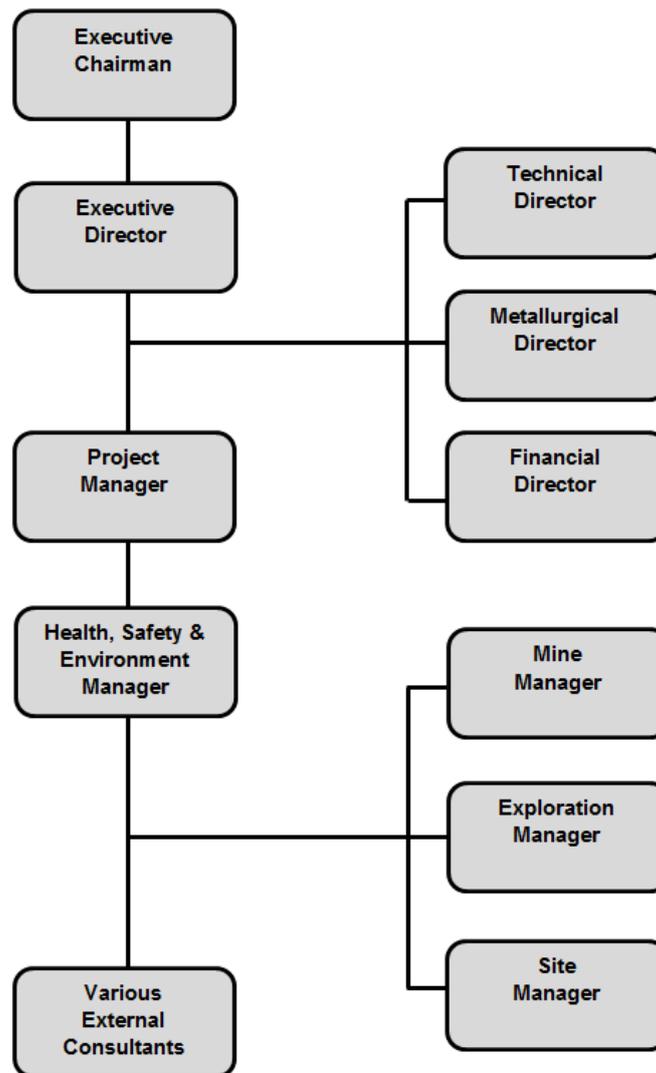


Figure 1. Sherwin management hierarchy

No: 91

Comment:

The EMS proposed in the EIS creates uncertainty about how Environmental aspects of the Project will be managed by the Company and in part due to this uncertainty it is not demonstrated in the EIS how critical feedback about environmental performance at the mine site will inform environmental policy discussion and direction when undertaken by the Sherwin Executive branch.

Response:

Sherwin is yet to develop an ISO 14001 compliant EMS but is committed to moving towards this best practice standard. Sherwin management have defined their environmental policy which includes a commitment to continual improvement and also allows for internal communication among the various levels and work areas of the company. Sherwin further commits to reviewing the Environmental Management System to ensure audit and performance results are assessed and recommendations incorporated into management, policy and procedures.

No: 92

Comment:

Reporting - The Proponent's proposed EIS relevant reporting methods and mechanism fail to demonstrate any commitment to engage with and inform key stakeholders regarding the environmental performance of the Sherwin Creek Iron Ore Project. Of key concern is the lack of any commitment in this EIS to notify key stakeholders, including traditional Aboriginal owners and local communities, as soon as practicable with regards to environmental incidents and EMP non-conformance events, the MMP is not an appropriate default reporting mechanism for EMP non-conformances. Additionally the NLC notes that in the EIS N have not committed to provide key stakeholders with copies of their annual environmental reports.

Of key concern is the lack of any commitment in this EIS to notify key stakeholders, including traditional Aboriginal owners and local communities, as soon as practicable with regards to environmental incidents and EMP non-conformance events

Due to confidentiality concerns the MMP is not an appropriate default reporting mechanism for EMP non-conformances. As a minimum the Proponent should commit to providing key stakeholders with copies of their annual environmental reports

Response:

Sherwin will notify key stakeholders, including traditional Aboriginal owners and local communities, as soon as practicable with regards to environmental incidents and EMP non-conformance events.

Companies are now required to submit an Operational Performance Report (OPR) in years 2, 3 and 4 after the submission and approval of a full Mining Management Plan. The OPR is also incorporated into the Full MMP every fourth year. The OPR is to detail all risks and performance against identified performance criteria. Trigger levels, objectives and targets must be discussed to demonstrate that the management systems on site are minimising impacts to the environment. Included in the OPR is a section specifically reporting on incidents and non-conformances. From the OPR a publicly available document (Environmental Mining Report) will be developed and will be an appropriate medium for communicating with stakeholders.

No: 93**Comment:**

Environmental Management Plans

There is insufficient documentation in the EIS to demonstrate that an ISO 14001:04 compliant environmental management system will be in place for the proposed Project. The environmental management system proposed in the EIS is ad-hoc and fails to properly explain the rationale for selecting particular management actions over alternative options. The information provided throughout this section of the EIS lacks critical information such as the scheduling of monitoring events, the setting of review dates, assigning personal responsibility and critically it often lacks contingencies that demonstrate a commitment to continual improvement.

In the Supplement EIS, the Proponent should provide additional information about what activities will be conducted under the mentioned environmental management compliance evaluation processes. The Proponent should also commitment to specific timeframes for undertaking the related compliance evaluation activities.

Response:

Sherwin will operate with an ISO14001:04 compliant EMS. The EMS and the EMP will be further updated prior to operations and submitted with the Mining Management Plan; this will have the timeframes requested.

No: 94**Comment:**

Often the stated contingency for EMP non-compliance is only a commitment to investigate why compliance is not being achieved rather than an ISO 14001:04 compliant commitments to investigate, review and implement recommended improvements. For example for the following environmental target listed in the EMP section of the EIS 'No increase in weed density or the number of weed species within the mining lease', an important environmental aspect of the Project with significant potential for negative impacts, in the case of non-conformance the stated contingency is to "Investigate why compliance is not being achieved", this below-standard format is repeated elsewhere throughout the EMP section of the EIS.

In the case of non-conformance with the EMP the Proponent should replace general statements such as 'investigate why compliance is not being achieved' with commitments to a continual improvement process and a proper description of all activities involved

Response:

Sherwin is committed to continual improvement through their EMS and EMP by investigating, reviewing and implementing recommended improvements for any non-compliance. The project will be further refined and defined prior to development of an MMP, during this process Sherwin will update both the EMS and the EMP and include information such as that requested here.

No: 95

Comment:

Many of the EMP relevant activities listed in the table under section 3.2 of Appendix D of the EIS are not properly described or otherwise lacking in critical information, for example in several instances it is written under the 'Monitoring Column' of the EMP table that 'regular monitoring activities will be conducted'. The Proponent should commit to specific monitoring regimes as the current drafting of the EIS document does not allow the reader to properly assess the adequacy of the proposed environmental monitoring program.

Response:

The EMP is a relatively high level document that summarises the detail from management plans; it is within these plans that the detail requested is found. In instances where accompanying management plans are not provided, the detail within the EMP is considered to be appropriately prescriptive at this stage of the project. Further detail will be provided and assessed through the Mining Management Plan.

No: 96

Comment:

Monitor and Review

The identified environmental monitoring tools for this project should be properly described, not listed as dot point as per the current EIS, and these descriptions should include:

- Purpose of the monitoring tool;
- Association of the monitoring tool to specific environmental aspects and related environmental outcomes (targets) of the Project;
- Activities undertaken in order to implement/utilise the monitoring tool;
- Identify personnel to conduct monitoring activity; and
- Scheduling of monitoring activities and review actions.

Response:

Monitoring tools, including responsible personnel, activities and schedules are detailed more specifically within the environmental management plans in Section 3.2.

No: 97

Comment:

The EIS identifies number of processes to evaluate compliance with the Project's Environmental Management System, however these evaluation processes are listed as dot points only, unfortunately there are no descriptions of any compliance evaluation activities and also there is no schedule of any such activities in the EIS.

The Proponent claims in the EIS that 'Sherwin measures a number of parameters against KPIs to enable it to monitor' environmental performance at the project however there is no reference to, or description of, these parameters or KPIs in the EIS to support this statement.

- Specific environmental Key Performance Indicators (KPIs) should be identified under Appendix D, Section 4.2 'Evaluation of compliance' of the Supplement EIS and these KPIs should be linked to specific EMP targets and key environmental aspects of the Project

Response:

Sherwin will operate with an ISO14001:04 compliant EMS. The EMS and the EMP will be further updated to include KPI and other required information prior to operations and submitted with the Mining Management Plan.

No: 98**Comment:**

Internal Audits

The Proponent states that 'formal [EMS] audit programs have been established' however no further information has been provided in the EIS about these how these audit programs will be conducted, monitored or reviewed. If the audit programs have already been established it is reasonable to expect that some information be provided about these programs in the EIS.

Response:

To ensure compliance with Sherwin Iron and Project requirements, formal audit programs have been established to validate whether the EMS and activities employed by Sherwin Iron and subcontractors:

- Conform to agreed/ specified requirements.
- Are suitable and effective.
- Meet statutory/regulatory obligations.
- Require improvement.
- Internal compliance audits (as determined by the HSE Manager).

Where such audits or inspections reveal non-conformance with the contract, the EMS requirements and plans and/or deficiencies in these, the project and/or contractor shall rectify such non-conformance and/or deficiencies within the time period specified by the auditing team and advise the auditing team of all actions taken to remedy non-conformance and/or deficiencies.

The EMS is to be reviewed at least annually and include all relevant internal and external EMS documentation including:

- Company policies.
- Company standards.
- Procedures.
- Supporting material.

- Legislation, Acts, Regulations, etc.

Annual self-assessments are conducted on each project and office location to establish the depth of maturity of the site Environmental Management System.

No: 99

Comment:

The environmental monitoring tools for this project should be properly described in the Supplement EIS and not listed as dot points as per the current EIS. These descriptions should include:

Purpose of the monitoring tool;

Association of the monitoring tool to specific environmental aspects and related environmental outcomes (targets) of the Project;

Activities undertaken in order to implement/utilise the monitoring tool; Identify personnel to conduct monitoring activity; and

Scheduling of monitoring activities and review actions.

Response:

Monitoring tools, including responsible personnel, activities and schedules are detailed more specifically within the environmental management plans in Section 3.2. Further detailed and prescription information will be included with the updated EMP through the MMP process.

No: 100

Comment:

The EIS would be improved if all activities listed in the EMP table under Appendix D; Section 3.2 'Environmental Management Plans' of the EIS were numbered or otherwise indexed in the Supplement EIS.

Response:

Noted. Sherwin will number activities if this is warranted in the updated EMP submitted with the MMP.

2.2.8 Department of Primary Industry and Fisheries

No: 101

Comment:

One concern with this proposal is the transportation of ore by road train to Darwin along public roads, with a plan for 50 road trains per day initially, scheduled to increase to 100 per day. This expansion in transport will have an impact on the structure and condition of both highways and significant impact on road users and flow-on effects to industries operating in the area. Sectors of the economy affected will be commercial and recreational fishing and primary industries. It is not clear how these impacts can be mitigated or offset by the proponent.

Response:

Sherwin Iron is currently in negotiations with the Northern Territory Government (NTG) regarding proposed upgrades to the Roper Highway. If Sherwin Iron wants to go above the agreed 1.5Mtpa then they will need to renegotiate the traffic management planning or develop an alternative route.

2.2.9 Department of Mines and Energy

No: 102

Comment:

Executive summary - Development Schedule

The proposed commencement of Q1 2014 may not be feasible considering Sherwin Iron will still be required to submit a Mining Management Plan for approval following the EIS process and prior to commencement of works Schedule may need to be revised to accurately reflect timing of government approvals.

Response:

Noted. Sherwin will commence operations in Q2-Q3 2014, once all of the appropriate approvals have been received.

No: 103

Comment:

1.5 Potential Future Increases - Beneficiation: Sherwin believe this low grade ore can be beneficiated to 60% Fe. Does the potential for low grade material to be beneficiated pose a risk to the proposal to dispose of waste in-pit? i.e. will in-pit waste dumps sterilise the resource? Has Sherwin considered the risk of metals leaching from low grade ore stockpiles?

Response:

There will be no sterilisation of resources as Sherwin will mine the entire shallow iron ore sequence (personal communication with Mr Tony Ryall, Exploration Manager, February 2014).

The subgrade stockpiles will have no AMD risk and thus leaching will have circumneutral pH's with very low metal concentrations. The materials (residual ore and waste rock) classifying as PAF will be separated from subgrade and managed and contained in a specially engineered PAF Cell. Reference should be made to the AMD Management Plan (see Appendix D)

No: 104

Comment:

2.55 Acid Mine Drainage - Disturbance of PAF material at the northern part of Deposit C will occur only when the pit expands from 30m to 40m below surface between years 4 and 6. Further site-specific characterisation, demarcation, prevention and remediation will commence in year 3. There are a number of PAF zones which will have to be managed in earlier years. Even if all the material is removed a management plan is required AMDAC zone 14 is on the stockpile wall.

Response:

Investigations to date indicate that there are no PAF materials likely to be encountered in the first 3 years of operations and that PAF materials will only be encountered between Years 4 and 6. However, in the unlikely event that very localised and limited PAF materials are encountered earlier than Year 3, these will be stored and provisionally capped in dedicated areas for later permanent disposal in the PAF Cell, to be constructed in Year 3 (refer AMD Management Plan; Supplementary EIS Appendix D).

No: 105

Comment:

2.8.1 Mine - Mining Types and Methods

An overview of the proposed mine design will be required to be provided in the Mining Management Plan with surveyed plans of the current status of the pit vegetation clearing and disposal

Response:

Noted.

No: 106

Comment:

2.8.1 Mine - Vegetation clearing and disposal

Areas to be cleared for mining and associated activities will be grubbed of trees and large vegetation, which will be collected and stored outside the footprint of all mining activity. Where will the proposed storage site be positioned and will there be further clearing required for access tracks and cleared vegetation piles?

Response:

Topsoil location is shown in Figure 2-9 of the Draft EIS (see Figure 2 below, topsoil stockpiles are depicted as purple boxes and labelled 1-4), these areas were included in the overall cleared area calculation (refer to Table 2-6 of the Draft EIS).

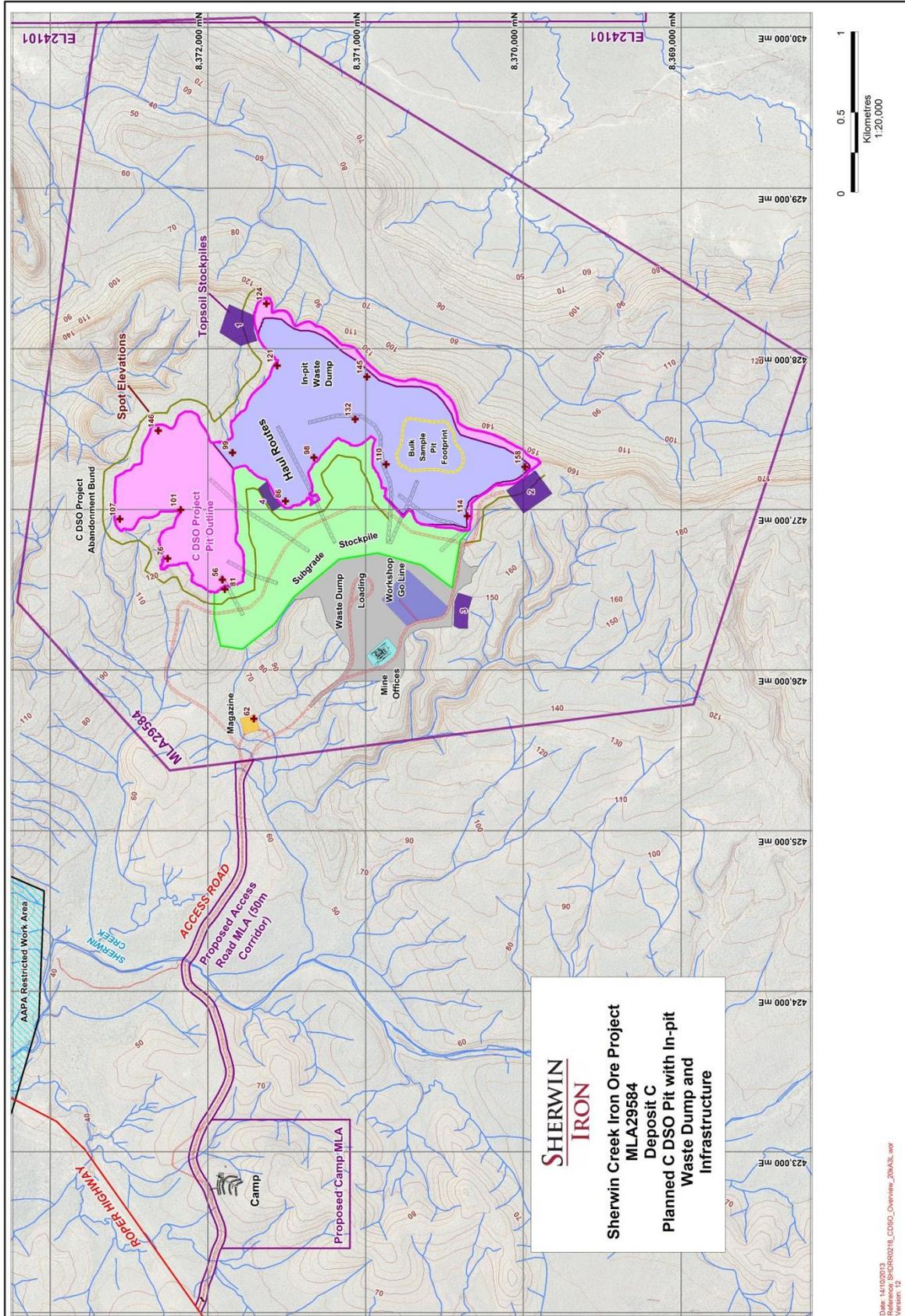


Figure 2. Map showing infrastructure at Sherwin Creek including topsoil stockpiles

No: 107

Comment:

2.8.2 Crushing Circuit - Quantities and characteristics of the product and reject streams. Only 20 drilled samples have any trace sulphurous material (0.2 - 2.0%). These intersections lay almost exclusively outside the pit perimeter. As such, no special consideration is required PAF material will be encountered in the north west of the pit in years 4-6. Details for PAF waste storage are required.

Response:

The AMD Management Plan (Supplementary EIS Appendix D) details the identification, management and treatment of PAF materials that may be encountered/disturbed during the life of the DSO project.

No: 108

Comment:

2.8.4 Water - Dust suppression

It has been identified, during exploration and bulk sampling operations, that dust is a major issue on the site. There is also a lack of available water for dust control. Polymers only reduce water use by 50% Sherwin should consider sealing all major haul roads to reduce dust emissions.

Response:

Dust is fairly localised as demonstrated by the deposition monitoring carried out near the camp. Additional dust deposition monitors will be installed around the mining area to monitor levels. It is estimated that polymers will reduce water use by 50%. If dust is identified as a serious health risk or environmental problem, then Sherwin will look into sealing the main haulage routes.

No: 109

Comment:

2.8.6 Waste management - Waste streams

A Wastewater Treatment Plant with a capacity of 50 kL/day will be installed at the accommodation village. The treated product will be suitable for reticulating throughout the accommodation village landscaping and used for dust suppression, with surplus to be stored in a Turkey's Nest next to the camp (see Figure 2-16).

Water reclaimed from sewage treatment plants are commonly high in nutrients making it unsuitable for dust suppression in areas where surface water runoff is into creeks. Sherwin should avoid using this water in areas where it can run in to waterways.

Response:

Noted. Sherwin will avoid using this water for dust suppression in areas where it could run into creeks (e.g. within 100m of a drainage line) and water quality monitoring in receiving waters will highlight any potential issues and if required, inform changes to dust suppression practices.

No: 110

Comment:

2.8.9 Closure and Rehabilitation - Staging and Timing

The sub-grade dump will be rehabilitated to a stable landform during the course of open pit mining. Should sale of this sub-grade material prove economically viable it will be sold.

In terms of revegetation and closure, what options have been considered in the event that the sub-grade material is not considered a suitable growing medium?

Response:

Sherwin commit to designing trials on rehabilitation on the subgrade stockpile within three months of commencing mining and to begin field trials during the first wet season that sufficient subgrade ore for a trial is available.

No: 111

Comment:

3.2.4 Air Emissions - Dust generated by moving vehicles and wind can have a negative effect on persons health if they breathe in this dust. The crystalline silica (quartz) component of dust from iron mining is of interest due to its potential for causing Silicosis. The inherent risk associated with exposure to emissions is high.

How is dust from blasting controlled?

Response:

The blasting carried out by Sherwin Iron is designed to 'heave' the ground rather than higher velocity blasting that is designed to shatter and break rock. The process used at Sherwin Creek lifts the ground no more than 300 mm and does not therefore create significant amounts of dust. Should the blasting techniques change for any reason, then Sherwin Iron will review the need for dust management during blasting. No blasting will be undertaken during high wind events.

No: 112

Comment:

Respirable crystalline silica monitoring will be routinely conducted to ensure exposure is within acceptable limits.

Please outline the monitoring routine as this contradicts Appendix D - Environmental Management Plan Section 3.2.9 Air and dust

Response:

The crystalline silica (quartz) component of dust from iron mining is of interest due to its potential for causing silicosis. The national recognised level (NOHSC: 1003 Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment) for crystalline silica is 0.1 mg/m³ (exposure based on an eight hour working day, five days a week). Respirable crystalline silica monitoring will be routinely conducted to ensure exposure is within acceptable limits. Levels of crystalline silica will be measured in accordance with the methodology in the Australian Standard Workplace Atmospheres – Method for Sampling and Gravimetric Determination of Respirable Dust AS2985-2004.

This standard is different to general dust sampling/monitoring as discussed in the comment 74 response.

The crystalline silica monitoring was erroneously omitted from the EMP, but will be as stated in Section 3.2.4 of the Draft EIS.

No: 113

Comment:

Appendix F-1 - 4.2.3 Groundwater levels - The groundwater resources identified to date in the vicinity of the mine site (i.e. long-term sustainable yield = 12 ML/a) are inadequate to meet the total operational requirements of the mine (i.e. 50 ML/a) From Appendix F-2; Within the mining area ground water yields are

expected to be low and consequently the hydraulic parameters of the weathered and fractured sedimentary rocks would also be low. Fracture zones, which contain secondary porosity with little storage capacity for recharge, are expected to be shallow and thus possess little potential to host significant aquifer systems.

The DME is concerned that proponent has identified a significant limitation on the project due to a lack of water available to meet the forecast requirements.

- There is a low amount of sustainable groundwater available - over extraction may have a detrimental impact on the aquifer and any dependent ecosystems. It seems unlikely that any water budget deficit can be recovered from additional groundwater bores in the area
- The volume of rainwater that will be collected in an unused section of the pit during the wet season is unknown and will be unreliable due to variable rainfall. Long term storage of water will suffer losses from evaporation and a degradation in quality due to evaporation and interaction with pit materials
- It is noted that a polymer product is planned to be used on high traffic areas to reduce the amount of water required for dust suppression, but this strategy is unlikely to address the current water deficit.
- The proposal to use water from sewage treatment as dust suppression is not sufficient to address the current deficit and risks eutrophication of local water bodies and nutrient seepage to shallow groundwater.

Response:

Sherwin acknowledges that groundwater resources identified to date in the vicinity of the mine site have a long-term sustainable yield of 12 ML/a which are inadequate to meet the total operational requirements of the mine, the revised estimate of which has been increased to 87 ML/a (refer Water Management Plan - Supplementary EIS Appendix D). However, Sherwin has initiated geophysical and hydrogeological assessments to identify suitable target areas for drilling within a 20 km radius of the mine and there appear to be promising targets to the north, south-west, south and east of the mine and in some of these areas there are existing bores with yields exceeding 1 L/s. Once this work is completed, ground geophysical surveys will follow (including the areas drilled last year for calibration purposes) followed by bore drilling, testing and water quality sampling programs. Current estimates indicate that 12 bores yielding 1 L/s each will suffice to meet the water demand and the risk to locate adequate and sustainable ground water resources for the project is considered low. Bore testing procedures and modelling will be used to ensure that bores are allocated long term sustainable abstraction rates that will ensure that there is no detrimental impact on the resource and/or the surrounding environment including groundwater dependent ecosystems.

Sherwin acknowledges that at the mine site, there is a low amount of sustainable groundwater available. However, Sherwin has determined that the long term sustainable yields (i.e. by employing appropriate hydrogeological methodology) would not lead to over-extraction which may have a detrimental impact on the aquifer and any dependent ecosystems.

Sherwin does not agree with the DME that it seems unlikely that any water budget deficit can be recovered from additional groundwater bores in the area.

The volume of rainwater that will be collected in mined out sections of the open pit during the wet season will not be relied upon to make up the shortfall but would be a preferred first source of water (i.e. when available), in order to facilitate recovery of the groundwater system.

The use of water from sewage treatment for dust suppression aims at maximising available resources. It is noted that the treatment plant will treat the water to a Class A standard and considering its small volume, is unlikely to cause eutrophication of local water bodies or nutrient seepage to shallow groundwater.

No: 114

Comment:

There is also a concern that the water requirements for this project have been severely underestimated, particularly for dust suppression. According to Table 2-I (Appendix F-1)

- 3ML/a is required in the crushing circuit and
- 17ML/a is required for dust suppression around the haul roads run of mine (ROM) / open pit

Based on the experience of the DME

- It is likely that water usage at the crushing circuit will be greater than 3ML/a
- The estimate for dust suppression on haul roads, ROM and Pit could be significantly (up to 30 times) greater than the current forecast of 17 ML/a.
- A minimum of two water carts are required for the site
- The annual water requirement for the site may be closer to 500 ML/a.

Response:

The project water requirements have been revised to 87 ML/a, based on information provided by the mining contractor currently on site during the bulk sampling program and product information pertaining to a road-base polymer. Details of assumptions and calculations are provided in a revised Water Management Plan (Supplementary EIS Appendix D).

It should be noted that:

- The crushing equipment employs the latest technology and water is applied under controlled conditions to limit the moisture content to 7 % or less due to penalties for excessive moisture in the DSO.
- Sherwin intends to apply a polymer (bitumen - product details attached to revised Water Management Plan) to the Haul Road. The suppliers of the product indicate water savings of up to 90% and provided the figures utilised in the estimate of 17 ML/a.

It should be noted that without the polymer water consumption would be 75 ML/a (i.e. 250 kL/day) for dust suppression using two water carts.

No: 115

Comment:

Dust is of special concern at this site considering crystalline silica (quartz) component of dust from iron mining is of interest due to its potential for causing Silicosis. The inherent risk associated with exposure to emissions is high (Chapter 3, Section 3.24 Air emissions). Dust is both a health and environmental hazard, and the DME has identified concerns about dust management with the operator during the bulk sample phase of this project with substantial smothering of the surrounding vegetation.

Response:

Further dust sampling will be undertaken around the mining area pre-mining and again once mining has commenced. If the results from the mining sampling event identify any issues, then Sherwin will set up a Dust Management Plan to rectify any issues with dust.

Roads with high traffic use and roads around the accommodation areas will be sealed with a dust mitigation polymer (as shown in red on Figure 2-16 of the Draft EIS and above in Figure 2), and the roads into the pits (shown in grey in Figure 2 above) will be watered with a water cart. The roads closest to vegetation would therefore be covered with a polymer and reduce dust deposition onto surrounding vegetation.

No: 116

Comment:

In order for the Assessment process to effectively evaluate the environmental impact from the project, the proponent should:

- Review the forecasts for water usage during the project

- Identify alternative sources of water to meet the deficit and supplement seasonable variability in currently identified sources
- Present the water usage and sources under scenarios for dry, average and wet years

Response:

Reference should be made to the revised Water Management Plan (Supplementary EIS Appendix B), where a rationale and assumptions for the water demand estimates are provided. Sherwin is committed to undertake further ground water exploration programs to meet the deficit in water supply.

No: 117

Comment:

Appendix F-1 - 5.1.1 Surface water monitoring – *E.coli* or faecal coliforms measurement should be included in the surface water monitoring program if Sherwin proceed with the use of treated water reclaimed from the Wastewater Treatment Plant for dust suppression on site.

Response:

The waste water quality will be routinely monitored at the wastewater treatment plant and water containing faecal coliforms will not be used for dust suppression as it will indicate a malfunction in the treatment system.

No: 118

Comment:

Appendix F-1 - 5.2.1 Water quality trigger values - In addition to the above, water discharged shall have no visible surface films, oils and greases, Total Petroleum Hydrocarbons, litter or suspended matter.

Total Petroleum Hydrocarbons should also be included in the surface and groundwater monitoring programs considering the large volume of fuel being stored on site.

Response:

Sherwin does not believe that routine monitoring of hydrocarbons (other than visual assessment) is justified, given that fuels will be stored in self-bunded tanks and procedures will be in place to track fuel volumes (i.e. identify potential leaks) and manage any minor spills during refuelling activities. However, if an incident occurs (i.e. major spill or leak), Sherwin will undertake specific sampling and analysis for hydrocarbons in surface and/or groundwaters at appropriate locations downstream.

No: 119

Comment:

Appendix F-2 - 6 Groundwater monitoring program - Frequency - Construction and operations

Depth to ground water level: monthly for the first two years to better understand the impacts of wet and dry seasons at the site, quarterly or biannually thereafter.

Considering the current dependence on groundwater for all activities on site and the low hydraulic properties of the aquifers in the area, the groundwater level should be monitored fortnightly.

Frequency - Post Closure

Depth to groundwater level: bi-annually for two years. Hydro-chemical: ground water seasonally (bi-annually) for two years.

Site monitoring will be required to continue post closure until it can be demonstrated that mining activities have left no ongoing legacy issues for the environment. This may take longer than two years.

Response:

Low hydraulic properties imply that ground water levels are unlikely to be impacted over a large scale, due to the impermeability of the terrain. Some monitoring bores will therefore be monitored at monthly frequencies whilst production bores (including nearby monitoring bores) may be monitored more frequently, pending final design of the ground water supply. Post-closure monitoring will be undertaken until it can be demonstrated that the ground water regime has returned to its pre-mining state.

No: 120

Comment:

Appendix M - Dust Report - The co-ordinates supplied for the dust monitoring locations are incorrect (the southing value is actually the easting value, and vice versa).

It appears that dust monitoring has only occurred around the proposed camp site, and that no monitoring has occurred around the actual mine itself where the dust levels are expected to be elevated.

Health concerns from dust are outlined by the proponent; crystalline silica (quartz) component of dust from iron mining is of interest due to its potential for causing silicosis. The inherent risk associated with exposure to emissions is high (Chapter 3, Section 3.24, Air emissions). The DME is also concerned that the dust generated on site can have serious impacts on surrounding vegetation via smothering and aquatic communities due to the quality of surface water contaminated by run off.

The DME has also raised concerns about dust management during the bulk sample (exploration) phase of the project with evidence of smothering on surrounding vegetation even though there was a dust cart present on site. Considering the potential impacts due to dust generation, the proponent should:

- Design and implement a dust monitoring program which includes dust deposition and volumetric air sampling in appropriate locations around the mine, ROM pad, camp site and haul roads.
- The monitoring program should adhere to standards including but not limited to:
 - As/NZS3580.11:2007: Guide to Siting Air Monitoring Equipment
 - As/NZS3580.99, 2006: Determination of Suspended Particulate Matter - PM10 Low Volume Sampler
 - NATA accredited laboratory analysis
- Design and implement a soil and sediment monitoring program to support the dust monitoring program in its assessment of the deposition and nature of the dust generated and its impacts on surrounding soils and waterways.

Response:

Sherwin Iron commit to develop a Dust Management Plan that addresses the concerns raised in this question. This plan will be submitted with the MMP.

Sherwin Iron commit to designing and implementing a soil and sediment monitoring program to support the Dust Management Plan.

No: 121

Comment:

General - It is very difficult to tell from supplied maps the exact location of proposed storage of topsoil and other infrastructure. Some appear to be on a slope and/or in a creek. Sherwin need to provide more accurate maps of the site plan including all creeks and drainage and proposed infrastructure.

Response:

Topsoil and infrastructure will be located away from slopes and creeks. Detailed maps will be included in the Mining Management Plan.

2.2.10 Environment Protection Authority

No: 122

Comment:

Acid and metalliferous drainage

The draft EIS contains contradictory information about the presence of PAF material and the risk of generating acid and metalliferous drainage (AMD). In section 2.5.5, the draft EIS indicates that further site-specific characterisation, demarcation, prevention and remediation of potentially acid forming (PAF) material will commence in year 3 following disturbance of PAF material at the north-western section of deposit C. Page 2-27 indicates that a PAF cell is not considered to be required; provision for such material would be made if it is detected. The risk assessment in Chapter 3 indicates that the risk to downstream water quality from AMD is high in the absence of appropriate mitigation measures.

Although based on the current limited sampling the residual risk of AMD may be considered moderate to low, more-detailed discussion and contingencies for such an event should be included in the EIS to allow an adequate assessment by the NT EPA of future risks, associated potential impacts and management.

Response:

Page 2-27 of the Draft EIS indicates that: 'The ore and waste to be mined from the pit have been characterised for potential AMD formation. A detailed report is located in Appendix G. Exploration drilling of several hundred holes has encountered only a very few intersections with traceable amounts of sulphurous material. These entire intersections lie either outside the perimeter of the planned pit, or below the pit floor boundary. A PAF cell is therefore not considered to be required. However, provision for containment of such material will be made in the very unlikely event that it is detected.' PAF materials are only likely to occur within a relatively small area in Year 4 as a consequence of the intrusion of dolerite between 30 m (the anticipated floor of mining in this area) and 40 m depth (mining could extend to 40 m, pending grade control). This material will be identified and managed as detailed in the AMD Management Plan (Supplementary EIS Appendix D).

No: 123

Comment:

Water supply and discharge

2.8.4 - Despite investigations of groundwater at the site, there is very little certainty that there will be adequate or sustainable groundwater supply for the project. There is very little information in the main body of the EIS to support the likelihood of a dependable water supply for the project. If there is a water supply issue, discuss how the project would satisfy its significant water requirements, including any associated impacts and management of alternatives.

The EIS indicates there will be no requirement for discharge from the site except for treated storm water. As water supply may be an issue, excess water may be required for dust suppression during dry times however it may also impede mining. Clarification is required on how excess stormwater in pits will be handled.

Response:

Sherwin has initiated geophysical and hydrogeological assessments to identify suitable target areas for drilling within a 20 km radius of the mine. There appear to be promising targets to the north, south-west; south and east of the mine and in some of these areas, there are existing bores with yields exceeding 1 L/s. Once this work is completed, ground geophysical surveys will follow (including the areas drilled in 2013 for calibration purposes) followed by bore drilling, testing and water quality sampling programs. Current estimates indicate that 12 bores yielding at least 1L/s each will be sufficient to meet the water demand and

the risk of not being able to locate adequate and sustainable ground water resources for the project is considered low. Bore testing procedures and modelling will be used to ensure that bores are allocated long term sustainable abstraction rates that will ensure that there is no detrimental impact on the resource and/or the surrounding environment.

The mined out pits will be used to store rain falling into the open pit, with diversions to direct water away from current work areas/faces. If required, mining during the wet season will retract to higher lying ground and will then continue once the lower lying areas have dried out and/or the water level receded. Discharge from the open pit has not been allowed for and is unlikely to be necessary, since there is sufficient capacity to retain all incident rainfall.

No: 124**Comment:**

Transport and Traffic Management

2.7.3 - This section indicates that the Roper Highway upgrade work, which is proposed to be completed prior to any increase in ore transport by Sherwin above 1.5 million tonnes per annum (Mtpa), does not form part of this EIS submission. Does the 'increase' in ore transport referred to include increase above current bulk sample volumes or is it an increase above the proposed volumes in this EIS? This needs to be made very clear. If there is an increase in transport volumes planned above the bulk sampling volumes (which is confirmed later in the document), explain why the highway upgrade work not be included in the EIS.

Response:

In section 2.7.3 of the Draft EIS, the increase referred to is above the 1.5Mtpa currently approved for transportation along the Roper Highway. If Sherwin Iron wants to go above the agreed 1.5Mtpa then they will need to renegotiate the traffic management planning or develop an alternative route. There will be no increase above 1.5Mtpa until a suitable option has been approved by the NTG, i.e. Sherwin will not commence operating to produce 3Mtpa until transport options are approved.

No: 125**Comment:**

2.8.1 - As above, the draft EIS indicates on page 2-20 that ore production rate would increase to 2.0Mtpa from 2014, which exceeds the currently approved annual allowance for transport tonnages on the current Roper Highway indicated above. This would suggest that either a stockpile of DSO would be required to ensure the annual allowance is not exceeded or a road upgrade is likely to be required almost immediately. If the upgrade is required for this proposal then it must be adequately assessed as part of this EIS.

Response:

Sherwin Iron will not increase the ore production rate above 1.5 Mtpa until a suitable transport option has been approved by the NTG.

No: 126**Comment:**

2.8.3 - The EIS should indicate which sections of the Roper Highway will be upgraded to dual lane. Even with dual lane, discuss the implications for traffic wishing to overtake given the convoy configuration. Paragraph 3 states that the road will be upgraded 'eventually' and paragraph 4 states '20/4'. Further on the draft EIS states that a road upgrade 'is anticipated' 'in the future'. The wording is vague and non-committal. Clarification is required.

Response:

Sherwin Iron is still in negotiations with the Northern Territory Government (NTG) regarding the proposed upgrades to the Roper Highway, when these negotiations are completed then these issues will be clarified.

No: 127

Comment:

2.8.3 - The section on transport systems and traffic management indicates convoys would be employed with average spacing's between convoys (2 hours for bulk sampling and 1 hour for an upgraded road). However, the section on traffic generated by the project indicates that there would be 30-minute intervals between road trains. Will the trucks travel in convoys or not and under what circumstances? Clarification is required.

Response:

Road trains will travel in convoy during the bulk sampling project and until the road has been upgraded and is considered safe enough for trucks to travel without escort. Convoys are expected to be between 1 and 2 hours apart.

No: 128

Comment:

On page 2-33, the draft EIS states: "Total truck requirements for 7.5 Mtpa will be four trips for 73 trucks between the mine and Mataranka".

This doesn't appear to make sense as it is assumed from the preceding text in the document that the ore would be transported from the Mine to the stockpile area at Mataranka in convoys consisting of 5 road trains. If the ore product was only transported in convoys, then this scenario of 13 'trucks' would not be able to meet the current quota of 1.5 Mtpa as the maximum number of convoys in a day would be 8.

Response:

Four trips for 13 trucks holding 100 tonnes payload equates to 1.56 Mtpa (over 300 days). These will travel in convoys of up to five trucks per convoy until the road has been upgraded.

No: 129

Comment:

The scenario of 13 trucks (assuming each truck is a quadruple trailer road train) making 4 return trips, would equate to 52 road train deliveries or 208 trailers or 5.2kt of ore product being delivered to the stockpile area each day.

However, this is only under the assumption that the ore is not being transported in convoys. This would mean that a road train is departing approximately every 25 minutes from the Mine to Mataranka under a 24/7 operation.

Response:

Convoys will travel in 5 or 6 truck maximum configurations; they will travel at a safe distance between vehicles with the front escort approximately 1km in front of the end escort.

With two convoys running they will be spaced approximately 1 hour apart, this allows for no convoys passing in opposite directions, the first convoy is loaded and ready to leave site as soon as the 2nd convoy arrives back at site and vice versa at the Mataranka stockpile, they will do two return trips each 12 hr. shift.

No: 130

Comment:

3.2.6 - This section indicates that the risk of traffic collision is extreme. One of the key issues identified is the possibility of interaction with non-mine traffic on the public road network. Given that the Roper Highway is single lane and there will be quad trucks travelling both ways, it would seem that this particular risk should be targeted for mitigation in the short term. The only mitigation proposed does not appear adequate. Discuss the mitigation of traffic risks in detail considering the likely non-mine users of the road. Provide clear justification for downgrading the risk of traffic collision on the Roper Highway from extreme to high.

Response:

Management recommendations are provided in Appendix L of the Draft EIS. Sherwin has acknowledged that this is an extreme risk and would remain so without mitigation. With the proposed management the occurrence of incidents will be reduced; however, the risk still remains high. It is important to note that by being a high risk even post mitigation, that it will receive the appropriate level of management.

No: 131

Comment:

Appendix L – Traffic Management

This Appendix does not support the main body of the EIS text in some regards. For example, there are mixed messages about whether the Roper Highway will be sealed in two lanes in its entirety or just certain sections slightly modified to allow passing. Provide clear discussion of the intent and timing in relation to proposed mining activities.

Response:

Sherwin have received approval to transport 1.5 Mtpa along the Roper Highway; however, discussions are still underway regarding the proposal to upgrade the road.

No: 132

Comment:

The Introduction indicates that Phase 2 will involve transport of 1 000 000t/a on the public road network for a maximum of two years and that Phase 3 of the Project would involve 3 000 000t/a ore to be transported off the public road network to a railhead and then to Darwin, with another 7 000 000t/a from the Gulf of Carpentaria. This is problematic as the main document indicates the project will continue for approximately 6 years and Sherwin Iron considers that Phase 3 is not part of the assessment. This needs to be clarified.

Response:

When the Traffic Management Report was commissioned Sherwin had developed a suite of phases for the project. Further project planning modified the project to that which is presented in the EIS. The reference to 7 Mtpa should be ignored.

No: 133

Comment:

A transport coordinator is proposed to be used to coordinate mine traffic.

Describe how the Proponent intends to ensure that all requirements of traffic management arising from the assessment are transferred to the traffic contractor as requirements.

Response:

The MMP will contain a suite of commitments including committing Sherwin to ensure that the Transport Coordinator will implement all requirements of the highway use agreement.

No: 134

Comment:

The Appendix indicates that convoys will contain only four quadruple road trains; in EIS chapter two it is five. See previous comments on road train numbers, convoys and configurations.

Response:

Convoys will travel in 5 or 6 truck maximum configurations; they will travel at a safe distance between vehicles with the front escort approximately 1km in front of the end escort. With two convoys running they will be spaced approximately 1 hour apart.

No: 135

Comment:

Authorisation for more than one bulk sampling has been given, which would appear to extend phase one beyond that given in the Appendix. Again, this needs to be clarified.

Response:

The Traffic Management Report (TMR) was written during the early phase of development and it has changed since then, please refer to the Draft EIS for the correct phase timing.

No: 136

Comment:

100km/hr. speed limits seem excessive for such large, heavy vehicles on such a narrow road, particularly if there is oncoming traffic. Is there any intent to curb speed limits for heavy mine traffic or ensure speeds are reduced with approaching traffic?

Response:

The speed limit for heavy vehicles travelling along the Roper Highway is 80 km/hr. as stated in the EIS (refer to Chapter 3.4.1 of the Draft EIS and Chapter 3.2.4 of Appendix D of the Draft EIS).

No: 137

Comment:

Further detail needs to be provided regarding the risk of vehicle strike to fauna along the haul roads and Roper Highway as the proposed increase in vehicle movements along the Roper Highway is substantial. Information regarding the EPBC-listed mammal species potentially impacted along the transportation route, the nature of any impacts and proposed mitigation measures must be provided. This assessment should include the Greater Bilby (*Macrotis lagotis*), Northern Brush-tailed Phascogale (*Phascogale pirata*), Brush-tailed Rabbit-rat (*Conilurus penicillatus*) and the Northern Quoll (*Dasyurus hallucatus*).

Response:

As discussed in both Chapter 3 of the Draft EIS and Chapter 3 of the EMP (Appendix D of the Draft EIS) vehicle speeds will be limited to a maximum of 80 km/hr. and where practicable travel will be avoided during periods of peak fauna activity (e.g. sunrise/sunset, night-time). Dead animals will be removed from mine roads to reduce the likelihood of additional kills of scavenging animals.

No: 138

Comment:

It is acknowledged that risk assessment methodology is subjective, however, in most cases, there does not appear to be justification for the level to which residual risks are modified from inherent risks following listing

of controls in this section. This makes the assessment more subjective than it otherwise could be and leaves the reader with no comfort that the risks have been appropriately rated and can therefore be appropriately managed.

Response:

The nature of risk assessment is necessarily subjective, the consequence, likelihood and intensity of hazards is very much open to interpretation. Notwithstanding this shortcoming the risk assessment process is an extraordinarily useful template to tease apart and discuss the hazards and their impacts and to allow for a structured discussion on mitigation for each hazard. Importantly the mitigation programs that follow from this process have a monitoring program to ensure ongoing effectiveness. We believe that sufficient information is presented for the reader to understand the risk ratings (both inherent and residual) and the associated mitigation strategy. For many hazards, particularly those that are complex to manage, a management plan is associated with them as either part of the Draft EIS (as an appendix) or committed to being developed later.

No: 139

Comment:

In order to be able to assess the impacts to the Gouldian Finch (*Erythrura gouldiae*), Northern Quoll (*Dasyurus hallucatus*) and Crested Shrike-tit (northern) (*Falcunculus frontatus whitei*) from the clearance/disturbance of habitat, the extent and quality of suitable habitat for the above species in the area to be cleared/disturbed needs to be quantified and put into the context of the surrounding area. The extent and quality of habitat in the surrounding area should also be quantified.

Response:

Refer to comment 140 for the Gouldian Finch and 141 for the Northern Quoll. The Crested Shrike-tit has not been recorded on the Sherwin Iron leases during extensive bird surveys. The closest records to Deposit C are from near Borroloola, where it was first recorded in 1913. Despite extensive surveys for mining development in the region no recent records exist for this species. The Crested Shrike-tit inhabits woodland habitat. The total area of woodland to be cleared, 350 ha for the proposed development at Deposit C, is negligible in the regional context for this habitat type. This, combined with the lack of records close to the project area, suggests that the species will not be found at Deposit C and consequently will not be deleteriously impacted by the project. Therefore Sherwin Iron has concluded that habitat may exist for this species within the area, but the species is not found there anymore.

No: 140

Comment:

For the Gouldian Finch, an assessment of suitable habitat should take into consideration breeding trees, proximity to waterholes, wet season foraging habitat and dry season foraging habitat.

Response:

One species focused on in field surveys was the Gouldian Finch, a species recorded from the bioregion. There was an extensive multi-season fauna survey that failed to find the species. Gouldian Finches are obligate drinkers and consequently only nest and forage within 10 km of a water source. During the late dry season when there are only a few remnant puddles of water near Deposit C, three motion-activated camera traps were set up at an isolated billabong along Sherwin Creek from September 18 - October 10, 2013. These camera traps were set up to observe whether Gouldian Finch (*Erythrura gouldiae*) occurred in the area as these were the only available waterholes. No Gouldian Finches were captured by these remote cameras. Therefore it has been concluded that the species does not use this area.

No: 141

Comment:

For the Northern Quoll, it should be noted that the 'EPBC Act referral guidelines for the endangered Northern Quoll (*Dasyurus hallucatus*)' states that: "Where denning/shelter habitat occurs within the modelled distribution of the species, it is considered habitat critical to the survival of the species.

Habitat critical to the survival of the Northern Quoll occurs in three forms across the species range which includes:

- Rocky habitats such as ranges, escarpments, mesas, ranges, gorges, breakaways, boulder fields, major drainage lines or treed creek lines
- Structurally diverse woodland or forest areas containing large diameter trees, termite mounds or hollow logs
- Offshore islands where the northern quoll is known to exist"

Therefore the assessment of habitat to be cleared or disturbed should take such habitat into consideration.

Response:

No signs or evidence of Northern Quolls were detected during recent surveys and there are no records of the species since Cane Toad arrival. Woinarski *et al.* (2008) identified that Northern Quoll populations were more persistent in higher altitude sites with steeper slopes, shallower soils, and large rocks, boulders and outcrops. This may be due to fewer disturbances by fire, as well as lower Cane Toad abundances in these drier habitats. Gorge and escarpment habitat occurs within Deposit C; however, these areas would not be sufficiently high or steep to exclude cane toads. Surveys throughout the Sherwin Iron Leases confirmed the presence of Cane Toads at every site, except Deposit X. It is possible that the proposed project area once supported populations of Northern Quoll, but they are now locally extinct. Therefore it is unlikely that the proposed development will impact on this species. Therefore Sherwin Iron has concluded that no suitable cane toad free habitat exists for this species within the area, and most likely the greater bioregion.

No: 142

Comment:

An assessment of the potential impacts to the aforementioned species should be undertaken, taking into consideration the quantified extent of clearance/disturbance, the regional context of the species, the risk of direct mortality from clearance (including direct mortality of eggs or chicks), the loss of habitat (in particular nesting trees or denning habitat) and fragmentation of habitat. Mitigation measures to reduce the risk of these impacts should be provided.

Response:

As noted in the Draft EIS, there are no threatened EPBC or TPWC species present at Deposit C (refer to Appendix H of the Draft EIS). The impacts of clearing at Deposit C have been assessed as low following mitigation measures (refer to Chapter 3, Table 3-6 of the Draft EIS). All areas to be cleared will be delineated prior to the clearing operations. This ensures that areas to be cleared are restricted to the minimum required (refer to Appendix D, Table 3.2.4 of the Draft EIS). In addition all clearing will be done during the mornings and not during rain events, in order to minimise direct mortality (Refer to Appendix D, Table 3.2.4 of the Draft EIS).

No: 143

Comment:

The draft EIS states that suitable nesting habitat for the White-bellied Sea Eagle (*Haliaeetus leucogaster*) is not found at Deposit C and therefore further consideration of the species is not warranted. Further detail should be provided to justify this statement.

Response:

The White-bellied Sea-eagle usually nests in mature forests within 5 km of the coast, estuaries or large inland lakes (DPIW 2006). No large water bodies occur within 5 km of Deposit C. The only surface water within Deposit C occurs at Sherwin Creek, an ephemeral system that ceases to flow at the end of the dry season. Sherwin Creek is not of sufficient size to constitute foraging or nesting habitat for White-bellied Sea-eagle. Suitable nesting and foraging habitat for the species occur along the Roper River, which is approximately 10 km from Deposit C. The species will therefore not be deleteriously impacted by the development.

No: 144

Comment:

Confirm that the Derby White-browed Robin (*Poecilodryas superciliosa cerviniventris*) is not present in the project area, noting that the Buff-sided Robin (*Poecilodryas cerviniventris*) is not listed under the EPBC Act as threatened or migratory.

Response:

The species was originally listed under the EPBC Act as *Poecilodryas superciliosa cerviniventris* (Derby White-browed Robin). Christidis & Boles (2008) subsequently elevated this subspecies to the species *P. cerviniventris* (northern Australia) which is present within the project area. This species is not considered threatened under NT legislation and is no longer listed as Threatened or Migratory under the EPBC Act, as the subspecies *P. superciliosa cerviniventris* was delisted from the EPBC Act on the 26/11/2013.

No: 145

Comment:

Freshwater Sawfish - As the Freshwater Sawfish (*Pristis microdon*) is known to occur in the Roper catchment, an assessment of impacts to the Freshwater Sawfish from the proposal is required. This assessment should include consideration of:

- Changes to water quality from Acid Mine Drainage and turbidity;
- Changes to hydrology from modification/removal of drainage lines and waterway crossings, as sawfish may use Sherwin Creek to return to Roper River after a wet season/flood event;
- Impacts to Sherwin Creek and Roper River, particularly refuge pools during the dry season as a result of groundwater use by the mine, as Sherwin Creek appears to interact with and be supplemented by groundwater; and
- Any proposed mitigation measures to mitigate the above impacts.

Response:

Changes to water quality from acid mine drainage (AMD) and turbidity:

As outlined in the AMD Baseline Assessment (Draft EIS Appendix G), given the relatively small quantities of potentially acid-forming materials (PAF) likely to be encountered in this project and absence of groundwater influx to the mine pit, the likelihood of significant AMD-generation is relatively low. Furthermore, the proposed mitigation measures outlined in Section 3.3.2 of the Draft EIS reduce the risk of AMD impacting on downstream water quality to a low level. An AMD Management Plan has also been compiled and submitted as part of the Supplementary EIS (refer to Appendix D).

As outlined in Section 3.3.2 of the Draft EIS, measures to address potential increases in turbidity as a result of mining activities will include the construction of sediment basins in key areas, to enable adequate settling of suspended materials prior to use or discharge. Wherever possible, any discharge points will be located so that water flows into relatively flat, vegetated areas rather than directly into drainage lines. It is expected that this will result in a low risk of elevated turbidity in downstream waterways.

Potential changes to hydrology from modification/removal of drainage lines and waterway crossings:

As outlined in Section 3.3.1 of the Draft EIS, drainage lines that may be removed/modified are located at the top of their respective catchments and therefore the risk of significant modification to downstream hydrology are considered low. Sherwin Creek is a relatively small intermittent stream and the entire proposed disturbance footprint of the mine site occupies only 3.6 % of the Sherwin Creek catchment.

As outlined in Section 3.3.1 of the Draft EIS, to minimise the potential risks of alteration to surface water flows associated with the road crossing of Sherwin Creek and other minor drainage lines, their design and construction will incorporate appropriate engineering principles and natural flows will be maintained at all times. Construction will be cognisant of fish passage principles. The risk of impacts to any fish is therefore considered to be low.

Potential impacts to Sherwin Creek and Roper River (e.g. refuge pools during the dry season) and groundwater influence on Sherwin Creek:

As outlined in the Aquatic Fauna Report (Draft EIS Appendix H3), an assessment of dry season pools at Sherwin Creek found them to be unsuitable habitat for Freshwater Sawfish, as they were too shallow (i.e. < 1m deep), incorrect substrate type (i.e. rocky rather than fine silt or sand) and not permanent.

Given that there were no permanent pools observed in Sherwin Creek in the vicinity of the mine site (i.e. it dries completely), there is no evidence to suggest that there are any groundwater-dependent ecosystems. There is very little groundwater in the vicinity of the mine site, as indicated in the Baseline Groundwater Assessment (Draft EIS Appendix F2). Whilst it was suggested in the Water Management Plan (Draft EIS Appendix F1) that the lower reaches of Sherwin Creek appear to be influenced by groundwater, there is no evidence to suggest that there is connectivity in the limited groundwater in the vicinity of the mine site and aquifers closer to the Roper River.

It is noted that the assessment of low potential impacts on Freshwater Sawfish in the Draft EIS was supported by the Department of Land Resource Management, who stated that:

“Sherwin Creek does not provide habitat for a diverse fish assemblage and is very unlikely to provide habitat for significant species such as Freshwater Sawfish. The claims made in the report are valid and reasonable.”

No: 146

Comment:

Offsets – Without further detail on the clearance/disturbance impacts and the transport related impacts it is possible that impacts to the above species could be considered significant and that offsets would therefore be required. Further certainty regarding the importance of the area for the species and mitigation measure effectiveness should be provided, or offsets in accordance with the EPBC Act Environmental Offsets Policy, October 2012 should be proposed.

Response:

The only unavoidable impact identified during the preparation of the EIS is the clearing of native vegetation. Most of the vegetation types being cleared for this development are open eucalypt woodland which is common and widespread across the region (EIS Appendix H2); the area being cleared (approximately 350 ha) is negligible in the regional context for this habitat type. In addition, a small portion of the gorge habitat would be cleared as part of this project; none of the habitats to be cleared are considered "significant" under the EPBC Act as they do not support any federally listed species. Therefore, Sherwin Iron is not expected to be required to offset against the clearing of these habitats.

No: 147

Comment:

Surveys - In Appendix H1 Table 1, the details regarding the Mt Scott survey sites are absent. These should be included.

Response:

At the time of the submission of the Draft EIS, the Mount Scott Survey Report has not been finalised. No listed threatened *Territory Parks and Wildlife Act* (TPWC), or *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC) species were found during the surveys at Mount Scott.

No: 148

Comment:

Cumulative Impacts - It is noted in the draft EIS that the mining of Deposit C is likely to be the first stage in the development of a much larger project (Section 3.9.1). An assessment of the likely cumulative impacts to EPBC listed-species as a result of habitat clearance and/or degradation and from vehicle strike taking into consideration the potential much larger project should be provided.

The cumulative impacts of increased truck movements from this project in conjunction with other projects transporting product along the Stuart Highway, particularly through the town of Katherine, should be discussed.

Response:

The larger project is conceptual and may not proceed, consequently no details of this project are available to be considered or assessed. If and when these details are available they will be considered in a subsequent environmental approvals process that will-and must-consider the broader process.

3 New commitments from the SEIS

Below are commitments made during this supplementary EIS process; a full list of commitments (including these 'new' commitments and those from the Draft EIS) are given in Supplementary EIS (SEIS) Appendix C.

Component	Aspect/Impact	Commitment/Safeguard	Section in SEIS
Erosion and sediment control	Erosion and sediment control design	An updated ESCP will be submitted prior to construction and will include further detail on ESC. Works will be carried out by a Certified Professional in Erosion Control and all hydrological design calculations will be reviewed by a suitably qualified engineer.	Section 2.2.1 & 2.2.3
Dust Management	Generation of dust	Sherwin Iron commits to develop a Dust Management Plan. This plan will be submitted with the MMP.	Section 2.2.7 & 2.2.9
Dust Management	Generation of dust	Roads with high traffic use and roads around the accommodation areas (as shown in red on Figure 2-16 of Chapter 2 Project Description) will be sealed with a dust mitigation polymer, and the roads into the pits (shown in grey) will be watered with a water cart. The roads closest to vegetation would therefore be covered with a polymer and reduce dust deposition onto surrounding vegetation.	Section 2.2.9
Dust Management	Soil and sediment monitoring	Sherwin Iron commit to designing and implementing a soil and sediment monitoring program to support the Dust Management Plan	Section 2.2.9
Dust Management	Sediment laden runoff	Sherwin will avoid using recycled waste water for dust suppression in areas where it could run into creeks	Section 2.2.9
Transport	Road safety	Sherwin will conduct a condition survey of the length of the Roper Highway, including shoulders, prior to commencement of any haulage as part of an increase in tonnage above 1.5Mtpa.	Section 2.2.7
Transport	Road safety	The condition survey is to be undertaken before the end of the bulk sampling phase	Section 2.2.7
Transport	Road safety	The MMP will contain a suite of commitments including committing Sherwin to ensure that the Transport Coordinator will implement all requirements of the highway use agreement.	Section 2.2.10
Pest and weed	Communicating risk of weed or pest spread in the region	Sherwin commit to informing neighbours within 7 days if new pests or weeds are identified on site.	Section 2.2.5 & 2.2.7
Pest and weed	Spread of weeds	Sherwin commit to installing a wash down facility, specifically designed and located to prevent the spread of weeds, before the onset of mining.	Section 2.2.5

Component	Aspect/Impact	Commitment/Safeguard	Section in SEIS
Pest and weed	Weed control	Sherwin reaffirm their commit to carrying out annual weed control and specify that this will be done at least annually at the end of the wet season.	Section 2.2.3, 2.2.5 & 2.2.7
Rehab and closure	Development of rehabilitation trials	Sherwin commit to beginning rehabilitation trials during 2014. An experimental design for trials will be developed within three months of the commencement of mining. Field trials will begin during the 2014/15 wet season. The trial design will simulate soil, substrate and slope conditions likely to be encountered during future rehabilitation.	Section 2.2.3, 2.2.5 & 2.2.7
Rehab and closure	Waste management	Waste management will be as per previous commitments. It is considered inappropriate to set exact timeframes for activities, however waste removal will be done in a timely manner as required to maintain a high standard of housekeeping.	Section 2.2.7
Rehab and closure	Weed monitoring	Sherwin reaffirm their commitment to annual monitoring of weeds and specify that the commitment to control declared weeds will be undertaken annually after the wet season. This applies to all areas of the lease including rehabilitation areas.	Section 2.2.7
Rehab and closure	Development of closure criteria	Sherwin commit to develop closure criteria during the first year of operation.	Section 2.2.7
Surface water and groundwater	Management of PAF	Sherwin commits to ongoing site-specific characterisation and appropriate management of any potentially acid-forming (PAF) materials encountered during mining, in accordance with the most recent Acid Mine Drainage Management Plan. Management measures will include (but are not limited to) appropriate segregation and storage/disposal to prevent interaction with water, particularly rainfall.	Section 2.2.7
Surface water and groundwater	Environmental monitoring bores	Sherwin commits to determining appropriate locations for additional environmental monitoring bores as part of the Mining Management Plan approval process.	Section 2.2.7
Surface water and groundwater	Sustainable extraction	Sherwin commits to defining adequate sustainable ground water resources that will be appropriately managed to prevent over-exploitation and/or depletion.	Section 2.2.7
Surface water and groundwater	Management of potable water	Sherwin will ensure that appropriate disinfection systems for potable water are installed. Separate systems will be installed at the camp and mine site. In addition, potable water at the mine site will be obtained from water bottle dispensers.	Section 2.2.2
Surface water and groundwater	Waste water treatment and recycling	Sherwin will ensure that the DoH Environmental Health Branch is consulted prior to installation of waste water treatment and recycling facilities on site.	Section 2.2.2

Component	Aspect/Impact	Commitment/Safeguard	Section in SEIS
Environmental management	Continual review and update of relevant plans	Sherwin is committed to continual improvement through their EMS and EMP by investigating, reviewing and implementing recommended improvements for any non-compliance. The project will be further refined and defined prior to development of an MMP, during this process Sherwin will update both the EMS and the EMP and include information resulting from the EIS approvals process.	Section 2.2.7
Environmental management	Continual review and update of relevant plans	Sherwin is yet to develop an ISO 14001 compliant EMS but is committed to moving towards this best practice standard. Sherwin further commits to reviewing the Environmental Management System to ensure audit and performance results are assessed and recommendations incorporated into management, policy and procedures.	Section 2.2.7
Environmental management	Managing non-conformance	Sherwin will notify key stakeholders, including traditional Aboriginal owners and local communities, as soon as practicable with regards to environmental incidents and EMP non-conformance events.	Section 2.2.7
Infrastructure design	Fish passage	Any upgrades to road infrastructure, bridges, crossings or flood ways are to comply with general principles in: Kapitzke 2010 <i>Culvert Fishway Planning and Design Guidelines</i> and Fairfull & Witheridge 2003 <i>Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings</i> .	Section 2.2.1
Socio-economic	Adaptive management and consultation	Sherwin Iron commit to complying with and implementing the Provisional Social Impact Management Plan (Appendix K1 of the EIS), The Social and Economic Impact Assessment (Appendix K2 of the EIS) and The Stakeholder Consultation Report (Appendix K3 of the EIS)	Section 2.2.7
Socio-economic	Managing non-conformance	Sherwin will notify key stakeholders, including traditional Aboriginal owners and local communities, as soon as practicable with regards to environmental incidents and EMP non-conformance events.	Section 2.2.7

4 Acronyms

AFANT	Amateur Fishermen's Association of the Northern Territory
AIR	Australian Ilmenite Resources
AMD	Acid and metalliferous drainage
ARENA	Australian Renewable Energy Agency
DLRM	Department of Land Resource Management
DME	Department of Mines and Energy
DoH	Department of Health
DSO	Direct shipping ore
ECNT	Environment Centre NT
EIS	Environmental Impact Statement
EPBC	Environment Protection and Biodiversity Conservation Act
ESCP	Erosion and Sediment Control Plan
ESD	Ecologically sustainable development
IECA	International erosion control association
MMP	Mining Management Plan
Mtpa	Million tonnes per annum
NLC	Northern Land Council
NOI	Notice of intent
NORM	Naturally occurring radioactive material
NT	Northern Territory
NTG	Northern Territory Government
NTEPA	Northern Territory Environmental Protection Authority
PV	Photovoltaic
ROM	Run of mine
SEIS	Supplementary Environmental Impact Statement
UV	Ultraviolet
WCD	Water catchment district
WMP	Water Management Plan

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