Annual Environmental Compliance Report February 2013/February 2014

MAIN DOCUMENT

REV.	DATE	DESCRIPTION	COMMENTS
00	04-MAR-2014	Issue for Construction	

ATTACHMENTS

DOCUMENT CODE	DESCRIPTION	REV.
2-250-329-REP-TRE-8055-att01	Environmental Incidents	0

Doc. Category: 3

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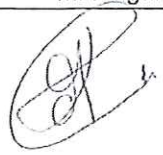			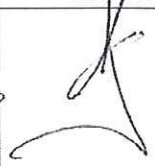

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ABBREVIATIONS

ADS:	Ambient Dust precipitation sampler.
ALARP:	As Low As Reasonably Practicable.
AN:	Ammonium Nitrate.
BIE:	Burrup Industrial Estate.
BFPL:	Burrup Fertilisers Pty Ltd.
BMP:	Biosecurity Management Plan.
BRM:	Biosecurity Risk material.
CAQMP:	Construction Air Quality Management Plan.
CWQMP:	Construction Water Quality Management Plan.
CAP:	Compliance Assessment Plan.
CAR:	Compliance Assessment Report.
CEMP:	Construction Environmental Management Plan.
CNMP:	Construction Noise Management Plan.
CEO:	Chief Executive Officer.
CESMP:	Erosion Control and Stormwater Management Plan.
CTFMP:	Construction Terrestrial Fauna management plan.
CTFVMP:	Construction Terrestrial Flora and Vegetation Management Plan.
CSIRO:	Commonwealth Scientific and Industrial Research Organisation.
CWMP:	Construction Weed Management Plan.
CWTH:	Commonwealth.
DEC:	Department of Environment and Conservation.
DoE:	Department of Environmental Protection.
DRF:	Declared Rare Flora.
EO:	Environmental officer.
EPA:	Environmental Protection Authority
EPBC:	Environment Protection and Biodiversity Conservation Act 1999.
EPC:	Engineering, Procurement and Construction.
ERMP:	Emergency Response Management Plan.
GME:	Groundwater monitoring events.

Ha:	Hectare.
HMMP:	Hazardous Material Management Plan.
HO:	Head Office.
HSE:	Health, Safety and Environment.
IPMP:	Integrated Pest Management plan.
JHA:	Job Hazard Analysis.
Km:	Kilometer.
LNG:	Liquified Natural Gas.
MOM:	Minute of meeting.
MSDS:	Material Safety Data Sheet.
MTPD:	Metric Tons Per Day.
NA:	Nitric Acid.
NDT:	No destructive test.
NEPM:	National Environmental Protection Measure.
NSW:	New South Wales.
OEMP:	Operational Environmental Management Plan.
OEPA:	Office of the Environmental Protection Authority.
PER:	Public Environmental Review.
PPE:	Personnel Protective Equipment.
PM_{10}:	Particulate Matter up to 10 micrometers in size.
PVC:	Poly vinyl chloride.
TAN:	Technical Ammonium Nitrate.
TANPF:	Technical Ammonium Nitrate Production Facility.
TDS:	Total dissolved solids.
TEOM:	Tapered element oscillating microbalance analyser.
TPA:	Tonnes Per Annum.
TRSA:	Tecnicas Reunidas S.A.
TSP:	Total Suspended Particulates.
TSS:	Total suspended solids.
SEWPaC:	Commonwealth Department of Sustainability, Environment, Water, Population and Communities.
VOCs:	Volatile Organic Compounds.
WA:	Western Australia.
YPNPL:	Yara Pilbara Nitrates Pty Ltd.

1. INTRODUCTION

1.1 Project approvals

Yara Pilbara Nitrates Pty Ltd (YPNPL) is constructing a Technical Ammonium Nitrate Production Facility (TANPF) with a production capacity of (circa) 350,000 TPA or 915 MTPD of Technical Ammonium Nitrate (TAN). The project was assessed under Environmental Protection Act, Part V (1986) and approved by Government of Western Australia Department of Environment Regulation on the 25th July 2013 (Works approval number: W4701/20101).

TANPF is also subjected to the Conditions of Ministerial Statement No. 870 (including schedule 1) published on 7th July 2011 (report of the Environmental Protection Authority: 1379). YPNPL must ensure its compliance by means of recording and documenting a Compliance Assessment Report (CAR) in accordance with the Compliance Assessment Plan (CAP) approved on 23rd August 2012.

A Works approval was also made under sections 130 (1) and 133 of the Environment Protection and Biodiversity Conservation Act 1999 *(EPBC)* by Australian Government Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) on the 14th September 2011 (EPBC Act referral 2008/4546).

EPBC 2008/4546 requires annual demonstration of compliance with the environmental commitments under condition 3, Compliance report:

Within three months of every 12 month anniversary of the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans and monitoring programs as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published.

This Annual Environmental Compliance Report, covering the period of 17th February 2013 to 17th February 2014 is submitted by YPNPL as a requirement of condition 3 under EPBC.

1.2 Scope of Annual Environmental Compliance Report

A Construction Environmental Management Plan (CEMP) has also been developed under condition 7a of EPBC Act referral 2008/4546. CEMP was developed in different attachments as specific Management Plans to ensure environmental protection along all phases of the TAN Burrup project execution. CEMP was approved by SEWPaC on 22nd November 2012 (Letter reference: 2012/08279). Section 4.4.2 of CEMP also includes the development of an Annual Compliance Report including all relevant environmental issues as applicable.

This annual report represents the first compliance report, which is submitted in compliance with condition 3 of EPBC Act referral 2008/4546 and section 4.4.2 of CEMP for the construction activities that have been undertaken to date. The report covers:

- an overview of the progress of the project;
- changes to project footprint;
- variation to conditions attached to work approval 2008/4546;
- the existing environmental management plans and environmental management systems;
- overall outcomes of environmental audits carried out on 2013/2014;
- environmental incidents recorded during this period;
- current status of compliance with Conditions and commitments of the EPBC Act referral 2008/4546, Ministerial Statement No. 870 and CEMP monitoring actions and activities, relevant to the current phase of the project;
- summary report for each of the environmental issues part of the CEMP; Air Quality, Water, Erosion Control and Stormwater, Waste, Traffic, Blasting, Noise, Terrestrial Fauna, Terrestrial Vegetation and Flora, Weeds and Integrated Pest Management Plan.

1.3 Project description

The project comprises a turnkey delivery of the TAN Burrup plant facilities, which will contain three major process units, each producing a separate product in the manufacturing process:

- A Nitric Acid (NA) plant to convert ammonia and atmospheric air into Nitric Acid (NA). The NA unit with capacity of 760 metric ton per day (MTPD) as 100% weight (wt).
- An Ammonium Nitrate (AN) Solution plant to convert ammonia and NA into AN solution. This Ammonium Nitrate wet section with capacity of 965 MTPD in balance with nitric acid production capacity level.
- A TAN plant to convert AN solution into TAN prills (final product). This is a dry section for production of Technical Ammonium Nitrate prills (0.7 and 0.8 kg/l density) with a capacity of 915 MTPD. Surplus ammonium nitrate solution shall be sold as hot liquid.

In addition to these three plants, other facilities are required as part of the project and include:

- Storage, loading and transport facilities:
  - Liquid Ammonia pipeline between TANPF and YPNPL plants.
  - Bulk and Bagged TAN storage buildings.
  - Bulk loading system, bagging unit, truck loading.
  - Storage for intermediate product (nitric acid) and finished products: 12000 tons bulk storage, 1800 tons storage for big bags, 500 tons storage for ammonium nitrate solution.
- Required off-sites.
- Necessary infrastructure.

The main feedstock, ammonia, shall be delivered from the adjacent ammonia plant.

Figure 1: Overall plot plan.

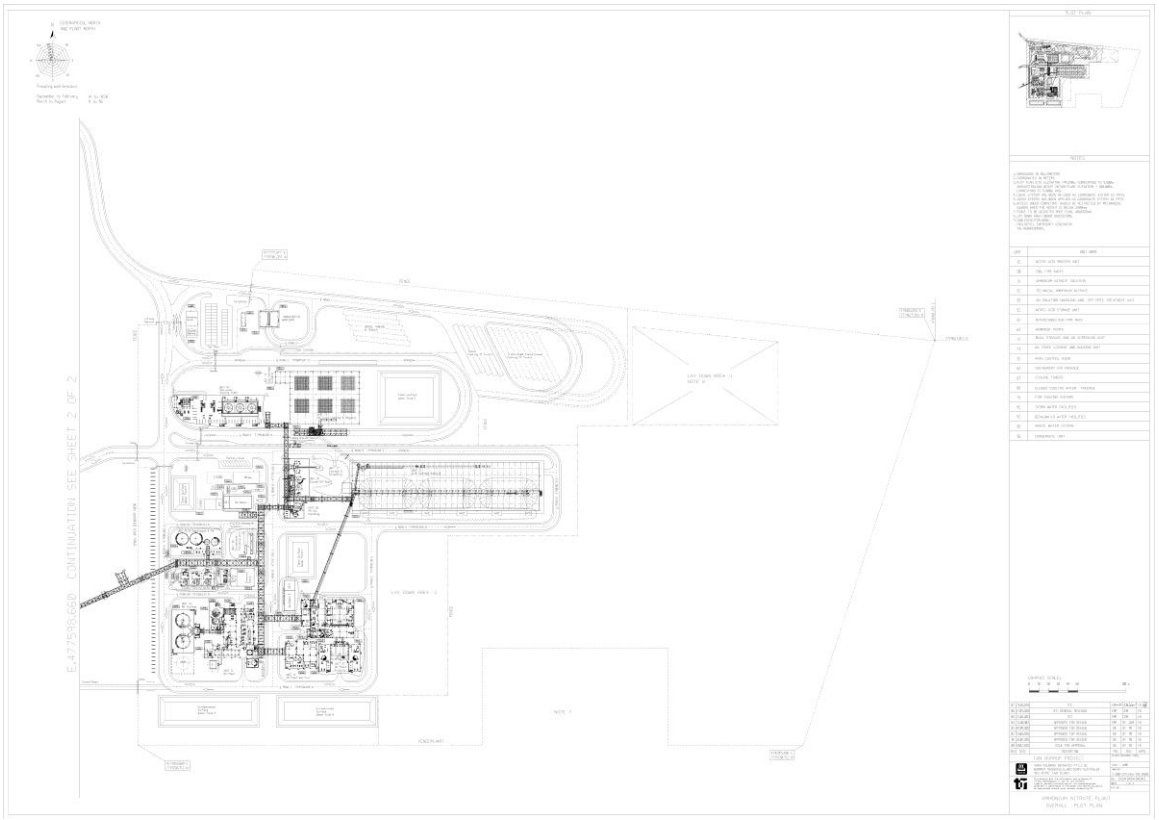
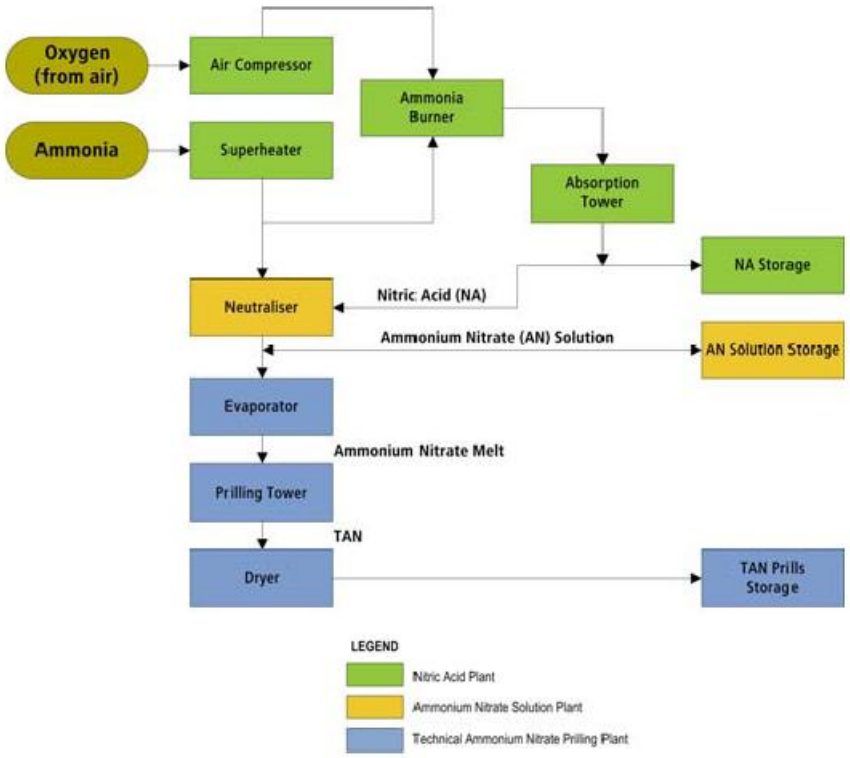


Figure 2: Process Flow Diagram.

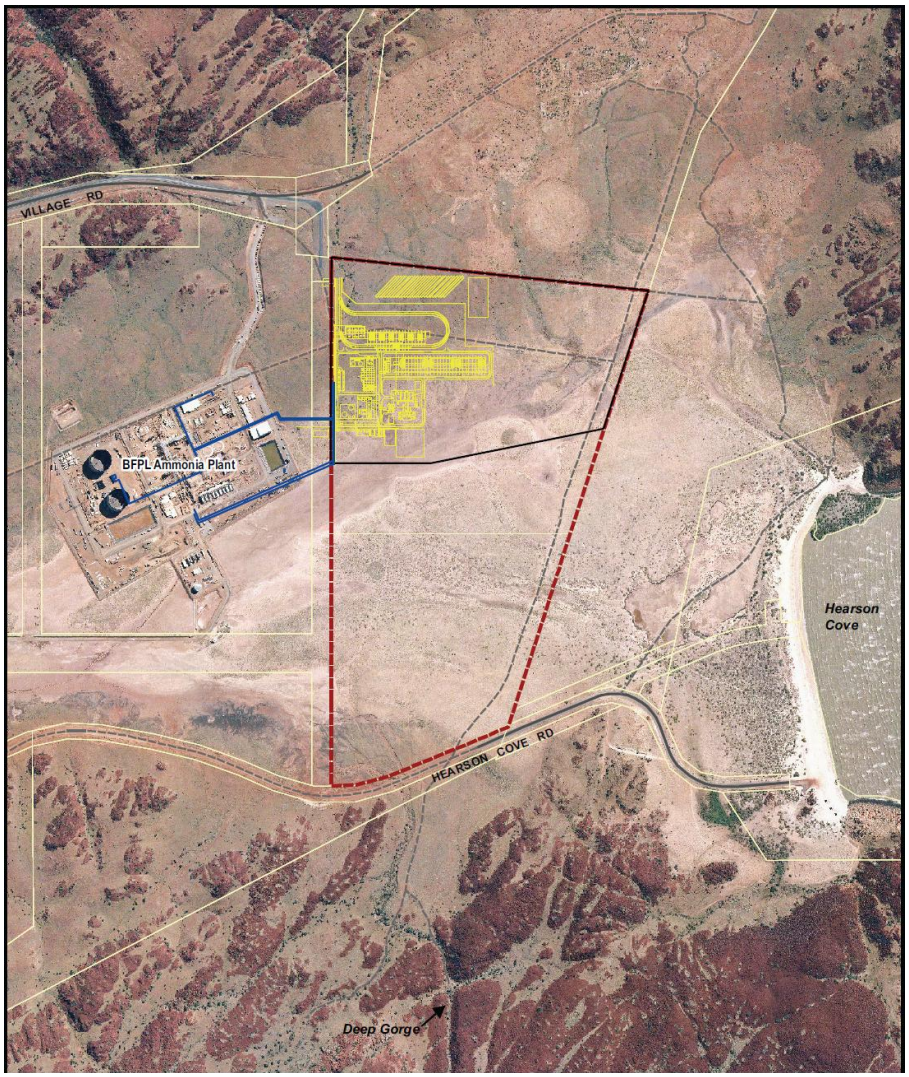
Source: Public Environmental Review (PER) for Burrup Nitrates Pty Ltd January 2010.



1.4 The construction site

The TANPF development site is located approximately 13 km northwest of Karratha and 1300 km north of Perth, on the Burrup Peninsula, Western Australia, within the Shire of Roeburne. The site for the TANPF is a 79 Ha area of land within the Burrup Industrial Estate (BIE), which is referred to as Site D. Site D is located adjacent to the existing Burrup Fertilisers Pty Ltd (BFPL) Ammonia plant, which will provide the main feedstock, ammonia, for the TANPF. The TANPF requires about 35 Ha (which includes all permanent and temporary construction laydown areas) of the 79 Ha Site and will be accessed from Village Road.

Figure 3: Site location.



There are two sensititive areas nearby to the TANPF site; Deep Gorge and Hearson Cove Beach. Deep Gorge is located approximately 1.4 km to south of the TANPF Project. It is a popular petroglyhs or rock art valley. Rock art in this area is well documented and is visited by tourists. Hearson Cove is at the east of the site, about 0,9 to 1,2 km. Hearson Cove is well known to tourists and locals to view the Stairway to Moon and to use the beach and barbeque facilities. Access to Deep Gorge and Hearson Cove is via Hearson Cove Road (gravel road), which runs to the south of the TANPF Project site and the existing BFPL ammonia plant.

1.5 Construction activities relevant to this stage of the project

Activities related to the site preparation, civil works, mechanical erection and heavy lifting have been carried out between 17th February 2013 and 17th February 2014.

Site Preparation comprises the following scope of work:

- Mobilization of machinery.
- Fencing.
- Excavations and blasting.
- Backfilling (material from excavation and borrowed material).
- Slope Protection.
- Anti-flooding barrier.
- Drainage perimeter channel.
- Demobilization of machinery.

Civil Works includes the following activities:

- Excavations, backfilling works.
- Foundations of structures, permanent buildings, equipment and modules.
- Concrete structures (insitu and precast).
- Pipe racks foundations.
- Roads, pavements.
- Underground piping.
- Underground grounding.
- Electrical trenches civil works.
- Civil completion.

Mechanical erection comprises the following scope of work:

- Dismantling of Module Seafastening on vessel.
- Equipment and storage tanks erection.
- Final anchoring and hook-up of modules (PAR /PAU /PAS).
- Piping prefabrication and erection.
- NDT activities.
- Steel structure supply and erection (when required).
- Painting of pipes and supports, and final touch up of modules and equipments.
- Insulation works, and final repair in the modules.
- Hydrotests and reinstatement.
- Reworks or works not finished in modules.

Activities within scope of heavy lifting are:

- Lifting activities and all operations involved.
- Mobilization and demobilization of the major required equipment.
- Design, mobilization, and demobilization of the supporting structures and systems.
- Mobilization and demobilization of the auxiliary assembler equipment.
- Testing, inspections, and certifications required to complete the scope.

2. MAJOR ACHIEVEMENTS FOR 2013/2014

2.1 Project Status

Project overall progress during February 2014 reached 72.22%, from which 99.74% corresponds to Home Office services, 82.79% to manufacturing, 68.86% to module construction at yard and 44.82% to construction at site. Figure 4 is a panoramic photograph of the site in March 2014.

Figure 4: Technical Ammonium Nitrate Production Facility (TANPF) (March 2014).

TANPF's main achievements in the period between 17 February 2013 and 17 February 2014 are:

- First, second and third shipment arrival at Dampier port without any incident. There are scheduled ten shipments from the Yard in Batam (Indonesia) to the Construction site.
- 979 tonnes of modules are already installed in final position at Construction site.
- Material deliveries:
  - 95% equipment delivered in Subcontractor's Yard.
  - 95% in weight of piping material already in Subcontractor's Yard.
  - 80% of instrument and 70% of electrical items already in Subcontractor's Yard.
- Yard Progress:
  - Yard is preparing the loading of 4th shipment.
  - 82% of steel structure pre-assembled.
  - 82% dia-inches of piping pre-fabricated.
  - 57% equipment weight installed.

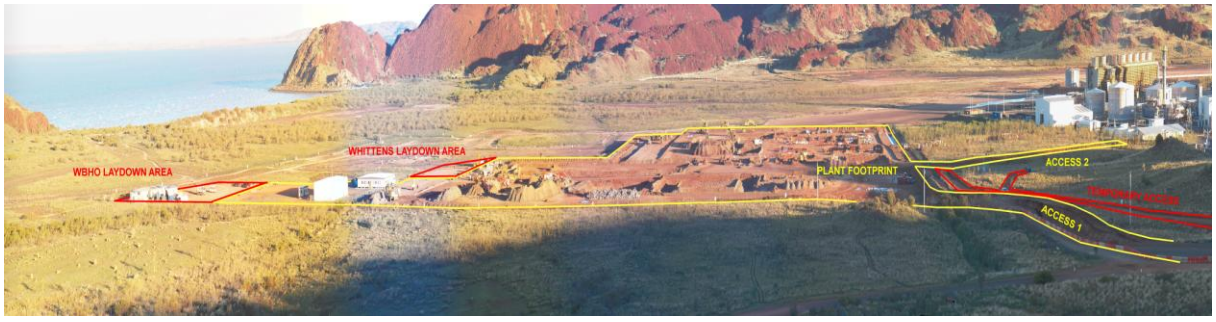
- Site Progress:
  - Site Preparation is already completed (100%).
  - 11.500 m^3 of concrete has already been poured.
  - Works in the route from Dampier Port to Construction site are on track.
  - Modular and site erected building activities progressing on schedule.

2.1.1 Changes to Project footprint

There have been changes to Project´s footprint since February 2013 (Figure 5). Changes were approved by YPNPL. Rehabilitation activities will be undertaken gradually for the areas disturbed temporally.

- Additional clearing 55,00 x 115,00 m (5750 m^2) for Subcontractor Laydown Area (temporal).
- Clearing 5,00 x 1020,00 m (5100 m^2) for fence installation (temporal).
- An increase of clearing for 15,00 x 21,00 m (315 m^2) for main access (permanent).
- Clearing 65,00 x 5,00 m (325 m^2) for access to Air Quality Monitoring equipment West side (temporal, continuous monitoring for five years).
- Clearing reduced for the construction of North Channel 240, 00 x 11,50 (-2760 m^2).

Figure 5. Changes to Project's footprint.



2.1.2 Variation to conditions attached to Work Approval 2008/4546

Decision to vary a condition of approval is made under section 143 of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC). Since 17 February 2013, there have been two variations of conditions to Works Approval for the proposed Technical Ammonium Nitrate Production facility (EPBC 2008/4546).

The first variation has effect on 18 December 2013. The variation was: Delete condition 8 (d), 10 and 11 attached to the approval dated on 14 September 2011 and substitute condition 10 and 11, as well as substitute with definitions for DER-managed Monitoring Program and Pro-rata amount as specified in the official communication given by the Australian Government Department of the Environment.

YPNPL requested an extension to the due date to commence rock art monitoring required under condition 10(c) on 3 February 2014. This request was approved, and a second variation was issued on 10 February 2014, thus allowing for an additional four months to commence rock art monitoring required under condition 10 (c).

2.2 Environmental Management

Tecnicas Reunidas S.A. (TRSA) has been engaged in the detail Engineering, Procurement and Construction (EPC) phase of the TANPF.

TRSA has developed a Construction Environmental Management Plan (CEMP) Doc. No. 2-250-329-PRO-TRE-0111 to outline the main mitigation measures to be put in place during the Construction phase of the TANPF so as to minimize the risk of potential environmental and heritage adverse impact derived from the construction works and, therefore, to reduce the effects of the Project execution on the environment to ALARP level.

CEMP was issued following the commitments set forth in the Public Environmental Review and in compliance with the requirements included in the Works Approval and all applicable statutory laws and regulations.

2.2.1 Environmental Management Plans and Programs

The following plans have been issued for TANPF for the management of environmental issues during construction.

- Construction Environmental Management Plan (CEMP) comprising of:
  - Air Quality Management Plan;
  - Water Quality Management Plan;
  - Erosion Control and Storm water Management Plan;
  - Waste Management Plan;

- Traffic Management Plan;
- Blasting Management Plan;
- Noise Management Plan;
- Terrestrial Fauna Management Plan;
- Terrestrial Flora and Vegetation Management Plan;
- Weed Management Plan;
- Integrated Pest Management Plan;
- Construction HSE Management Plan;

- Hazardous Material Management Plan.
- Emergency Response Management Plan.
- Aboriginal Heritage Management Plan.

YPNPL is working on its Operational Environmental Management System, which will be submitted to SEWPaC by 30th November 2014 for the approval.

2.2.2 Environmental Audits and site inspections

The Works approval and CEMP requirements are audited on a periodic basis in order to assess site environmental management performance and immediately correct identified non-compliance situations. This section presents the findings of the Environmental Audits carried out for Technical Ammonium Nitrate Production Facility (TANPF).

The first formal audit on general HSE performance was carried out by the HO HSE team on 16th and 17th of May 2013. Two section were audited: HSE System and Documentation (83,65%) and Field execution (88.20%). An audit report was issued detailing all findings and deviations as well as corrective actions to be implemented. As result of this audit, the following actions were implemented:

- Prepare an equipment and machinery logbook, maintain it updated at least on a weekly basis to control all inspections expiry dates and maintenance activities.
- Every meeting is recorded in a MOM and these distributed to the whole HSE Team and Site and Construction Managers (for info and action). Therefore, conclusions and concerns in HSE matters are shared with the team.
- All HSE observations are recorded in the hazard register. This has increased the accountability for all employees responsible for identifying observations. The follow up of corrective actions is performed during weekly meetings (either progress, coordination or HSE – specific).

- HSE awareness campaigns and banners with Mr. Zero are implemented or posted along the site.
- An HSE Motivation and Incentive Program has been designed and implemented.
- Ensure every HSE incident is investigated and a written report issued and distributed.
- Vehicle Hygiene and Weed inspection Form has been developed to avoid the weed spreading within Tan Burrup site.
- Three site team members have been sponsored and trained with the aim of obtaining the reptile removalist's licence as per Wildlife Conservation (Reptiles and Amphibians) Regulations 2002 Regulation 17.
- Even though the site is located in "remote Australia", appropriate waste segregation and clear containers' identification is posted.

The Office of the Environmental Protection Authority (OEPA) undertook a desktop audit of YANPF´s compliance with the implementation conditions of statement 870. This Desktop Audit report detailed the compliance status of each implementation condition. The audit was unable to determine the compliance status of a number of implementation conditions, and therefore, these conditions were given a compliance status of verification required. This information was required to be submitted to the OEPA by 20th September 2013.

YPNPL submitted the information requested by the deadline, and once reviewed, OEPA scheduled a Site inspection on the 22nd October 2013. The audit scope was basically to verify the implementation of the Ambient Air Quality Monitoring Programme, Rehabilitation, Fauna management, dewatering measures, groundwater monitoring and acid sulphate soil management.

As result of the site inspection, additional clarifications were requested in relation to Fauna management , location of two groundwater monitoring wells to replace two wells decommissioned during construction, and cause of the exceedance of trigger levels (conditions 7-2, 8-3 and 8-5:2). OEPA reviewed the information provided and actions implemented to address the non-compliances with above conditions and considered these issues to be resolved on 14th March 2014.

YPNPL conducted a System and Documentation audit to TRSA over the 11th and 12th of December 2013. Total score achieved for this audit was 94.20%. Actions raised as result of this audit were:

- Display TR HSE and relevant policy's in the Security Hut. This allows all personnel entering the workplace to sight them.

- Copy of the Material Safety Data Sheets (MSDSs) is provided for the site medical centre.
- Sub-contractors HSE teams have been instructed on the correct process for analysis for accident investigation. More detail was required with causal factors on the report forms submitted.
- TRSA has developed and implemented an HSE incentive reward and recognition programme for site.

Internal environmental audits (February, May and December 2013) have been carried out by TRSA, specific audit templates were developed for each of the environmental issues discussed in the CEMP. These audits verified that the performance of the construction site to implement CEMP was successful.

HSE daily site inspections, thus using the HSE daily inspection sheet and following the Construction HSE Plan are performed. Environmental issues to be monitored during site inspections are:

- Vehicles and machinery condition.
- Adequate housekeeping.
- Air quality and dust management.
- Hazardous material storing and handling areas.
- Proper waste segregation and management.
- Waste storing area conditions.
- Erosion and storm water management.
- Noisy equipment and noisy activities.
- Rock art protection and impact monitoring being performed.
- Heritage and archaeological issues are being complied with.
- Deterioration, leaks or accumulation of materials in containment areas.
- Flora, fauna and vegetation disturbance.

Based on the findings of the findings of different audits and site inspections carried out during period between 17th February 2013 and 17th February 2014, it is concluded that Environmental Management processes and practices at TANPF are adhering to the key requirements of CEMP, thus complaining with the legislative framework and specific conditions of Works' approval.

2.2.3 Environmental Incident Reports

None incidents of environmental national significance had happened at Technical Ammonium Nitrate Production Facility (TANPF).

Eight environmental incidents were reported to YPNPL between 5th August 2013 and 5th February 2014 (Table 1 below).

Table 1. Environmental incidents.

NUMBER	DATE	SUBCONTRACTOR	DESCRIPTION
TAN-008	5/08/2013	WBHO	Operating loader, moving material to stockpile when hydraulic hose gave way on the left ramp.
TAN-009	6/08/2013	TR	Spill in the sewage system at temporary construction facilities approximately 2-3 liters of overflow.
TAN-024	11/09/2013	TR	Spill in the sewage system at temporary construction facilities approximately 1 liter of overflow.
TAN-030	24/10/2013	WBHO	Spill due to hose failure on a roller.
TAN-041	6/12/2013	FORGE	Manitou was conducting basic lifts (rigging gear), when spotter Noticed small amount of hydraulic oil (200 ml) on the ground.
TAN-046	7/01/2014	WBHO	Kangaroo was found drowned in Water pond 1-3.
TAN-057	25/01/2014	WBHO	Operator was driving a truck into site and notice a death adder snake. He stamped his feet in fear, and snake did not survive.
TAN-062	5/02/2014	WBHO	Hydraulic spill from grader during widening works in the road.

In case an environmental incident takes place, it shall be immediately reported to TRSA in order to start necessary action and so as to report it to YPNPL. A specific Incident report is prepared and issued including, date/time, description, location, causes, corrective actions and measures to prevent recurrence. Attachment 01 includes the reports for each of the environmental incidents listed in Table 1.

2.2.4 Compliance Reports

The following reports have been issued for TANPF and submitted to SEWPaC in order to follow up and demonstrate compliance with all applicable requirements and commitments (section 4.4.2 of CEMP).

Table 2. Compliance Reports issued between February 2013 and February 2014.

REPORT No	TITLE	REVISION	DATE
2-250-329-REP-TRE-8030	Compliance Report for Air Quality Management	00	30/06/2013
2-250-329-REP-TRE-8031	Compliance Report for Water Quality Management	00	30/06/2013
2-250-329-REP-TRE-8032	Compliance Report for Erosion Control and Stormwater	00	30/06/2013
2-250-329-REP-TRE-8033	Compliance Report for Waste Management	00	30/06/2013
2-250-329-REP-TRE-8034	Compliance Report for Traffic Management	00	30/06/2013
2-250-329-REP-TRE-8035	Compliance Report for Blast Operations	00	28/06/2013
2-250-329-REP-TRE-8036	Compliance Report for Noise Management	00	27/06/2013
2-250-329-REP-TRE-8037	Compliance Report for Terrestrial Fauna management	00	30/06/2013
2-250-329-REP-TRE-8038	Compliance Report for Terrestrial Vegetation and Flora management	00	30/06/2013
2-250-329-REP-TRE-8039	Compliance Report for Weed management	00	30/06/2013
2-250-329-REP-TRE-8040	Compliance Report for Integrated Pest management	00	30/06/2013

REPORT No	TITLE	REVISION	DATE
2-250-329-REP-TRE-8042	Noise and vibration monitoring results for blast operations	00	07/09/2013
2-250-329-REP-TRE-8001	Tan Burrup Project Compliance Assessment Report (MS 870)	01	18/09/2013
2-250-329-REP-TRE-8044	Compliance Report for Blast Operations	00	14/01/2014
2-250-329-REP-TRE-8045	Compliance Report for Erosion Control and Stormwater	00	21/01/2014
2-250-329-REP-TRE-8046	Compliance Report for Terrestrial Vegetation and Flora management	00	28/02/2014
2-250-329-REP-TRE-8047	Compliance Report for Noise Management	00	15/01/2014
2-250-329-REP-TRE-8048	Compliance Report for Integrated Pest management	00	27/01/2014
2-250-329-REP-TRE-8049	Compliance Report for Terrestrial Fauna management	00	27/02/2014
2-250-329-REP-TRE-8050	Compliance Report for Traffic Management	00	24/01/2014
2-250-329-REP-TRE-8051	Compliance Report for Waste Management	00	25/01/2014
2-250-329-REP-TRE-8052	Compliance Report for Weed management	00	30/01/2014
2-250-329-REP-TRE-8053	Compliance Report for Water Quality Management	00	28/01/2014
2-250-329-REP-TRE-8054	Compliance Report for Air Quality Management	00	30/01/2014

3. STATUS OF ENVIRONMENTAL COMMITMENTS

TANPF is currently in the construction phase, therefore commitments pertaining to construction and to the phases prior to construction (overall, design, procurement, pre-construction) have current relevance.

3.1 Status of Compliance with EPBC Act referral 2008/4546

TANPF is subjected to the conditions of Works approval under Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act referral 2008/4546) issued by Australian Government Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) on the 14th September 2011.

Table 3 Status of Conditions of Works Approval 2008/4546

Condition Number	Condition	Phase	Verification February 2014	Status (Note 1)
1	Advise the department in writing of date of commencement.	Construction	Mail sent to SEWPaC on 17th February 2013.	CLD
2	Maintain records activities associated to conditions and make available to the Department. Records may be subject to audit and results may publicised to the department.	Overall	Records have been included in Compliance Reports (table 2) and are available to audit. OEPA has already carried out an Deskop audit MS 870 and site inspection on OEPA scheduled a Site inspection on the 22nd October 2013.	C
3	Within three months of every 12 month anniversary of the commencement of the action, a	Overall	This report full fills this requirement. In addition, Compliance Assessment Report (MS 870) Doc. No. 2-250-329-REP-TRE-8001 was submitted to Office of the Environmental	C

Condition Number	Condition	Phase	Verification February 2014	Status (Note 1)
	report addressing compliance must publish on webside.		Protection Authority on 10th of October 2012 and is available http://www.ypnpl.com.au/project-updates.html	
4	Wastewater from facility meets the requirements for discharges into the Multi User Brine Return	Engineering	Wastewater is filtered at the home sewage treatment system (95-CB-0001/0005) and sent to the water pond. Therefore, no discharges are foreseen into Multi User Brine return line (MUBRL).	NR
5	Notify the Department of any proposal to apply larvicide or adulticide. Notification in writing at least six (6) months.	Overall	NR	NR
6	a)Employ structures to deter birds from entering ponds. b)Ensure are in place prior to commisioning.	Commisioning	NR	NR
7	a) CEMP must be submitted to the department at least two (2) months prior construction. b)OEMP at least two (2) months prior operation. c)Additional management plans, including	Overall	Construction Environmental Management Plan (CEMP), Hazardous Material Management Plan (HMMP) and Emergency Response Management Plan (ERMP) were sent to SEWPaC on 22nd September 2012 and approved on 22nd November 2012 (Letter reference: 2012/08279). YPNPL will develop OEMP and submit to SEWPaC by 30th	IP

Condition Number	Condition	Phase	Verification February 2014	Status (Note 1)
	those covering both construction and operation, must be submitted (2) months prior construction. Construction and operation cannot begin until the management plans mentioned above have been approved by the minister. The contents of these plans must not contain management actions that are inconsistent with these approval conditions.		November 2014 for the approval.	
8	To protect the values of the Heritage place; a)install chain mesh fencing at least 2.5 m in height, b)signs of at least 1m^2 at 50 metres intervals, c)record if access needed to rock art sites, d) i)at least once annually, engage heritage monitor to survey rock art sites within a two (2)	Overall	Chain mesh fencing and signs are already installed. No personnel from TANPF has access to rock art sites. YPNPL engaged CSIRO to carry out rock art sites as per this condition. The monitoring will be held on 2nd and 3rd April, and first report will be submitted to SEWPaC by 30th June 2014.	IP

Condition Number	Condition	Phase	Verification February 2014	Status (Note 1)
	kilometer, ii)report to provide to Department one (1) month after being issued, e) any impact to be reported in writing within 72 hours.			
9	a) Undertake air quality monitoring at three (3) sites, b)ensure readings are undertaken by suitably qualified person, c)ensure twenty four (24) months of baseline monitoring are taken at least four (4) times in every 12 months, d)baseline data to be submitted to the department 12 months after construction completion or following 24 months of baseline monitoring, e)continue monitoring for five years following baseline establishment and once operation has commencement, f)report the results	Overall	Air quality monitoring equipment has been installed at three CSIRO sites for monitoring impact on rock art. Each location has been provided with the following equipment: · One ADS Atmospheric Precipitation sampler. · One MIE ADR-1500 particulate monitor (PM_{10}). · One dust deposition gauge (total solids suspended). · NH_3, NO_x, SO_x diffusion tubes (duplicate collocated at each monitoring site). · One tipping rain gauge. · Minivol TAS for PM_{10} at Water Tanks site, in order to compare readings between MIE ADR-1500 and Minivol TAS. All above equipment was commissioned in September 2013.	IP

Condition Number	Condition	Phase	Verification February 2014	Status (Note 1)
	of five years in writing, within two (2) months of monitoring have been completed.			
10	a)Contribute a pro-rata amount annually for the DER-managed colour contrast and spectral mineralogy monitoring program (DER-managed monitoring program), b)continue agreed annual contribution for a period of five years or until DER-Program is concluded, c) i)engage a heritage monitor to survey rock art sites within a two (2) kilometer radio, ii) complementary to the DER-managed monitoring program, iii)provide department written endorsement on the suitability of rock art	Overall	On 31st January 2014, YPNPL agreed with BRATWG for expanding the rock art monitoring program within two kilometres of the project site in order to comply with the variation condition received from Federal Government (Department of the Environment). YPNPL has already requested Murujuga Aboriginal Corporation for the approval of three additional petroglyph.	IP

Condition Number	Condition	Phase	Verification February 2014	Status (Note 1)
	monitored, iv)undertake art monitoring at least once annually, beginning from time construction commences , v)the monitoring must continue for at least five years of the plant´s operations, vi) engage Murujuga Aboriginal corporation in the planning and reporting associated with the annual survey of rock art sites d)within two (2) months of the results of the DER-managed Monitoring program and annual survey are completed, report to Department and Murujuga Aboriginal corporation, and publish in website.			
11	a)upon being notifies that changes in patination of monitored rock art, notify the	Overall	NR	NR

Condition Number	Condition	Phase	Verification February 2014	Status (Note 1)
	Department within 72 hours, b)provide funds annyaly for a period further five years (maximum) from the event date, c)within two (2) months patination reported, provide management plan to Minister; i) summary of results DER-program, ii)description of the changes, iii) analysis causes, iv) appropriate mitigation, v) a detailed plan for the continuation of DER-program and air quality monitoring program.			

Note 1: Compliant (C), Completed (CLD), Not Audited (NA), Non-compliant (NC), Not required at this stage (NR), In process (IP).

3.2 Status of Conditions of Ministerial Statement No. 870

A Compliance Assessment Report (MS 870) Doc. No. 2-250-329-REP-TRE-8001 Rev. 01 has already been issued to assess compliance with all conditions of the Ministerial Statement 870 (MS 870) dated on 7th July 2011 according with the conditions 4-3, 4-4 and 4-6 of this referred MS 870. Table 4 below summarizes those commitments where compliance has been already acknowledged by the DoE.

Table 4. Status of Conditions of MS 870.

Commitment Number	Subject	Action	Phase	Verification February 2014	Status (Note 1)
870:M1.1	Proposal implementation	Implement proposal according Schedule 1 MS 870	Overall	Proposal has commenced (section 2.1), and it is implemented as per Schedule 1 MS870.	C
870:M2.1	Proponent nomination and contact details	Notify in writing if new proponent	Overall	No change to proponent.	C
870:M2.2	Proponent nomination and contact details	Notify in writing any change contact details	Overall	No change to proponent or proponent contact details.	C
870:M3.1	Time limit of authorisation	Notify in writing if proposal has not commenced in five years	Overall	Proposal has already commenced. Refer to 870:M1.1 above.	C
870:M3.2	Time limit of authorisation	Written evidence that proposal has commenced	Overall	Proposal has already commenced. Refer to 870:M1.1 above.	C
870:M4.1	Compliance reporting	Prepare and maintain a compliance assessment plan	Overall	Compliance Assessment Plan (CAP) (MS 870) Doc. No. 2-250-329-PRO-TRE-0104 Rev. 01 was issued on 23rd August 2012.	C
870:M4.2	Compliance reporting	Submit Compliance	Pre-construc	Compliance Assessment Report (MS 870) Doc. No. 2-	C

Commitment Number	Subject	Action	Phase	Verification February 2014	Status (Note 1)
		Assessment Plan six months prior to Compliance Assessment Report	tion	250-329-REP-TRE-8001 was submitted to Office of the Environmental Protection Authority on 10th of October 2012 and is available http://www.ypnpl.com.au/project-updates.html	
870:M4.3	Compliance reporting	Undertake assessment according to CAP.	Overall	Section 5 of Compliance Assessment Report (MS 870) Doc. No. 2-250-329-REP-TRE-8001 includes audit table.	C
870:M4.4	Compliance reporting	Retain reports	Overall	All reports are retained and maintained as per Project Document Control Management System.	C
870:M4.5	Compliance reporting	Notify non-compliances within seven days	Overall	Groundwater monitoring at the wells used for baseline study have been carried out in October 2012, March 2013 and April 2013. Two new wells were built up in September 2013. The results of the March, April and October 2013 groundwater monitoring events displayed a number of exceedances in the set trigger levels. This was reported to the Assessment and Compliance Division Office of the Environmental Protection Authority.	C
870:M4.6	Compliance reporting	Issue first compliance report fifteen months from the date of issue	Overall	TAN Burrup Project Compliance Assessment Report (MS 870) Doc. No. 2-250-329-REP-TRE-8001 was submitted to Office of the Environmental Protection Authority on 10th of October 2012. It was provided 15 months from date of issue of	C

Commitment Number	Subject	Action	Phase	Verification February 2014	Status (Note 1)
				statement and it is available under the following link: http://www.ypnpl.com.au/project-updates.html	
870:M5.1	Air Quality	Implement best practice pollution control	Overall	Construction Environmental Management Plan (Air Quality Management Plan) Doc. No. 2-250-329-PRO-TRE-0111-att01 rev. 03 has been approved by the Environment Assessment and Compliance Division Australian Government Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) (letter reference: 2012/08279). Burrup Technical Ammonium Nitrate Production Facility Air Quality Management Plan Doc. No. 0086269 February 2013 was reviewed by the OEPA and is considered to address relevant conditions (letter reference A574214:OEPA2012/0638-1).	C
870:M5.2	Air Quality	Prior to construction, implement an ambient air programme	Overall	Refer to 870:M5.1 above. Five different monitoring locations have been set up in order to comply with the Air Quality Management Plan for YPNPL. Two of the locations are in site boundary for monitoring air quality during construction activities. Three of the locations are offsite, for monitoring impact on rock art (Water tanks, Tan Burrup Road, Deep Gorge).	C
870:M6.1	Rehabilitation	Proponent to undertake rehabilitatio	Overall	Construction Terrestrial Vegetation and Flora Management Plan and Construction Weed	C

Commitment Number	Subject	Action	Phase	Verification February 2014	Status (Note 1)
		n to support native vegetation, and no new species of weeds to be introduced.		Management Plan are included in Construction Environmental Management Plan (CEMP) Doc. No. 2-250-329-PROTRE-0111 Rev. 3., which has been approved by the Environment Assessment and Compliance Division Australian Government Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) (letter reference: 2012/08279). CEMP is available in http://www.ypnpl.com.au/project-updates.html A Weed mapping report has been developed and issued to identify and prevent the spread of weeds at site.	
870:M6.2	Rehabilitation	Rehabilitation activities to continue until requirements 870:M6.1 are demonstrated	Operation	NR	NR
870:M7.1	Fauna	Install structures to deter birds from entering contaminate water pond	Commissioning	NR	NR
870:M7.2	Fauna	Inspections and clearing of fauna	Construction	Site inspections are undertaken in accordance with what is outlined in the Construction Terrestrial Fauna management	C

Commitment Number	Subject	Action	Phase	Verification February 2014	Status (Note 1)
				plan (CTFMP), part of the Construction Environmental Management Plan (CEMP) Doc. No. 2-250-329-PRO-TRE-0111 Rev. 3 approved by SEWPaC on the 22nd November 2012 and, available at www.ypnpl.com.au/project-updates.html. A habitat report has been prepared with the aim of identifying the fauna habitats located within the immediate vicinity and the fauna groups that are likely to utilize these habitats. All clearing activities were monitored by HSE team. Site Clearing reports have been also issued to record such activity. Fauna exit ramps have been installed in excavation and slopes are not to exceed 45°. Faunal shelters made of PVC pipe are available on Site.	
870:M8.1	Groundwater	Undertake Hydrogeological studies.	Pre-construction	Hydrogelogical and Hydrological Investigation was prepared by Environmental Resources Management (ERM) and issued in September 2011. Reference: 0086269.	CLD
870:M8.2	Groundwater	Develop appropriate management measures for dewatering	Pre-construction	Section 5.4.5 “Dewatering Excavation” included in the Construction Environmental Management Plan (CEMP) (Water Quality Management Plan) Doc. No. 2-250-329-PRO-TRE-0111-att02, approved by SEWPaC on the	C

Commitment Number	Subject	Action	Phase	Verification February 2014	Status (Note 1)
				22nd November 2012 and, available at www.ypnpl.com.au/project-updates.html, includes measures to perform this activity.	
870:M8.3	Groundwater	Design, construct and locate groundwater monitoring bores	Overall	Five groundwater wells were drilled for the baseline study (MW1, MW2, MW3, MW4 and MW5). The baselines results are recorded in the Construction Environmental Management Plan (CEMP) (Water Quality Management Plan) Doc. No. 2-250-329-PRO-TRE-0111-att02, approved by SEWPaC on the 22nd November 2012 and, available at www.ypnpl.com.au/project-updates.html Wells MW1 and MW4 were decommissioned during project execution and as a result, two additional bores were drilled on the 7th September 2013 by GHD.	C
870:M8.4	Groundwater	Monitor all groundwater bores every six months	Overall	The baseline results are recorded in the Attachments of Construction Environmental Management Plan (CEMP) (Water Quality Management Plan) Doc. No. 2-250-329-PRO-TRE-0111-att02, approved by SEWPaC on the 22nd November 2012 and, available at www.ypnpl.com.au/project-	C

Commitment Number	Subject	Action	Phase	Verification February 2014	Status (Note 1)
				updates.html The water Quality Management Plan includes the groundwater monitoring trigger values at a value of 10% above the baseline contaminant concentrations obtained from the baseline survey. Groundwater monitoring reports for surveys performed in March 2013, April 2013 and October 2013 have been submitted to OEPA.	
870:M8.5	Groundwater	Report exceedance of trigger levels	Overall	Groundwater monitoring surveys have been carried out in March 2013, April 2013 and October 2013. The results displayed a number of exceedances in the set trigger levels. None of the analytics observed exceeding the trigger levels were attributed to site activities. This was reported to the Assessment and Compliance Division Office of the Environmental Protection Authority.	C
870:M8.6	Groundwater	Monitoring reports for 870:M8.5 publicly available	Overall	The baseline results are recorded in the Attachments of Construction Environmental Management Plan (CEMP) (Water Quality Management Plan) Doc. No. 2-250-329-PRO-TRE-0111-att02, approved by SEWPaC on the 22nd November 2012 and, available at www.ypnpl.com.au/project-updates.html	C

Commitment Number	Subject	Action	Phase	Verification February 2014	Status (Note 1)
				Monitoring reports for March, April and October 2013 were carried out by a third Party (ERM), and are to be uploaded by YPNPL in its website.	
870:M9.1	Acid Sulphate Soils	Undertakeacid sulphate soils investigations prior construction	Pre-construction	A Preliminary Acid Sulfate Soil Investigation Report was issued by ERM in August 2011 Reference: 0086269 (letter DEC 2012/1504).	CLD
870:M9.2	Acid Sulphate Soils		Construction	Field investigations were undertaken as part of the baseline studies (ERM, 2011, as per 870:M 9.1 above). No presence of Acid Sulphate soils was found within or adjacent to the proposed construction area and as such there was no requirement to develop an Acid Sulphate soils Management Plan in support of construction of the YPNPL Project. Up to now, no acid sulphate soils were disturbed and reported during construction activities.	C
870:M10.1	Decommissioning	Preparation decommisioning plan	Decommisioning	NR	NR
870:M10.2	Decommissioning	Meet decommisioning criteria	Decommisioning	NR	NR

Note 1: Compliant (C), Completed (CLD), Not Audited (NA), Non-compliant (NC), Not required at this stage (NR), In process (IP).

3.3 Summary of CEMP´s monitoring activities and commitments

Section 4.3.1. of CEMP summarise the specific monitoring measures and commitments, which are explained in detail in each of the specific environmental management plans developed.

Table 5: Status of CEMP´s monitoring activities and commitments.

Monitoring Action Reference	Monitoring Action Description	Frequency	Verification February 2014	Status (Note 1)
AIR QUALITY MANAGEMENT				
CAQMP-1	Set up exact location of monitoring equipment	Prior to construction	Air Quality Monitoring Equipment is already installed at the eastern and western site boundaries of Tan Burrup project and at three CSIRO rock art sensitive receptors. Final location was included in Compliance Assessment Report (MS 870) Doc. No. 2-250-329-REP-TRE-8001 and Compliance Report for Air Quality Management Doc. Nos. 2-250-329-REP-TRE-8054.	C
CAQMP-2	Monitoring of PM10 at 3 established locations (CSIRO rock art sensitive receptors)	Ongoing	Monitoring of PM10 at CSIRO rock art sensitive receptors started in September 2013.	C

Monitoring Action Reference	Monitoring Action Description	Frequency	Verification February 2014	Status (Note 1)
CAQMP-3	Monitoring on dust deposition	Monthly	Dust deposition gauges are already installed at the eastern and western site boundaries, as well as CSIRO rock art sensitive receptors. Results of dust deposition analysis have already been included in Compliance Reports for Air Quality Management Doc. Nos. 2-250-329-REP-TRE-8030&8054, as well as Compliance Assessment Report (MS 870) Doc. No. 2-250-329-REP-TRE-8001.	C
CAQMP-4	Weather measurement (wind speed / direction, temperature and rainfall)	Ongoing	A weather station has been installed at the western site boundary. Daily weather measurements (wind speed, direction, temperature and rainfall) are carried out.	C
CAQMP-5	Internal CONTRACTOR Audit to performance on site (independent chapter for air quality monitoring program)	Quarterly	Refer to section 2.2.2 environmental audits and site inspection. Further details can be found in Compliance Reports for Air Quality Management Doc. Nos. 2-250-329-REP-TRE-8030&8054.	C

Monitoring Action Reference	Monitoring Action Description	Frequency	Verification February 2014	Status (Note 1)
WATER QUALITY MANAGEMENT				
CWMP-1	Wastewater disposal tracking forms	Ongoing	Only sanitary wastewater is generated at this stage of TANPF. Inventory of sanitary wastewater, carrier, tank specifications, invoices and tracking forms have been included in Compliance reports for Water Quality Management Doc. Nos. 2-250-329-REP-TRE-8031&8053.	C
CWMP-2	Water level gauging and water quality monitoring at existing wells	Every six months	Groundwater monitoring events in October 2012, March, April and October 2013 have been included in Compliance reports for Water Quality Management Doc. Nos. 2-250-329-REP-TRE-8031&8053. Baselines wells MW1 and MW4 were decommissioned, two bores were drilled to replace them on the 6th and 7th September by GHD.	C

Monitoring Action Reference	Monitoring Action Description	Frequency	Verification February 2014	Status (Note 1)
CWMP-3	Surface water sampling according to standard procedure	Ongoing	Two significant rainfall events had happened in 2013. The first one was on 24th June 2013 (209.4 mm). Surface water monitoring was performed for recording this event, and results were included in Doc. No. 2-250-329-REP-TRE-8031. A second event happened on 31st December 2013 (112.8 mm) due to Tropical cyclone (TC) Christine. Site was closed because Christmas break and surface water monitoring was not performed for recording this event.	C
EROSION CONTROL AND STORMWATER				
CECSMP-1	Stormwater quality monitoring	Cyclone season	Refer to CWMP-3. Records were also included in Compliance reports for Erosion control and storm water management Doc. Nos. 2-250-329-REP-TRE-8032&8045.	C
CECSMP-2	Internal contractor audit to performance on site (compliance with requirements)	Quarterly	Refer to section 2.2.2 environmental audits and site inspection. Further details can be found in Compliance reports for Erosion control and stormwater management Doc. Nos. 2-250-329-REP-TRE-8032&8045.	C

Monitoring Action Reference	Monitoring Action Description	Frequency	Verification February 2014	Status (Note 1)
WASTE MANAGEMENT				
WMP-1	Routine inspections to ensure appropriate waste segregation.	Ongoing	Daily inspections are carried out by HSE team. The HSE daily inspection checklist includes the following topics: Fuels/oils correctly signed and bunded. Waste being disposed of correctly. Rubbish cleaned up and placed in bins. Material Safety Data Sheets (MSDS) available for hazardous substances. Oils/Chemicals spillage equipment available.	c
WMP-2	Internal contractor audit to performance on site (compliance with requirements)	Quarterly	Refer to section 2.2.2 environmental audits and site inspection. Further details can be found in Compliance reports for Waste Management Doc. Nos. 2-250-329-REP-TRE-8033&8051.	C
TRAFFIC MANAGEMENT				
TMP-1	Routine inspections to ensure compliance with applicable requirements and mitigation measures	Ongoing	Daily inspections are carried out by HSE team. Traffic Management Plans have been developed. Changes on traffic conditions are informed to all work force through Traffic Management Bulletins.	C

Monitoring Action Reference	Monitoring Action Description	Frequency	Verification February 2014	Status (Note 1)
TMP-2	Internal contractor audit to performance on site (compliance with requirements)	Quarterly	Refer to section 2.2.2 environmental audits and site inspection. Further details can be found in Compliance reports for Traffic Management Doc. Nos. 2-250-329-REP-TRE-8034&8050.	C
BLASTING MANAGEMENT				
BMP-1	Noise monitoring during explosive firing	When shot is fired	Airblast noise and ground vibration monitoring has been performed during explosive firing. Refer to Compliance Reports for Blast Operation Doc. Nos. 2-250-329-REP-TRE-8035&8044, as well as Noise and vibration monitoring results for blast operations Doc. No. 2-250-329-REP-TRE-8042.	C
BMP-2	Vibration monitoring during explosive firing	When shot is fired	Refer to BMP-1 above.	C
BMP-3	Internal contractor audit to performance on site (compliance with requirements)	Quarterly	Refer to section 2.2.2 environmental audits and site inspection. Details can be found in Compliance Reports for Blast Operation Doc. Nos. 2-250-329-REP-TRE-8035&8044, Noise and vibration monitoring results for blast operations Doc. No. 2-250-329-REP-TRE-8042.	C

Monitoring Action Reference	Monitoring Action Description	Frequency	Verification February 2014	Status (Note 1)
NOISE MANAGEMENT				
NMP-1	Sound level measurements at site boundary	Periodic depending on activities	Noise measurements at site fence have been performed and included in Compliance Reports for Noise Management Doc. Nos. 2-250-329-REP-TRE-8036&8047.	C
NMP-2	Airblast noise level while firing	During firing shot	Refer to BMP-1 above.	C
NMP-3	Additional monitoring measurements should results exceed established levels	Punctual	No additional measures are required, based on the results of the noise surveys carried out to date.	NR
NMP-4	Internal contractor audit to performance on site (compliance with requirements)	Quartely	Refer to section 2.2.2 environmental audits and site inspection. Details can be found in Compliance Reports for Noise Management Doc. Nos. 2-250-329-REP-TRE-8036&8047.	C

Monitoring Action Reference	Monitoring Action Description	Frequency	Verification February 2014	Status (Note 1)
TERRESTRIAL FAUNA MANAGEMENT				
TFMP-1	Excavations and trenching inspections and monitoring for fauna protection	Ongoing	Site inspections are undertaken in accordance with what is outlined in the Construction Terrestrial Fauna management plan (CTFMP). For fauna this comprises the inspections of open excavations. Job Hazard Analysis (JHA) for earth works and excavations include statement related to inspect excavation, before commencing works and after breaks, and during backfilling. All JHAs include statement of inspect machine prior start-up for fauna presence, and in case of interaction with fauna, to contact with TR HSE team. All project staff shall report and monitor if any fauna is spotted.	C
TFMP-2	Internal contractor audit to performance on site (compliance with requirements)	Quartely	Refer to section 2.2.2 environmental audits and site inspection. Details can be found in Compliance Reports for Fauna Management Doc. Nos. 2-250-329-REP-TRE-8037&8049.	C

Monitoring Action Reference	Monitoring Action Description	Frequency	Verification February 2014	Status (Note 1)
TERRESTRIAL FLORA AND VEGETATION MANAGEMENT				
TFVMP-1	Routine site inspections	Ongoing	Site inspections are undertaken in accordance with what is outlined in the Terrestrial Flora and Vegetation Management (CTFVMP). Records and findings of these inspections can be found in Site clearing report, Declare Rare flora and Priority Flora Survey for Unit 60 and main access road, as well as for Air Quality Monitoring equipment, Report for widening of King Bay Road, Weed mapping report. Reports are included as attachments in Compliance Reports for Terrestrial Flora and Vegetation Management Doc. Nos. 2-250-329-REP-TRE-8038&8046, as well as Compliance Assessment Report (MS 870) Doc. No. 2-250-329-REP-TRE-8001.	C
TFVMP-2	Internal contractor audit to performance on site (compliance with requirements)	Quarterly	Refer to section 2.2.2 environmental audits and site inspection. Details can be found in Compliance Reports for Terrestrial Flora and Vegetation Management Doc. Nos. 2-250-329-REP-TRE-8038&8046.	C

Monitoring Action Reference	Monitoring Action Description	Frequency	Verification February 2014	Status (Note 1)
WEED MANAGEMENT				
WDMP-1	Routine site inspections	Ongoing	Site inspections are undertaken in accordance with what is outlined in the Terrestrial Flora and Vegetation Management plan as well as in the Weed Management Plan. A Biosecurity Management Plan and Site Plan for Department of agriculture actions for the modules shipments have been developed and implemented. Therefore, site and modules inspection also consider the recommendation and requirements within these documents. An updated Weed mapping report of Tan Burrup site was carried out in December 2013. All of above documents are included in the Compliance report for Weed Management Doc. No. 2-250-329-REP-TRE-8052.	C
WDMP-2	Internal contractor audit to performance on site (compliance with requirements)	Quarterly	Refer to section 2.2.2 environmental audits and site inspection. Details can be found in Compliance Reports for Weed Management Doc. Nos. 2-250-329-REP-TRE-8039&8052.	C

Monitoring Action Reference	Monitoring Action Description	Frequency	Verification February 2014	Status (Note 1)
INTEGRATED PEST MANAGEMENT				
IPMP-1	Bunds and containers around site (visual inspection)	Weekly	During 2013, there were none records of mosquito nuisance and breeding grounds within TAN Burrup site. Site inspections are undertaken by HSE team in accordance with what is outlined in the Integrated Pest Management Plan. Preventive measures to avoid mosquito breeding were raised as result of these inspections. A Biosecurity Management Plan and Site Plan for Department of agriculture actions for the modules shipments have been developed and implemented. Therefore, site and modules inspection also consider the recommendation and requirements within these documents.	C
IPMP-2	Ponds and basins (visual inspection and sampling of larvae)	Weekly and monthly (sampling)	Visual inspection is undertaken by HSE team. No records of mosquito nuisance and breeding grounds on TAN Burrup site. Therefore, sampling of larvae was not needed.	C
IPMP-3	Stormwater drainage systems (visual inspection and sampling of larvae)	Weekly and as required (sampling)	Refer to IPMP-2.	C

Monitoring Action Reference	Monitoring Action Description	Frequency	Verification February 2014	Status (Note 1)
IPMP-4	Low lying areas (visual inspection and sampling of larvae)	Weekly and as required (sampling)	Refer to IPMP-2.	C
IPMP-5	Intertidal wetlands/saltmarshes (sampling of larvae)	As required following heavy rain	No intertidal wetlands/salt marshes habitats within our site boundary.	NR
IPMP-6	Routine inspection for other pests (visual)	Weekly	Site inspections are undertaken by HSE team. Nuisance problems with bees and spiders (red backs) have been recorded in the Compliance Reports for Integrated Pest Management Doc. Nos. 2-250-329-REP-TRE-8040&8048.	C

Note 1: Compliant (C), Completed (CLD), Not Audited (NA), Non-compliant (NC), Not required at this stage (NR), In process (IP).

4. AIR QUALITY MANAGEMENT

The Construction Air Quality Management Plan (CAQMP) is included in the CEMP as attachment 01. The purpose of this CAQMP is to outline how air emissions will be managed and monitored for the construction phase of the TANPF. This CAQMP was prepared in line with the requirements of the SEWPaC and also taken into account local state requirements as per the expectations of the WA DEC discussed during a meeting held on 22nd May 2012.

Two Compliance Reports for Air Quality Management Doc. Nos. 2-250-329-REP-TRE-8030&8054 have already been issued to comply with SEWPaC requirement of a Compliance Monitoring Report every six months. Both reports outline the monitoring activities and commitments, thus providing discussion and evidences of how compliance with each requirement was met.

4.1.1 Ambient Air Quality Standards

Commonly used ambient air quality standards have been set under the National Environmental Protection Measure (NEPM) for the protection of human health rather than the protection of rock art or flora and fauna. Whilst there are no residential sensitive receptors located close to the project boundary, it is considered that use of the NEPM standards will provide adequate protection of the sensitive uses identified by the Commonwealth.

The trigger threshold for dust deposition at the site boundary monitoring locations has been set at no more than 2 mg/m^2/month above baseline levels, as per NSW regulations. The baseline levels of dust deposition will be defined by the baseline monitoring, which includes dust monitoring using dust deposition gauges and air pollutants monitoring in close proximity to the rock art sites (condition 9 of Works Approval EPBC 2008/4546).

Table 6. Adopted Ambient Air Quality Criteria for TANPF.

Species	Averaging Period	Air Quality Criteria	Maximum Allowable Exceedences
PM_{10}	24 hours	50 µg/m^3	Nil
	1 year	30 µg/m^3	Nil
Dust deposition	1 year (total)	4 g/m^2/month	Nil
	1 year (increase)	No more than 2 g/m^2/month above baseline	Nil
1. Source: “Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in New South Wales” (revised 2005).			

4.1.2 Monitoring equipment, location, frequency and duration

Management of dust impacts from construction activities will be undertaken through the use of on-site management together with boundary measurements.

On-site management will form the basis for control and reduction of dust generation from site activities to ensure off-site impacts are minimized. Continuous control of dust generation at source will assist with compliance with the applicable standards at off-site locations and ensure, as far as possible, that construction activities may continue unimpeded.

Air Quality Monitoring Equipment has already been installed at the eastern and western site boundaries of TANF and at three CSIRO rock art sensitive receptor (Figure 6) in order to comply with CAQMP.

Figure 6: Air Quality Monitoring location drawing

Two Thermoscientific Tapered element oscillating microbalance analyser (TEOM) 1405, two dust gauges and a weather station have been installed at TANPF´s boundaries. Equipment installed there is running since 7th March 2013. Information about type of monitoring, frequency, equipment and applicable Australia Standards for on-site equipment can be found in Table 7.

In order to monitor impact of TANPF activities on rock art, air monitoring equipment have been installed in three CSIRO monitoring location (site 5-Burrup road, site 6-Water tanks, site 7-Deep Gorge). Each location has been provided with the following equipment:

- One Atmospheric Dust Precipitation sampler (ADS).
- One MIE ADR-1500 particulate monitor (PM10).
- One dust deposition gauge (total solids suspended).
- NH_3, NO_x, SO_x diffusion tubes (duplicate collocated at each monitoring site).

- One tipping rain gauge.
- Minivol TAS for PM10 at site 6, in order to compare readings between MIE ADR-1500 and Minivol TAS.

Offsite equipment was installed and commissioned in September 2013. Further information about air monitoring equipment installed at CSIRO locations can be found in Table 8.

Table 7: Air Quality Monitoring Equipment located at Site Boundary.

Type of Monitoring	**Monitoring Location**	**Monitoring Frequency**	**Monitoring Equipment**	**Trigger Threshold for Additional Mitigation**
Construction Compliance Monitoring (During Construction for a Period of 31 months)				
PM_{10} ambient concentration	E1 - Eastern site boundary	Continuous	One TEOM (*AS 3580.9.8:2008)*	The trigger level is proposed to be set at three levels (Alert Level, Remedial Action Level and Extreme Action Level) to be protective of the overall 24-hour average PM_{10} criterion (50 µg/m^3).
	W1 – Western site boundary	Continuous	One TEOM (*AS 3580.9.8:2008)*	
Dust deposition	E1 - Eastern site boundary	Monthly	One Deposition gauge (*AS 3580.10.1: 2003*)	Total of 4 g/m^2/month, with no more than 2 g/m^2/month above baseline levels. Baseline levels are defined through baseline monitoring (detailed in OAQMP).
	W1 – Western site boundary	Monthly	One Deposition gauge (*AS 3580.10.1: 2003*)	
Weather Monitoring (Continuous During Construction Compliance Monitoring)				
Wind speed and direction	W1 – Western site boundary	Continuous	Anemometer	
Temperature		Continuous	Temperature sensor	
Rainfall rate		Monthly	Tipping rain gauge	

Table 8: Air Quality Monitoring Equipment located at CSIRO rock art sensitive receptors

Type of Monitoring	**Monitoring Location**	**Monitoring Frequency**	**Monitoring Equipment**	**Trigger Threshold for Additional Mitigation**
Construction Compliance Monitoring: *During Construction for a Period of not less than 24 months beginning from the commencement of construction. Air quality readings during the twenty four (24) months of baseline monitoring are taken at least four (4) times in every 12 months.* *Air quality monitoring of the rock art monitoring sites (sites 5, 6 and 7) is continued for an additional period of five (5) years, following the establishment of baseline data and once operation has commenced.*				
PM_{10} ambient concentration	Site 5-Burrup road	Continuous	MIE ADR-1500 particulate monitor	The trigger level proposed is PM_{10} criterion (30 µg/m^3).
	Site 6-Water tanks	Continuous	MIE ADR-1500 particulate monitor	
	Site 7-Deep gorge	Continuous	MIE ADR-1500 particulate monitor	
PM_{10} ambient concentration	Site 6-Water tanks	Once every 6 days, 24 hours	Minivol TAS	
Dust deposition	Site 5-Burrup road	Monthly	One Deposition gauge (*AS 3580.10.1: 2003*)	Total of 4 g/m^2/month.
	Site 6-Water tanks	Monthly	One Deposition gauge (*AS 3580.10.1: 2003*)	
	Site 7-Deep gorge	Monthly	One Deposition gauge (*AS 3580.10.1: 2003*)	
Rainwater sampling	Site 5-Burrup road	Monthly	One ADS Atmospheric Precipitation sampler. One tipping rain gauge.	If there is more than 150 mm of rain expected during the month, the rainwater gauge and possibly the bucket will overflow. In that case the sites should be visited to record the amount of rain in the gauge.
	Site 6-Water tanks	Monthly	One ADS Atmospheric Precipitation sampler. One tipping rain gauge.	
	Site 7-Deep gorge	Monthly	One ADS Atmospheric Precipitation sampler. One tipping rain gauge.	
Passive Gas samplers: ammonia (NH_3), nitrogen oxides (NO_x) and sulphur oxides	Site 5-Burrup road	Monthly	Two passive gas samplers for ammonia (red dot), nitrogen oxides (black body) and sulphur oxides (grey body).	

Type of Monitoring	**Monitoring Location**	**Monitoring Frequency**	**Monitoring Equipment**	**Trigger Threshold for Additional Mitigation**
(SO_x)	Site 6-Water tanks	Monthly	Two passive gas samplers for ammonia (red dot), nitrogen oxides (black body) and sulphur oxides (grey body).	
	Site 7-Deep gorge	Monthly	Two passive gas samplers for ammonia (red dot), nitrogen oxides (black body) and sulphur oxides (grey body).	

4.1.3 Data reporting

A site record of the Air Quality monitoring shall be kept throughout the construction period thus detailing:

- Dust sources.
- Dust management measures applied.
- Date and time of dust management measures.
- Complaints of dust emissions/deposition.
- Any other visual observations of incidents likely to cause impacts to air quality, including weather conditions (dust storms) and non-YPNPL activities.
- Exceedances of monitoring trigger thresholds.

These records ensure that dust management is undertaken throughout the construction period, and assist in identification of sources not mitigated in the event of exceedance of a trigger threshold.

4.1.3.1 Site Boundary

4.1.3.1.1 Monthly Dust analysis

Two dust deposition gauges are used for measuring dust deposition at eastern and western site boundaries. Position of the sampling inlet of the dust deposition gauge was selected according to the AS/ NZS 3580.1.1:2007. Samples are sent to ALS laboratory in Newcastle. This is a NATA accredited laboratory to ensure quality assurance. Table 9 includes a summary of the sampling results.

Table 9. Summary of Dust gauges´ analysis.

Sample ID	Date in/time	Date out/time	Results					
			Total Soluble Matter		Total Insoluble Matter		Total Solids	
			g/m^2.month	mg	g/m^2.month	mg	g/m^2.month	mg
TBP-DG-E-0001 (1)	24/02/2013	26/03/2013/10:50	-	-	-	-	-	-
TBP-DG-W-0001 (1)	24/02/2013	26/03/2013/11:10	0.20	4.00	2.60	46.00	2.80	50.00
TBP-DG-E-0002	26/03/2013/10:50	30/04/2013 11:40	0.60	13.00	1.10	22.00	1.70	35.00
TBP-DG-W-0002	26/03/2013/11:10	30/04/2013 12:15	0.30	6.00	6.20	127.00	6.50	133.00
TBP-DG-E-0003	30/04/2013 11:47	30/05/2013 12:48	<0.1	1	1.4	25	1.4	26
TBP-DG-W-0003	30/04/2013 12:20	30/05/2013 13:15	1.3	23	10.2	181	11.5	204
TBP-DG-E-0005	1/07/2013 12:10	3/08/2013 9:47	1.1	22	0.2	4	1.3	26
TBP-DG-W-0005	1/07/2013 8:00	3/08/2013 10:17	1	19	0.6	11	1.6	30
TBP-DG-E-0006	3/08/2013 9:47	3/09/2013 15:20	1.8	32	0.3	5	2.1	37
TBP-DG-W-0006	3/08/2013 10:17	3/09/2013 15:40	1.9	35	0.8	14	2.7	49
TBP-DG-E-0007	3/09/2013 15:20	6/10/2013 16:10	3.8	75	1.1	22	4.9	97
TBP-DG-W-0007	3/09/2013 15:40	6/10/2013 16:22	1.3	24	0.5	9	1.8	33
TBP-DG-E-0008	6/10/2013 16:10	6/11/2013 9:20	1.2	22	0.7	12	1.9	34
TBP-DG-W-0008	6/10/2013 16:22	6/11/2013 10:20	2.3	43	8.5	155	10.8	198
TBP-DG-E-0009	6/11/2013 9:20	6/12/2013 12:55	2.7	47	2.1	37	4.8	84
TBP-DG-W-0009	6/11/2013 10:20	6/12/2013 12:30	0.5	8	0.6	11	1.1	19
TBP-DG-E-0010 (2)	6/12/2013 12:55	04/02/2014 14:55	0.4	12	1.6	56	2.0	68
TBP-DG-W-0010 (2)	6/12/2013 12:30	04/02/2014 15:25	8.6	306	1.4	51	10	357
TBP-DG-E-0011	04/02/2014 14:55	10/03/2014 11:40	0.7	14	0.6	12	1.3	26
TBP-DG-W-0011	04/02/2014 15:25	10/03/2014 12:05	1.8	36	2.1	42	3.9	78

(1) TBP-DG-E-0001 was broken in transit during transportation to ALS laboratory in Newcastle.

(2) It was removed on 18th December 2013 because site was closed during Christmas break and returned back on 10th January 2014.

Samples TBP-DG-W-0002 and TBP-DG-W-0003 exceeded the trigger limits. Sample TBP-DG-W-0002 was also left 35 days instead of 30 days, due to delays in the delivery of the spare container. The causes of these exceedances were:

- Weather conditions: on April and May 2013, predominant winds were East to West and Southeast to Northwest, and most of days between 6 and 11 m/s. Owing to that, west air quality monitoring equipment was downwind, thus recording site contributions.
- Blasting and crushing activities in Area 1. Nine blasting operations were carried out between 18th March and 22nd May 2013.
- Movement of friable material within/outside site in Area 1 and Northwest Access.
- Site unsealed.

Excedances were also recorded in TBP-DG-E-0007, TBP-DG-W-0008 and TBP-DG-E-0009.

Dust gauge TBP-DG-E-0007 was placed on 3rd September and 6th October 2013. Causes of this exceedance were: wind patterns and speed (west to east), import material to the site for backfilling, piling, and increase traffic along site due to road train and concrete trucks.

Dust gauge TBP-DG-W-0008 was installed between 6th October and 6th November 2013. Strong winds, unpaved roads, importing material, all earthworks in main access, piling in the north of area 1 and 2, increase on site with road trains, concrete truck, mobilisation of FORGE (electromechanical subcontractor) to the site, as well as trucks of MAMMOET for the transportation of modules for the first shipment contributed to this exceedance.

Dust gauge TBP-DG-E-0009 was placed between 6th November and 6th December 2013. Potential causes of exceedance are:

- Weather conditions: predominant winds were Northwest to Southeast, thus reaching wind speed between 25-30 km/hr.
- Site still unpaved. Traffic due to imported material by road trains.
- Increase of number of concrete trucks due to civil works activities.
- Mobilisation of trucks for MAMOET for the second shipment of modules.

Dust gauge TBP-DG-W-0010 was placed on 6th December and removed on 18th December 2013 because of the Christmas break. It was installed on 12th January and left until 4th February 2014. Exceedance is due to the activities to build up an electrical underground service between the TANPF gatehouse, the west air monitoring equipment and the existing ammonia plant.

As it was foreseen in the Compliance Reports for Air Quality Management Doc. No. 2-250-329-REP-TRE-8030&8054, once blasting and crushing activities were completed, and in general, site preparation is finalized, average of total solids in west/east were going to be lower if compare with previous analysis.

Mitigation measures are explained in section 4.1.4 below.

4.1.3.1.2 Continuous PM10 monitoring

PM_{10} monitoring is carried out by Thermoscientific TEOM 1405 at the western and eastern sides of the site boundary in TAN Burrup project. The TEOM analyser offers continuous operation, providing near real-time measurements for assessment and study of the temporal changes in ambient suspended particulate matter.

Australia Standard AS 3580.9.8. sets out the operational requirements for the continuous determination of suspended particulate matter in ambient air using the tapered element oscillating microbalance (TEOM) analyser. To minimize the contribution of liquid water to measured particle mass, the TEOM analyser conditions the incoming sample aerosol to 50°C prior to and during its measurement. This procedure provides constant sampling conditions, because it can provide a measure of mean particle concentration over periods from 10 minutes to 24 hours. Position of the sampling inlet of PM_{10} monitoring considers the AS/ NZS 3580.1.1:2007.

Readings of TEOMs and Weather station are continuously downloaded at site offices. A data acquisition and reporting software (Envitas Air Resources Manager) provides automatic reports and remote data download through an internet connection in a deskop.

Table 10 gathers data of PM_{10} Monitoring between March and December 2013.

- Prior to reporting, the data was filtered to ensure that automatic daily blanks have been appropriately applied to the data, and that any drift in the instrumentation is corrected prior to interpretation of the data.

- To identify if trigger limits are exceed (period of 24 hours).

    - TEOM gives value every 5 minutes (average). The contribution of this reading in the 24 hours monitoring was calculated.
    - A column with the cumulative values of readings was developed.
    - A graphic concentration vs. cumulative data was prepared. This graphic shows the average of readings every 24 hour. Therefore, it is posible to identified if trigger threshold of 50µg in 24 hours was exceeded.

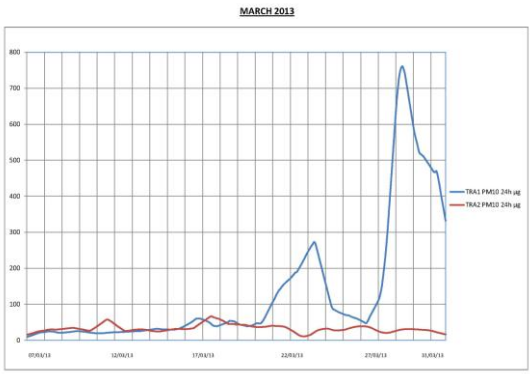
- Statistics presented for the collected data (maximum, 99th, 95th and 90th percentiles, median, averages) are also included.

Table 10. Summary of Continuous PM10 monitoring readings at site boundaries.

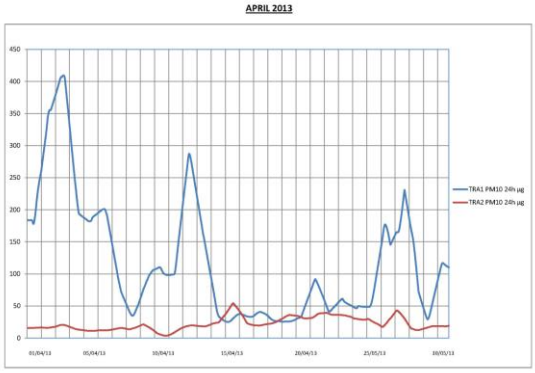
TRA 1: TEOM west side boundary

TRA 2: TEOM east side boundary

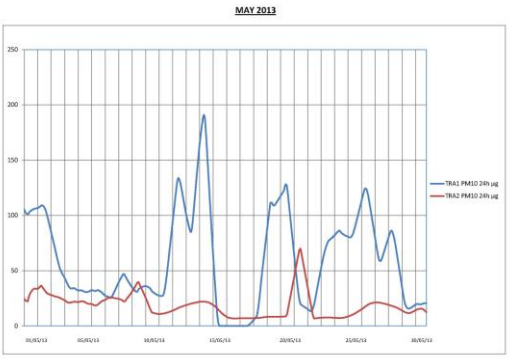
MONTHLY GRAPH TREND 2013	STATISTICS



MARCH 2013	TRA 1	TRA 2
MAXIMUM	841.576944	73.4956597
PERCENTIL 99	838.277351	69.8162049
PERCENTIL 95	534.694688	60.0089757
PERCENTIL 90	461.517743	45.9867708
MEDIAN	49.1062153	31.2295486
AVERAGE	138.693638	32.7183086
STANDARD DEVIATION	189.622944	12.2002129

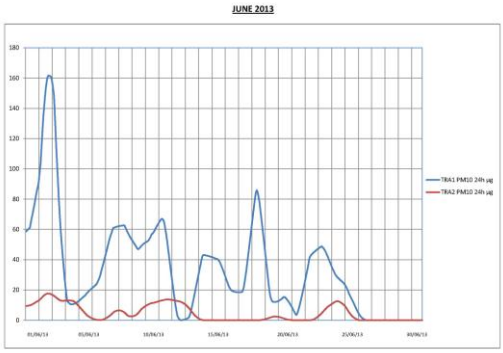


APRIL 2013	TRA 1	TRA 2
MAXIMUM	433.379132	57.7179861
PERCENTIL 99	429.772042	56.3556406
PERCENTIL 95	355.43816	44.7690625
PERCENTIL 90	266.226896	37.3010451
MEDIAN	90.1138194	19.9421528
AVERAGE	118.35047	22.6945307
STANDARD DEVIATION	100.77864	11.1195838

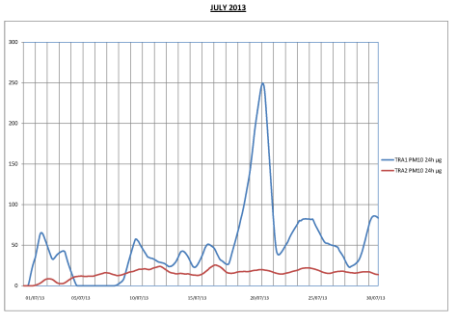


MAY 2013	TRA 1	TRA 2
MAXIMUM	214.40066	74.0539236
PERCENTIL 99	207.904068	72.8960295
PERCENTIL 95	137.596526	40.8979497
PERCENTIL 90	127.654938	31.3207222
MEDIAN	38.3870833	16.9110243
AVERAGE	58.3042873	18.4518463
STANDARD DEVIATION	47.6691704	12.9074282

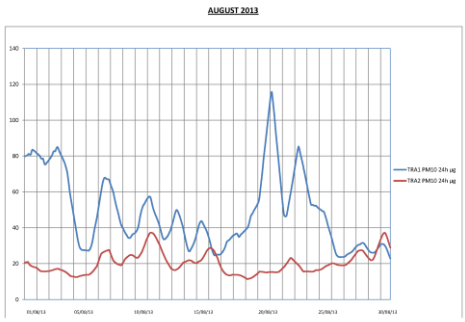
MONTHLY GRAPH TREND 2013	STATISTICS



JUNE 2013	TRA 1	TRA 2
MAXIMUM	215.563889	19.4563542
PERCENTIL 99	185.50463	18.4248365
PERCENTIL 95	92.1479913	14.0449427
PERCENTIL 90	70.1670451	13.3530694
MEDIAN	21.2303646	0.98322917
AVERAGE	33.351274	4.57251579
STANDARD DEVIATION	36.1405864	5.6540628

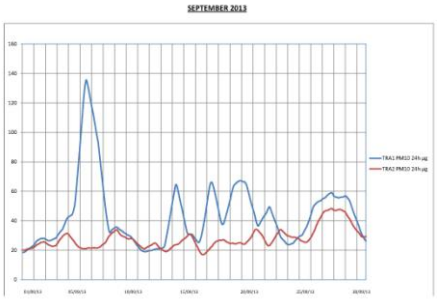


JULY 2013	TRA 1	TRA 2
MAXIMUM	270.774583	29.4090278
PERCENTIL 99	258.710202	26.8673563
PERCENTIL 95	160.970373	23.7923802
PERCENTIL 90	85.1874028	21.6946944
MEDIAN	39.0507292	16.1679861
AVERAGE	50.7349278	15.4504736
STANDARD DEVIATION	50.1974089	5.48384609



AUGUST 2013	TRA1	TRA2
MAXIMUM	128.558438	40.5096181
PERCENTIL 99	117.405155	39.7285451
PERCENTIL 95	88.4898316	35.6004948
PERCENTIL 90	82.6904757	29.8868854
MEDIAN	43.0078993	18.8856076
AVERAGE	47.7286308	20.3112972
STANDARD DEVIATION	22.7850101	6.75466584

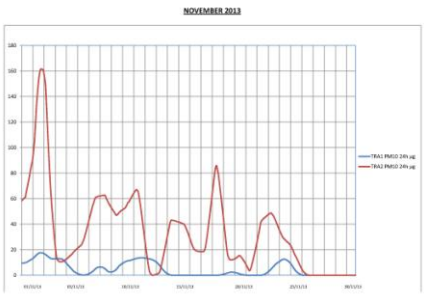
MONTHLY GRAPH TREND 2013



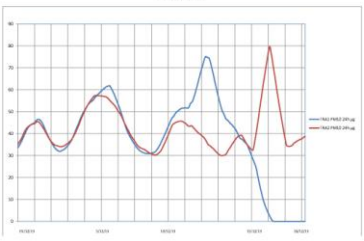
STATISTICS

SEPTEMBER 2013	TRA 1	TRA 2
MAXIMUM	143.3775	52.3974306
PERCENTIL 99	140.930811	49.6045
PERCENTIL 95	98.5211528	46.0551684
PERCENTIL 90	68.4688854	37.7606875
MEDIAN	36.0310938	25.9537326
AVERAGE	44.324943	28.0438821
STANDARD DEVIATION	24.9507159	7.66701977

OCTOBER 2013	TRA 1	TRA 2
MAXIMUM	78.15625	82.1287153
PERCENTIL 99	77.8431597	76.2192486
PERCENTIL 95	76.340625	73.2138368
PERCENTIL 90	73.903125	65.6981597
MEDIAN	55.5277778	42.2364063
AVERAGE	57.1063625	44.0827004
STANDARD DEVIATION	12.1709632	14.4016307

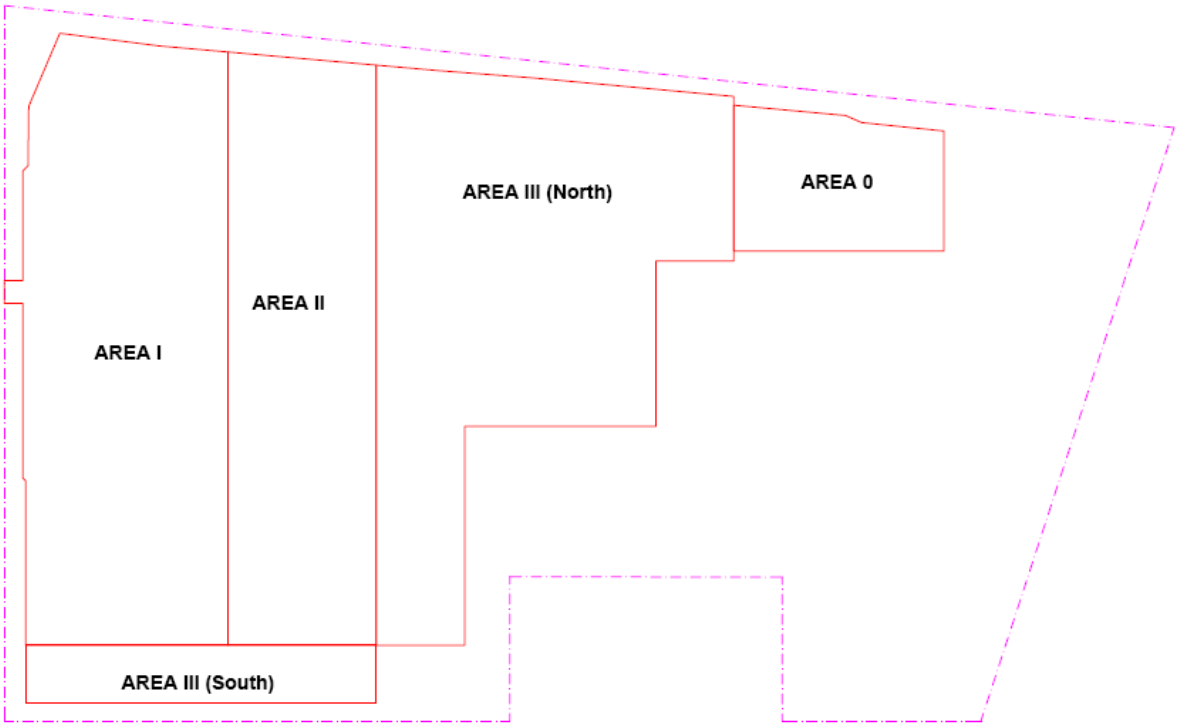


NOVEMBER 2013	TRA1	TRA2
MAXIMUM	19.4563542	215.563889
PERCENTIL 99	18.4248365	185.50463
PERCENTIL 95	14.0449427	92.1479913
PERCENTIL 90	13.3530694	70.1670451
MEDIAN	0.98322917	21.2303646
AVERAGE	4.57251579	33.351274
STANDARD DEVIATION	5.6540628	36.1405864



DECEMBER 2013	TRA1	TRA2
MAXIMUM	82.1317836	84.9433579
PERCENTIL 99	80.5770251	82.799586
PERCENTIL 95	65.9729802	77.6447892
PERCENTIL 90	61.7381591	56.7101548
MEDIAN	40.1241531	39.295256
AVERAGE	37.3480894	42.2080315
STANDARD DEVIATION	20.9591472	12.2549236

Figure 7: Distribution of areas TANFP site.



March 2013

Exceedances had happened between 21st-25th, and 28th-31st in TRA1. The causes of these readings were:

- Blasting and crushing activities in Area 1. Blasts were performed on 18th and 27th of March 2013. There were three crushers working at the same time, to handled material blasted. This working area was in a radio of 200-300 m of TRA1. In addition to the crushers, an average of 3 bulldozers, 3 -4 loaders, 4 -5 moxys were working in the area.
- Removal of material. Topsoil was removed from site. Road trains were leaving site through west access (about 50 m) from TRA1.
- Clearance in the surrounding of TRA 1 for the pipe rack and the access that will join Yara ammonia existing plant and the new plant.
- Site remained unsealed at this stage.
- Weather conditions: predominant winds were East to West or Southeast to Northwest, thus being dust fall to west side. Wind speeds up to 10 m were recorded.

April 2013

In April, exceedances happened between 1st-15thl, and 25th-28th on Western side. Main causes of these exceedances were:

- Blasting and crushing activities in Area 1. Blasts were performed on 10th, 17th and 24th. There were three crushers to handled material blasted on site at 200 m. There were 11-12 heavy plant equipment supporting the activity.
- Movement of friable material within/outside site in Area 1 and Northwest Access at 50 m from TRA1.
- Clearing and grubbing activities for the pipe rack and access that will join existing facility and the new plant. Access to these areas is at 50 m of the TRA1.
- Site remained unsealed.
- Weather conditions: predominant winds were East to West or Southeast to Northwest, thus dust fall to west side of TAN Burrup site.

May 2013

There were exceedances between 1st -3rd, 5th-14th, 17th -20th and 23rd -28th May. The peaks were recorded in the TEOM at the West side of the fence due to:

- Blasting and crushing activities in Areas 1 and 2. There were blasting operations on 1st, 8th, 16th and 22nd of May. Crushing of material blasted was carried out in a radio of 400 m of TRA1.
- Between 3rd and 9th, RNR was crushing material for the Department of Roads. This working area was next to site Access and less tan 100 m from TRA1.
- On 8th May, there was a dust storm at 12:30 on TANPF site.
- Removal of site's material. Road trains were leaving site through west access at 50m from TRA1.
- Activities of Civil works in Area 1 and pipe rack area. Concrete trucks came to the site through the west access.
- Weather conditions: winds were East to West or Southeast to Northwest, thus dust fall to west side. Strong winds were also recorded on site at daytime.
- Site remained unsealed.

June 2013

There were exceedances between 5th-10th, and 17th -20th in the TEOM of the west side. The likely cause of these exceedances were:

- Clearing, grubbing and excavation activities to open the Main Access to the future plant.
- Blastings were performed on the 14th and 20th June in the area for the main access.
- Activities of Civil works in Area 1 and pipe rack area. Concrete trucks came to the site through the west access.
- Site remained unsealed.

July 2013

There were exceedances between 18th and 23rd July. Causes of this exceedance were:

- Weather conditions: predominant winds (about 40 km/h) were East to West or Southeast to Northwest, thus dust fall to west side of our site.
- Clearing, grubbing and excavation activities for the construction of Main Access and North channel.
- Crushing activities in Areas 1 and 2 North.
- Civil work activities in pipe rack area (unit 60).
- Importing backfilling material for laydown area and quarantine area with road trains.

In July 2013, readings started to be lower than previous months, and the average improved significantly.

August 2013

Exceedances were recorded between 1st- 5th, and also 20th-25th in the TEOM of the west side (TRA1). As likely causes of the exceedances were:

- Crushing activities in Areas 1 and 2 North. The last blast was performed on 31st July.
- Weather conditions: predominant winds were East to West or Southeast to Northwest, thus dust fall to west side of our site.
- Clearing, grubbing and excavation activities for the construction of Main Access and North Channel.
- Civil works activities on site with continuous traffic of Concrete trucks.
- Importing backfilling material with road trains.

September 2013

In September, exceedances were recorded between 4th- 8th, and also on the 15th, 17th and 20th in the TEOM of the west side.

The likely causes of these readings were:

- Weather conditions: predominant winds were East to West or Southeast to Northwest, thus dust fall to west side of our site.
- Clearing, grubbing and excavation activities for the construction of Main Access and North channel.
- Civil works activities on site with continuous traffic of Concrete trucks.
- Importing backfilling material with road trains.
- Civil works in pipe rack, unit 12 and unit 87.

October 2013

There have been excedances in both TEOMs, but the maximum peaks still close to the trigger limits (maximum, average values). Records were lower than previous months, and the average improved.

In case of TRA 1, the excedances had happened between 1st-3rd, 6th-9th, 17th-19th and 26th. For TRA 2, excedances happened on 7th-8th, 14th-18th and 21st-25th. The likely causes of high readings were:

- Weather conditions: predominant winds were Northwest to Southeast, thus reaching wind speed between 25-30 km/hr .
- Unpaved roads.
- Earthworks for the construction of Main Access and North channel.
- Importing backfilling material with road trains. Piling in the north of Area 1 and 2.
- Civil works activities on site with continuous traffic of Concrete trucks.
- Mobilisation of FORGE to the site.
- Mobilisation of trucks for MAMOET for the first shipment of modules.

November 2013

Only TRA2 got some peaks between 1st-3th, 7th-8th, 9th-10th and 17th-18th November. The likely causes of the exceedances were:

- Weather conditions: predominant winds were Northwest to Southeast, thus reaching wind speed between 25-30 km/hr
- Site still unpaved.

December 2013

Both TEOMs recorded some punctual peaks: TRA1 on 5th, 12th and 13th and TRA2 on 5th, and 16th.

The likely causes of these records were:

- Weather conditions: winds above 30 km/hr.
- Exceedance was due to the activities to build up an electrical underground service between the TANPF gatehouse, the west air monitoring equipment and the existing ammonia plant.
- Site still unpaved.

Readings in the second semester 2013 were lower than in the first semester, with an important improvement in the average.

The scope of Works for Site preparation was finished at end of September 2013. Dust source activities such as blasting, crushing and preparation of main access were completed by that time.

Mitigation measures are explained in section 4.1.4 below.

4.1.3.2 CSIRO rock art sensitive receptors

Monitoring for the protection of rock art is a Commonwealth requirement (condition 9 of Works approval EPBC 2008/4546). TSP/PM10 standards from the National Environment Protection Measure (NEPM) for Ambient Air Quality (AAQ) are meant for protection of human health. These standards are not considered specifically relevant for protection of the rock art sites.

The following species are monitored at the identified rock art sites (Table 8) to satisfy the Commonwealth conditions in relation to baseline levels and operational impacts to air quality:

- NH_3 concentration.
- NO_2 concentration.
- SO_2 concentration.
- Dust deposition.
- TSP/PM10 concentration.

To compare air quality impacts pre- and post-operation, the monitoring locations for the baseline monitoring and operational monitoring will be the same at the Dampier Archipelago (including Burrup Peninsula) National Heritage Place, specifically at the rock art sites below as stipulated in the Commonwealth Approval:

- Site 5 – Burrup Road site.
- Site 6 – Water tanks site.
- Site 7 – Deep Gorge site.

Air quality monitoring for rock art is being undertaken at three (3) sites since September 2013. Below it has been included the first submittal of baseline data obtained since equipment was installed.

Readings of MIE ADR-1500 particulate monitor (PM10) are downloaded at site office (Table 11). A data acquisition and reporting software (Envitas Air Resources Manager) provides automatic reports and remote data download through an internet connection in a deskop. Therefore, alarm has also been set up (30µg/m^3).

Analysis of dust deposition gauge (TSS) (Table 12), readings for Minivol TAS for PM10 (Table 13), and collection of ADS Atmospheric Precipitation sampler/tipping rain gauge (Table 14) are carried out by the personnel of the Laboratory of Yara Ammonia Plant.

Two NH3, NOx, SOx diffusion tubes are collocated at each monitoring site, and sent to CSIRO for analysis. Table 15 includes the mixing ratios of nitrogen dioxide, nitric acid, sulfur dioxide and ammonia gases at the three sampling sites between 1st September to 29th December 2013. Table 15 has average mixing ratio for each gas and the 95% confidence intervals for them.

Table 11. Readings of MIE ADR-1500 between 1st September 2013 and 18th February 2014.

Data	Burrup Road	Deep Gaurge	Water Tank
	PM10	PM10	PM10
	µg/m^3	µg/m^3	µg/m^3
Minimum	-0.44	-0.54	-0.58
Minimum Date	9/10/2013 0:00	13/10/2013 0:00	14/10/2013 0:00
Maximum	20.77	23.86	17.81
Maximum Date	26/09/2013 0:00	26/09/2013 0:00	26/09/2013 0:00
Average	3.29	5.37	3.66
Standard deviation	5.6	7.9	4.9

Table 12. Analysis of dust deposition gauge (TSS).

Date	Location	Initial filter paper wt mg/L	Final filter paper wt mg/L	Volume of sample (mL)	TSS mg/L	Remarks
1/10/2013	M5-Burrup RD	1.7512	1.7526	100	14	
1/10/2013	M6-Water Tank	1.7012	1.7012	100	0	
1/10/2013	M7-Deep George	1.7159	1.7161	100	2	

Date	Location	Initial filter paper wt mg/L	Final filter paper wt mg/L	Volume of sample (mL)	TSS mg/L	Remarks
1/11/2013	M5-Burrup RD	0.0897	0.0914	100	220	Contained suspended oil droplets
1/11/2013	M6-Water Tank	0.0894	0.1114	100	17	
1/11/2013	M7-Deep George	0.0906	0.1179	100	273	Contained suspended oil droplets
1/12/2013	M5-Burrup RD	1.7468	1.7757	100	289	Oil droplets Present
2/12/2013	M6-Water Tank	1.7728	1.7791	100	63	
3/12/2013	M7-Deep George	1.7638	1.7856	100	218	

Table 13. Readings for minivol TAS for PM10.

SR NO	Date	Initial filter paper wt (µg)	Final filter paper wt (µg)	Particulate matter (µg/m^3)
1	12/09/2013	886	890	0.60386
2	17/09/2013	895	898	0.45289
3	23/09/2013	901	903	0.30193
4	29/09/2013	904	909	0.754825
5	5/10/2013	894	897	0.458005
6	11/10/2013	904	905	0.152668
7	17/10/2013	890	893	0.458005
8	23/10/2013	892	902	1.52
9	29/10/2013	897	900	0.458005
10	4/11/2013	900	908	1.23

SR NO	Date	Initial filter paper wt (µg)	Final filter paper wt (µg)	Particulate matter (µg/m^3)
11	10/11/2013	899	900	0.1536 09
12	16/11/2013	896	902	0.921655
13	22/11/2013	901	903	0.307218
14	28/11/2013	912	913	0.153609
15	4/12/2013	890	892	0.307218
16	10/12/2013	898	900	0.307218
17	16/12/2013	802	803	0.153609
19	28/12/2013	888	896	1.23

Table 14. Collection of ADS Atmospheric Precipitation sampler/tipping rain gauge.

Site	Date	Volume (ml)
Water tank	28/10/2013	2
Burrup road	28/10/2013	1
Deep Gorge	28/10/2013	2
Water tank	14/12/2013	0
Burrup road	14/12/2013	0
Deep Gorge	14/12/2013	0
Water tank	31/10/2013	0
Burrup road	31/10/2013	0
Deep Gorge	31/10/2013	0

Table 15. Mixing ratios of nitrogen dioxide, nitric acid, sulfur dioxide and ammonia gases at the three sampling sites between 1st September to 29th December 2013.

Date & Time on	Date & Time off	NO_2 (ppbv)	HNO_3 (ppbv)	SO_2 (ppbv)	NH_3 (ppbv)
Site 5					
01/09/2013 11:24	01/10/2013 12:45	3.4	0.2	0.9	0.1
01/10/2013 12:50	01/11/2013 12:50	3.4	0.6	0.9	0.8
01/11/2013 12:50	01/12/2013 11:00	2.7	0.5	0.7	0.6
01/12/2013 11:00	29/12/2013 09:30	2.6	0.3	0.9	0.3
Average		**3.0**	**0.4**	**0.8**	**0.4**
95% confidence		**±0.4**	**±0.2**	**±0.1**	**±0.3**
Site 6					
01/09/2013 10:54	01/10/2013 12:25	2.1	0.6	0.7	0.7
06/10/2013 03:30	01/11/2013 12:40	2.7	0.3	0.7	6.3
01/11/2013 12:30	01/12/2013 09:30	1.7	0.7	0.6	0.4
01/12/2013 09:30	29/12/2013 10:00	1.8	0.6	0.7	0.5
Average		**2.1**	**0.6**	**0.7**	**2.0**
95% confidence		**±0.4**	**±0.1**	**±0.1**	**±2.9**
Site 7					
01/09/2013 11:40	01/10/2013 13:05	1.4	0.3	0.6	0.2
01/10/2013 13:05	01/11/2013 13:05	1.7	0.5	0.6	1.3
01/11/2013 13:05	01/12/2013 10:00	1.4	0.5	0.5	0.4
01/12/2013 10:00	29/12/2013 10:30	1.7	0.2	0.5	1.4
Average		**1.6**	**0.4**	**0.6**	**0.8**
95% confidence		**±0.2**	**±0.1**	**±0.1**	**±0.6**

4.1.4 Mitigation measures

The dust generation was minimized through the use of the following mitigation measures:

- Follow up of the water inventory consumed for dust suppression and raised it up during the peaks (Tables 16 and 17 below).
- Preconditioning of material with water prior to be crushed up.
- Crushing activities stopped during workers' break.
- Site traffic speeds is kept at 20 kilometres per hour (kph), which is indicated by means of speed limit signs along the tracks and is explained to all drivers during site induction.
- Where rainfall is less than 0.25 mm in a 24 hour period, unsealed tracks are watered at a rate of 2 litres/^{m2}/hour during operational hours when construction traffic is active. The water is spread by water trucks.
- Stockpiles of earth and topsoil are not allowed at TANFP. After grubbing and clearing, friable material shall be removed immediately.
- Movement of materials that generates dust use water sprays as a suppressant.
- Drop distances are minimised for material transport to prevent dust dispersal.
- Trucks delivering friable material to site are sheeted until arrival on site.
- Trucks removing friable material from the site are sheeted subsequent to leaving the site gate.

Additionally, site induction also requests workforce:

- Report any air pollution that it is identified.
- Ensure equipment and machinery are in good working conditions and properly maintained.
- Turn off any engine while not in use.

Table 16. Water inventory for Dust Suppression in 2013.

MONTH	WCE 317 (14kl)	TK63 (17kl)	TK65 (17kl)	MONTHLY TOTAL (kl)
JANUARY	1,290	0	0	1,290
FEBRUARY	1,289.80	1,296.30	1,275.80	3,861.90
MARCH	3,319.00	2,944.00	3,303.00	9,566.00
APRIL	3,292.00	3,223.00	2,183.00	8,698.00
MAY	2,366.00	1,445.00	3,736.00	7,547.00
JUNE	2,674.00	1,122.00	0.00	3,796.00
JULY	3,607.00	272.00	0.00	3,879.00
AUGUST	2,557.00	0.00	1,209.00	3,766.00
SEPTEMBER	2,717.00	0.00	0.00	2,717.00
OCTOBER	2,912.00	0.00	0.00	2,912.00
NOVEMBER	6,348.00	0.00	0.00	6,348.00
DECEMBER	2,743.00	0.00	0.00	2,743.00
TOTAL:	35,114.60	10,302.30	11,706.80	57,123.70

Table 17. Water inventory for Dust Suppression in 2014.

MONTH	WCE 317 (14kl)	TK63 (17kl)	TK65 (17kl)	MONTHLY TOTAL (kl)
JANUARY	2,880			2,880
FEBRUARY	5,175.00			5,175.00
MARCH	6,370.00			6,370.00
TOTAL:	14,425.00			14,425.00

5. WATER QUALITY MANAGEMENT

The Construction Water Quality Management Plan (CWQMP) is included in the CEMP as attachment 02. The purpose of this CWQMP is to determine appropriate strategies to manage all forms of water taking into account site location and groundwater conditions so as to ensure environment protection and project environmental impacts minimization. It defines the measures and water quality monitoring regime required to reduce this impact on the groundwater, surface water and marine water affected environment.

Two Compliance Reports for Water Quality Management Doc. Nos. 2-250-329-REP-TRE-8031&8053 have already been issued to comply with SEWPaC requirement of a Compliance Monitoring Report every six months. Both reports outline the monitoring activities and commitments, thus providing discussion and evidences of how compliance with each requirement was met.

5.1.1 Water Quality Standards

Recommended surface water parameters are listed in Table 18 along with acceptance criteria based most commonly on ANZECC (2000) trigger levels for lowland rivers of tropical Australia.

Table 18. Monitoring Parameters and Trigger Levels during Construction.

Analyte	Units	Trigger Levels
pH	pH units	6.0-8.0[1]
Oil and Grease	Visible	None visible[2]
Total Suspended Solids (TSS)	mg/L	50[2]
Turbidity	NTU	25[1]

1. ANZECC (2000) trigger values for physical and chemical stressors for lowland rivers for tropical Australia.
2. Trigger Level based on recognised industry standard.

The baseline results are recorded as attachment of CWQMP, approved by SEWPaC on the 22nd November 2012 and, available at www.ypnpl.com.au/project-updates.html.

The baseline data collected to date has been used to calculate the Site specific trigger levels. To monitor potential impacts to groundwater quality during construction the suite of parameters listed in Table 19 are recommended. EPA Condition 8.4 states the proponent shall set groundwater monitoring trigger values at a value of 10% above the baseline contaminant concentrations obtained from the hydrogeological studies required by Condition 8-1.

The methodology for calculating the Site specific trigger levels involved using the maximum concentration of an analyte detected plus 10%. In the case where a range in concentration is applicable (i.e. pH), the maximum concentration plus 10% and minimum concentration minus 10% has been used to calculate the trigger levels during construction.

Table 19 shows the list of analytes to be collected during construction along with site specific trigger levels where applicable.

Table 19: Groundwater Monitoring Parameters and Trigger Levels during Construction.

Analyte	Units	Trigger Level (construction only)
pH	pH Units	6 – 8.4
Total Dissolved Solids	mg/L	143,000
Total Suspended Solids	mg/L	2,090
Alkalinity (total) as CaCO3	mg/L	561
Ammonia	mg/L	0.04
Aluminium (filtered)	mg/L	0.021
Arsenic (filtered)	mg/L	NA
Cadmium (filtered)	mg/L	NA
Calcium (filtered)	mg/L	1210
Chloride	mg/L	95,700
Chromium (filtered)	mg/L	NA
Copper (filtered)	mg/L	NA
Iron (filtered)	mg/L	0.26
Iron (total)	mg/L	143
Lead (filtered)	mg/L	NA
Manganese (filtered)	mg/L	0.242
Magnesium (filtered)	mg/L	5,170
Mercury (filtered)	mg/L	0.0001
Nickel (filtered)	mg/L	NA
Nitrate (as NO3-)	mg/L	9.57
Nitrogen (total)	mg/L	5.6
Zinc (filtered)	mg/L	0.052
Oil and Grease	Visible	None visible[2]

1. NA – Not Available. There are a number of metals for which results have shown concentrations below the laboratory detection limits (Arsenic, Cadmium, Copper, Chromium, Lead and Nickel), and so a reliable trigger level has not been able to be determined at this stage.
2. Trigger Level based on IECA (2008)

5.1.2 Water monitoring program

5.1.2.1 Wastewater management

Only sanitary wastewater is generated at this stage of TANFP. There are four septic tanks at TAN Burrup Project. A waste water tank 6000 is located at WBHO's offices. Two 7000 LTR underground tanks are installed at Tecnicas Reunidas' offices. There is also one 4000 liters septic tank in Downer´s office.

As per section 5.4.8 Wastewater management of Construction Water Quality Management Plan (CWQMP), sanitary wastewater is collected by Toxfree and Western resource recovery, which are authorized Controlled Waste Carrier using water septic tanks and disposed of in an appropriate manner.

The Carrier must ensure that a Driver possess a valid and active Tracking Form to transport all Bulk Controlled Waste on public roads. All Bulk Controlled Waste must be treated or disposed within 7 days of the first consignment entering the Tank, or the Tracking Form being activated (whichever is sooner).

Table 20 summarize the inventory of sanitary wastewater between January 2013 and February 2013.

Table 20: Sanitary Waste inventory.

Disposal date	Sanitary Waste quantity	Disposal Site and Company	Controlled waste tracking form number
19.01.13	4.7 t	Toxfree	5506766
05.02.13	4000 l	Toxfree	5510543
18.02.13	4200 lt	Toxfree	5513244
15.03.13	4.1 t	Toxfree	5518301
22.03.13	1.82 t	Toxfree	5520399
29.03.13	1.73 t	Toxfree	5523010
06.04.13	3 t	Toxfree	5524107
20.04.13	4 t	Toxfree	5527815
27.04.13	7t	Toxfree	5529433
01.05.13	3t	Toxfree	104974

Disposal date	Sanitary Waste quantity	Disposal Site and Company	Controlled waste tracking form number
04.05.13	6t	Toxfree	102686
11.05.13	3.5t	Toxfree	106418
18.05.13	3.5t	Toxfree	106428
01.06.13	3t	Toxfree	105235
08.06.13	5t	Toxfree	103277
14.06.13	6t	Toxfree	105147
21.06.13	7t	Toxfree	105679
26.06.13	16t	Toxfree	105690
29.06.13	2t	Toxfree	106177
06/07/13	7 t	Toxfree	126860
13/07/13	6 t	Toxfree	103937
17/07/13	5.5 t	Toxfree	106323
19/07/13	10000l	Western resource recovery	5550861
20/07/13	5t	Toxfree	104799
24/7/13	4t	Toxfree	126867
27/7/13	6t	Toxfree	103559
31/7/13	3.5t	Toxfree	126873
3/8/13	3.5t	Toxfree	103888
6/8/13	6000l	Western resource recovery	5554920
7/8/13	3t	Toxfree	103610

Disposal date	Sanitary Waste quantity	Disposal Site and Company	Controlled waste tracking form number
12/8/13	4.82t	Toxfree	126878
14/8/13	3.8t	Toxfree	125301
20/8/13	3.89t	Toxfree	105740
24/8/13	5.01t	Toxfree	105750
28/8/13	3.55t	Toxfree	125313
4/9/13	3.94t	Toxfree	125682
7/9/13	1.5t	Toxfree	125333
11/9/13	4.4t	Toxfree	125337
11/9/13	13000l	Western resource recovery	5564821
14/9/13	1.79t	Toxfree	126962
18/9/13	2.57t	Toxfree	103568
21/9/13	1.86t	Toxfree	103577
25/9/13	4.5t	Toxfree	126970
26/9/13	6500l	Western resource recovery	5568998
02/10/13	4.56t	Toxfree	125643
05/10/13	2.39t	Toxfree	126976
09/10/13	3.78t	Toxfree	113898
10/10/13	5000l	Western resource recovery	5572860
16/10/13	4.86t	Toxfree	103590

Disposal date	Sanitary Waste quantity	Disposal Site and Company	Controlled waste tracking form number
19/10/13	4.5t	Toxfree	103599
23/10/13	3.28t	Toxfree	113956
24/10/13	6300	Western resource recovery	5576425
26/10/13	2.49t	Toxfree	113967
30/10/13	5.27t	Toxfree	113977
30/10/13	3500l	Western resource recovery	5577851
1/11/13	2.41t	Toxfree	116014
6/11/13	2.76t	Toxfree	115959
7/11/13	6500l	Western resource recovery	5579959
7/11/13	2500l	Western resource recovery	5579959
14/11/13	1500l	Western resource recovery	5581749
16/11/13	4.33t	Toxfree	127041
20/11/13	3.8t	Toxfree	127047
21/11/13	7000	Western resource recovery	5582747
21/11/13	3000	Western resource recovery	5582747

Disposal date	Sanitary Waste quantity	Disposal Site and Company	Controlled waste tracking form number
25/11/13	6.24t	Toxfree	5584080
27/11/13	2.14t	Toxfree	115966
28/11/13	3500 l	Western resource recovery	5584940
30/11/13	4.42 t	Toxfree	116080
4-12-13	5400 l	Toxfree	5586750
5-12-13	7000 l	Western resource recovery	5587069
5-12-13	3400 l	Western resource recovery	5587069
7-12-13	2000 l	Toxfree	5587611
11-12-13	4000 l	Toxfree	5588329
14-12-13	4000 l	Toxfree	5588881
17-12-13	10000 l	Western resource recovery	5589586
17-12-13	6000 l	Western resource recovery	5589518
18-12-13	2000 l	Toxfree	5590080
8-01-14	5.52t	Toxfree	127528
11-01-14	3.69t	Toxfree	5164
14-01-14	4.21t	Toxfree	1878
18-01-14	5.17t	Toxfree	5365

Disposal date	Sanitary Waste quantity	Disposal Site and Company	Controlled waste tracking form number
20-01-14	4.36t	Toxfree	5269
24-01-14	6.72t	Toxfree	5090
28-01-14	2.8t	Toxfree	127548
01-02-14	2.28t	Toxfree	05100
05-02-14	5.59t	Toxfree	05456
08-02-14	2.79t	Toxfree	05047
12-02-14	5.04t	Toxfree	05756
14-02-14	4t	Toxfree	05809

Detailed information about carriers, tank specifications, invoices and tracking forms have been included as an attachment in the Compliance Reports for Water Quality Management Doc. Nos. 2-250-329-REP-TRE-8031&8053.

5.1.2.2 Groundwater management

The construction activities also have the potential to impact groundwater quality, with the addition of water seepage, as a result of accidental spills or leaks on pervious areas of the Site resulting in potential groundwater impacts within the site and down hydraulic gradient (supra-tidal flats).

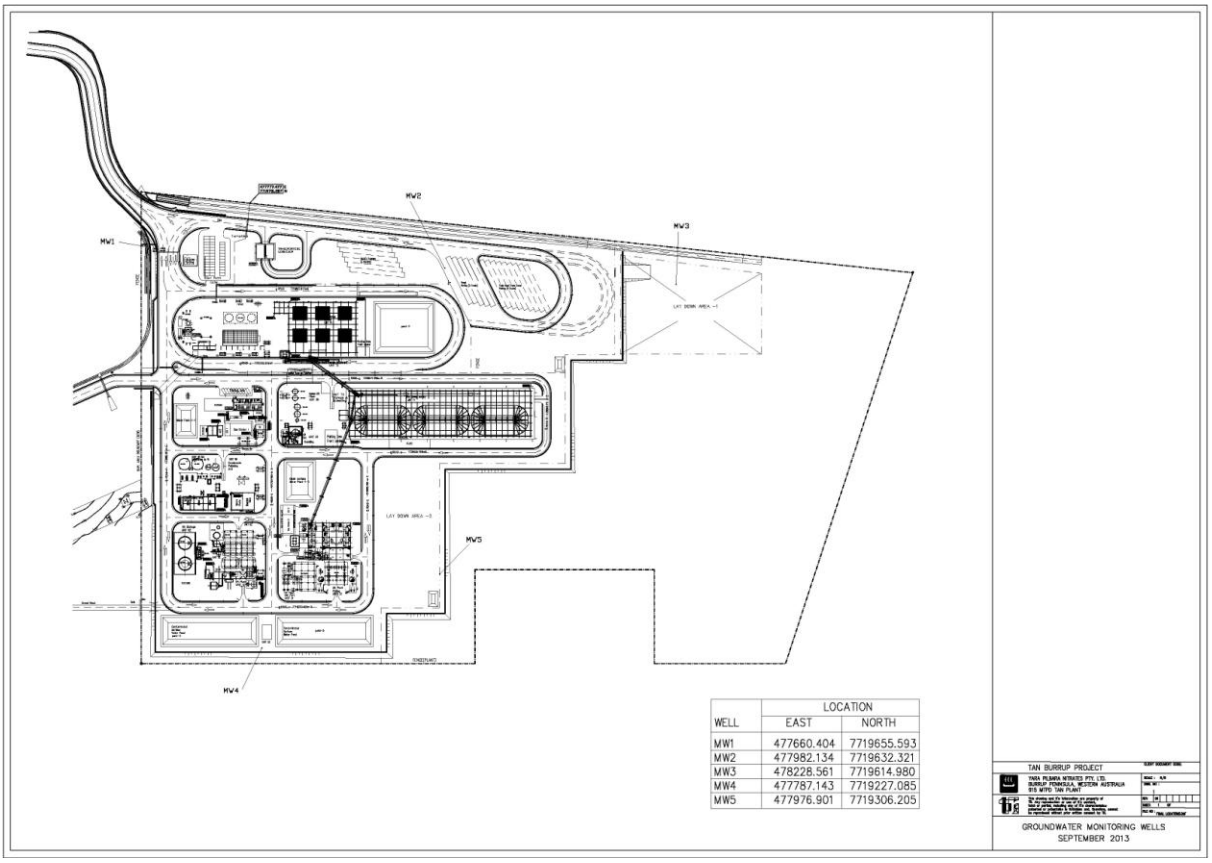
Detailed information about the Groundwater Monitoring events (GMEs), and the installation of two new bores can be found in the Compliance Reports for Water Quality Management Doc. Nos. 2-250-329-REP-TRE-8031&8053.

5.1.2.2.1 Monitoring Network

Five groundwater wells were drilled (MW1, MW2, MW3, MW4 and MW5) during the hydrogeological and hydrological investigation undertaken by ERM (2012) to satisfy EPA *Condition 8.1*. The baseline data collected from these wells have been used to calculate the Site specific trigger levels.

Wells MW1 and MW4 were decommissioned as a result of construction activities, two additional bores were drilled on the 7th September by GHD. Location of these new bores is shown in Figure 8.

Figure 8. Groundwater monitoring wells location.



5.1.2.2.2 Monitoring Schedule

Routine six monthly water level gauging and water quality monitoring should continue to be undertaken at the monitoring wells (as per EPA *Condition 8-4*), to compliment existing baseline data. Groundwater monitoring surveys have been carried out in March, April and October 2013.

5.1.2.2.2.1 Laboratory analysis

Groundwater samples from March, April and October 2013 GME's were submitted to SGS Australia Pty Ltd (SGS), a NATA accredited laboratory. Samples were analysed for a suite of compounds including:

- Cations and anions including calcium, magnesium, sodium, potassium, phosphate, ammonia, carbonate, bicarbonate, chloride, sulphate, nitrate, nitrite and silica.
- Total dissolved solids (TDS), and total alkalinity.
- Dissolved metals including; aluminium, arsenic, cadmium, chromium, iron, lead, manganese, mercury, selenium and zinc.

5.1.2.2.2.2 Results and discussion

March 2013 GME

Groundwater temperature was ranged between 30.7 and 34.3°C; which higher than previous monitoring in October 2012 but can most likely be attributed to seasonal changes in weather conditions. The pH results ranged between 6.84 and 7.32 indicating neutral conditions, which is consistent with historical results.

Oxygen reduction potentials were consistent for the duration of the sampling period (approx. 33.2 – 135.9 mV). Electrical conductivity remained consistent across the monitoring wells with the exception of MW5 where an elevated electrical conductivity reading compared to previous GME's was displayed. Dissolved oxygen content was recorded as 0.99 – 1.82 mg/L during the GME which is consistent with previous GMEs.

The Following exceedences of trigger levels were observed.

- Monitoring well MW1 recorded a Total suspended soils (TSS) concentration of 2,900 mg/L.
- Monitoring well MW3 recorded a phosphorous concentration of 1.6 mg/L.
- Monitoring well MW5 recorded an ammonia concentration of 1.2 mg/L and an ammonia (as N) concentration of 1,000 ug/L.

April 2013 GME

Groundwater temperature was ranged between 31.9 and 34.4°C; which slightly higher than the March 2013 GME. The pH results ranged between 6.71 and 7.19 indicating neutral conditions, which is consistent with March 2013 GME and historical results. Oxygen reduction readings remain comparable to previous GME's with reading between 2.69 and 210.7 mV. Electrical conductivity appears to have increased in monitoring wells MW3, MW4 and MW5 of the in comparison to previous GME's undertaken.

MW5 remains hypersaline however salinity of other wells closest to the drainage system are also increasing likely as a result of precipitation of salts after high rainfall/flood events and leaching of these into the groundwater. Dissolved oxygen content was recorded as 0.13 – 3.44 mg/L during the GME which is consistent with previous GMEs.

The following exceedences of trigger levels were observed:

- Monitoring well MW1 recorded a nitrate concentration of 9.7 mg/l.
- Monitoring well MW3 recorded an ammonia concentration of 0.94 mg/L, aluminium concentration of 0.072 mg/L, an iron (filtered) concentration of 0.52 mg/L and a manganese (filtered) concentration of 1.7 mg/L.
- Monitoring well MW4 recorded an aluminium concentration of 0.031 mg/L.
- Monitoring well MW5 recorded a reactive phosphorous (as P) concentration of 0.014 and an aluminium concentration of 0.3 mg/L.

<u>October 2013</u>

Groundwater elevation ranged from 2.02m (MW3) to 6.44m below top of casing. Compared to April 2013, water level has dropped in MW1, MW2 and MW5 and increased slightly in MW4 and MW4. The observed pattern is likely as a result of a combination of reduced rainfall over the period and tidal variation.

Groundwater temperature ranged between 29.3 and 31.2 ˚C; which is lower than previous monitoring in April 2013 and can most likely be attributed to seasonal changes in weather conditions.

The pH results ranged between 4.32 and 6.21. The lowest pH was recorded in MW4, but mildly acidic readings as low as 5.34 were recorded in MW1 and MW2.

Oxygen reduction potentials were consistent for the duration of the sampling period (approximately 81.4 – 158.6 mV). Electrical conductivity remained consistent across the monitoring wells compared to previous GME's. Electrical conductivity increases with increased salinity towards the tidal flats. MW1 and MW2 are brackish, MW3 is saline and groundwater from MW4 and MW5 is hypersaline.

Dissolved oxygen content was recorded as 0.30 – 1.99 mg/L during the GME. Results at MW1 and MW2 are notably lower than readings taken in March 2013 and October 2012 possible as a result of low rainfall recharge to the groundwater.

A review of the data displayed a number of low exceedences of the trigger levels (set at 10% above the maximum baseline concentration). The following exceedences of trigger levels were observed, and recorded in table 21 below.

Table 21. Exceedences of Trigger Levels (October 2013)

Well	Analyte	Exceedence	Trends (over past 7 GMEs)
MW1	Iron (Filtered)	0.437 mg/L compared to the maximum acceptable baseline value of 0.264 mg/L.	No trend identified. Results likely indicate a natural variation in groundwater chemistry.
	Manganese	0.425 mg/L compared to the maximum acceptable baseline value of 0.242 mg/L.	No trend identified. Results likely indicate a natural variation in groundwater chemistry.
MW2	No exceedences recorded		
MW3	Aluminium (Filtered)	0.021 mg/L compared to the maximum acceptable baseline value of 0.0209 mg/L.	No trend identified. Results likely indicate a natural variation in groundwater chemistry.
	Selenium	0.0038 mg/L compared to the maximum acceptable baseline value of 0.0033 mg/L.	No trend identified. Results likely indicate a natural variation in groundwater chemistry.
MW4	Ammonia as N	877 µg/L compared to the maximum acceptable baseline value of 814 µg/L. [April 2013 - Recorded concentration for Ammonia as N in MW5 was 1000 µg/].	No trend identified. It is noted that this bore replaces the previous one. Constructed deeper, results likely indicate a natural variation in groundwater chemistry over time and with depth.
	Aluminium (Filtered)	Unable to verify results at MW4 as the detection limit of <0.025 mg/L is higher than the maximum acceptable baseline value of 0.0209 mg/L due to the hyper saline groundwater.	N/A
	Manganese	0.277 mg/L compared to the maximum acceptable baseline value of 0.242 mg/L.	No trend identified. It is noted that this bore replaces the previous one. Constructed deeper, results likely indicate a natural variation in groundwater chemistry over time and with depth.
	Selenium	Unable to verify results at MW4 as the detection limit of <0.01 mg/L is higher than the maximum acceptable baseline value of 0.0033 mg/L. Due to the hyper saline groundwater.	N/A
MW5	Chromium (hexavalent) (Filtered)	0.012 mg/L compared to the maximum acceptable baseline value of 0.011 mg/L.	No trend identified. Results likely indicate a natural variation in groundwater chemistry.

5.1.2.2.2.3 Conclusion

March 2013 and April 2013

The results of the March 2013 and April 2013 Groundwater Monitoring Events (GMEs) display a number of exceedences in the set trigger levels. However none of the analytes which exceeded a trigger level during the March 2013 GME exceeded the trigger level during the April 2013 GME at the same well location.

It is noted that the salinity of the groundwater varies from brackish to hypersaline the closer the wells are to the natural surface water drainage systems. In addition, rainfall events and cyclonic activity causing localised flooding will result in seasonal changes to groundwater recharge and resultant groundwater chemistry.

None of the analytes observed exceeding the trigger levels are attributed to current on site activities. Site levelling activities may have exposed areas of ground and soils not previously exposed to rainfall and leaching, and it is possible that leaching of these soils has released localised increased metals into the groundwater.

October 2013

The results of the October 2013 Groundwater Monitoring Event (GME) display a number of exceedences in the set trigger levels. However, with the exception of aluminium at MW3, none of the analytes which exceeded a trigger level during the April 2013 GME exceeded the trigger level during the October 2013 GME at the same well location.

It is noted that the salinity of the groundwater varies from brackish to hypersaline the closer the wells are to the natural surface water drainage systems. Groundwater in the vicinity of MW5 has likely been derived from multiple directions, while those monitoring wells located further away from the main drainage intercept groundwater from more discrete flow directions.

Until the wells are surveyed in, it is not possible to assess actual groundwater flow direction. However, what is likely is that depending on the groundwater flow paths intercepted by the monitoring wells, groundwater chemistry is likely to differ between wells. In addition, rainfall events and cyclonic activity causing localised flooding will result in seasonal changes to groundwater recharge and resultant groundwater chemistry.

The results continue to support the notion that variability in the groundwater chemistry observed both between monitoring wells and between monitoring events with no clear trends suggests the results depict natural variability in groundwater chemistry as opposed to increasing concentrations of analytes associated with site activities. None of the analytes observed exceeding the trigger levels are directly attributed to current on site activities.

It was previously commented that site levelling activities may have exposed areas of ground and soils not previously exposed to rainfall and leaching, and it is possible that leaching of these soils has released localised increased metals into the groundwater.

With the drilling and installation of replacement wells MW1 and MW4, the variation in bore depth and deeper screens may also lead to variation in groundwater chemistry where sampled.

All of above has already been reported to the Assessment and Compliance Division Office of the Environmental Protection Authority.

5.1.2.3 Surface water management

It is important that all potentially contaminating materials used or stored on the Site (fuel, oils) be prevented from entering the groundwater or surface water systems. This is achieved through storage in designated secondary containment areas (internally bunded shipping containers or purpose built structures). A Hazardous Management Plan Doc. No. 2-250-329-PRO-TRE-0122 has being issued to ensure hazardous materials are handled, used, stored, transported and removed from the site in an appropriate manner that minimizes environmental impact generated on workers and, especially, on the surrounding community, sensitive habitants, terrestrial fauna and vegetation and rock art.

Provision of spill kits and training of Site personnel in their use ensure that in the event of any spills appropriate action can be taken rapidly to prevent and minimise impacts to surface waters or groundwater. Wherever possible, activities that have potential for spills will be located in areas that drain to sediment basins; otherwise appropriate safeguards and spill containment facilities will be installed. Section 4.3.4 of Emergency response management plan Doc. No. 2-250-329-PRO-TRE-0113 highlights that any release, both of hazardous and/or non hazardous material shall be immediately reported and controlled, thus listing a set of steps in order to minimize environmental impact.

Construction Environmental Management Plan (CEMP), Hazardous Material Management Plan (HMMP) and Emergency Response Management Plan (ERMP) were sent to SEWPaC on 22nd September 2012 and approved on 22nd November 2012 (Letter reference: 2012/08279).

6. EROSION CONTROL AND STORMWATER MANAGEMENT

Attachment 03 of CEMP includes Erosion Control and Stormwater Management Plan (CESMP), which outlines the required surface water and soil conservation management requirements for the construction phase of the project to ensure environment protection and compliance with all conditions, commitments and requirements. The CESMP describes therefore the controls and measures required to minimize erosion and sedimentation within the disturbed area by proposing and establishing methods to manage stormwater within, and entering the YPNPL lease, and the immediate surrounding land.

Two Compliance Reports for Erosion Control and Stormwater management Doc. Nos. 2-250-329-REP-TRE-8032&8045 have already been issued to comply with SEWPaC requirement of a Compliance Monitoring Report every six months. Both reports outline the monitoring activities and commitments, thus providing discussion and evidences of how compliance with each requirement was met.

6.1 Introduction to Erosion control and Stormwater Management.

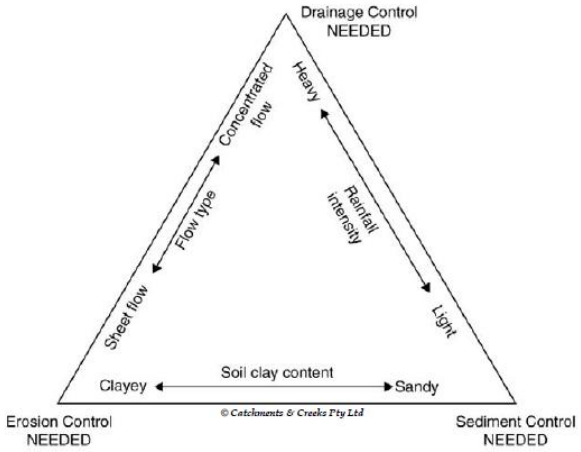
Erosion is the wearing away of the land by water, rainfall, wind, ice or other geological agents. Natural erosion occurs under natural conditions, undisturbed by humans and occurs over long geological time periods. Erosion control is about trying to control the accelerated erosion caused by the action of rainfall, wind, and runoff on land surfaces disturbed by human activity.

Drainage is one means of minimising erosion. As soon as we concentrate water flow, or allow it to increase velocity we substantially increase the risk of erosion. Therefore, it is essential that we use flow-paths which are resistant to erosion and are large enough to contain the expected (design) flow of water.

The sediment is controlled principally by slowing the water so that the particles settle due to gravity. This is done with a variety of structures. The most common structures are sediment fences and sediment basins. Because it is impractical to construct huge sediment control structures, it is important to divert all of the water from outside the works around the job using banks or drains.

Therefore, erosion control and sediment control are two different processes. Whilst most sites have a combination of both, there will be an emphasis on one or the other depending on the soil types present on the site.

Figure 9. Erosion, Drainage and Sediment Control Processess.



Factors that can influence erosion are:

- Rainfall: High-intensity, short-duration storm events have much greater erosion potential than low intensity, longer duration storm events with the same runoff volume. Intense storms produce larger raindrops, and are more likely to break up the soil and dislodge particles.

- Soil erodibility: It is determined by the soils ability to resist detachment and transport due to rainfall, runoff and infiltration capacity. Well-structured soils with a high clay content are generally least erodible. Some clays are dispersible meaning that they break down when wet and become highly erodible. Silts and fine sands are highly erodible.

- Length and steepness of slope. Steeper slopes cause runoff flow velocities to increase, resulting in increased erosion. As the slope length increases the opportunity for runoff to concentrate and achieve an erosive velocity increases.

- Soil surface cover such as vegetation and mulches protect the soil surface from raindrop impact, reduce flow velocity, disperse flow, and promote infiltration and the deposition of sediment. This is the most important, and easily managed aspect to erosion control. Consequently, the site management must aim to reduce soil surface exposure, and to increase ground cover to minimise the erosion potential.

Therefore, goals of construction site erosion and sediment control are to:

- Protect the land surface from erosion.
- Intercept, divert, and safely dispose of clean run-on water from undisturbed areas, clear of any disturbed areas, or to pass clean water through the site without mixing with dirty (sediment contaminated) site run-off.

- Progressively revegetate or stabilise disturbed areas.
- Prevent sediment-contaminated water leaving the site.

These goals can be achieved by applying the following principles:

1. Integrate project design with site constraints.
2. Plan and integrate erosion and sediment control with construction activities.
3. Minimise the extent and duration of disturbance.
4. Control stormwater flows onto, through, and from the site in stable drainage structures.
5. Use erosion controls to prevent on-site damage.
6. Use sediment controls to prevent off-site damage.
7. Control erosion and sediment at the source.
8. Stabilise disturbed areas promptly.
9. Inspect and maintain control measures.

6.2 Stormwater Quality Monitoring

Two significant rainfall events had happened in 2013. The first one was on 24th June 2013 (209.4 mm). Surface water monitoring was performed for recording this event, and results were included in the attachment 01 of Compliance report for erosion control and storm water management Doc. No. 2-250-329-REP-TRE-8031. A second event happened on 31st December 2013 (112.8 mm) due to Tropical cyclone (TC) Christine. Site was closed because Christmas break and surface water monitoring was not performed for recording this event.

6.2.1 Surface Water Monitoring Parameters and Trigger Levels

Recommended surface water parameters are listed in Table 1 along with acceptance criteria based most commonly on ANZECC (2000) trigger levels for lowland rivers of tropical Australia.

Table 22. Monitoring Parameters and Trigger Levels during Construction.

Analyte	Units	Trigger Levels
pH	pH units	6.0-8.0[1]
Oil and Grease	Visible	None visible[2]
Total Suspended Solids (TSS)	mg/L	50[2]
Turbidity	NTU	25[1]
1.ANZECC (2000) trigger values for physical and chemical stressors for lowland rivers for tropical Australia. 2.Trigger Level based on recognised industry standard.		

Any negative impacts on surface water quality that are identified through the monitoring program will be investigated and reported accordingly.

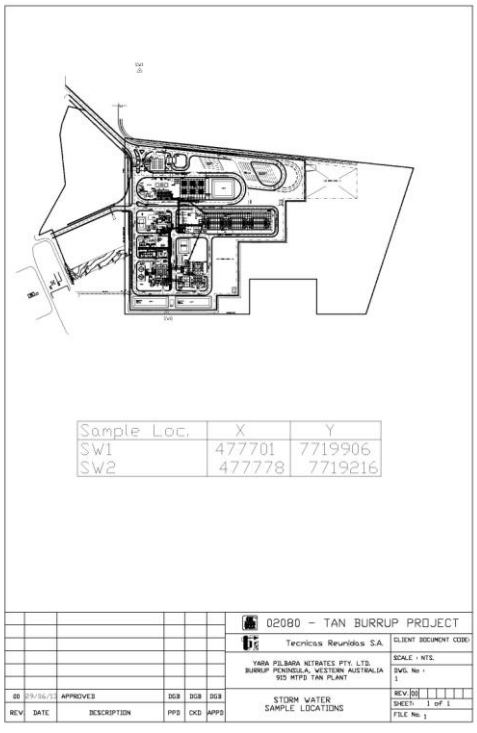
6.2.2 Stormwater monitoring event on 24th June 2013

The primary objective of this event was to provide monitoring of stormwater water quality, following the significant rainfall on the 24th June 2013 (209.4 mm), in the vicinity of the Site, to allow prompt identification of any changes that can be attributed to construction activities.

In order to achieve the objectives, the following activities were carried out:

- A single stormwater monitoring event, comprising the sampling of two locations (Figure 10).
- Laboratory analysis of the stormwater samples. Samples were sent to the National Measurement Institute, Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education in Kensington (Western Australia). This is a NATA accredited laboratory to ensure quality assurance.
- The preparation of this report to detail the works undertaken and the results of the analysis.

Figure 10. Location for stormwater monitoring.



Surface water samples were collected directly from the water body at the relevant sampling locations (Figure 10) in accordance with the Standard Operating Procedure (SOP) for Surface Water Sampling. Field parameters (pH, conductivity) were measured in YPNPL laboratory for each sample (Table 23).

Table 23. Field parameters for stormwater sampling on 24th June 2013.

Date	Time	ID Sample	pH	Conductivity (µS/cm)	Coordinates	
					X	Y
24/06/2013	16:00	TBP-SW1-0001	7.49	166.2	477701	7719906
25/06/2013	16:00	TBP-SW2-0001	8.53	363	477778	7719216

All surface water samples were collected, stored and transported to the laboratory under chain of custody procedures.

Samples were sent for analysis to the National Measurement Institute, Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education in Kensington (Western Australia), a NATA accredited laboratory. Samples will be analysed from turbidity, pH, oil and grease, total suspended solids (Table 24).

Table 24. Sampling results by National Measurement institute.

Sample Reference	Oil and Grease (mg/L)	pH	Total Suspended Solids (mg/L)	Turbidity
TBP-SW1-0001	<10	7.6	6	35
TBP-SW2-0001	<10	8.3	281	380

Based on the data from tables 23 and 24, SW1's pH results indicates neutral conditions. The higher pH value of SW2 may be due to a base or alkaline material was exposed to stormwater. Curing compound for concrete may be the cause of this pH value. Because of the heavy rainfall, excavations were overfilled, and the runoff water from them may be the cause of this reading.

The high value of SW2's Total Suspended solids (TSS) is because TAN Burrup Project is still at the site preparation stage, and the site remains unsealed thus being the major source of suspended solids.

Turbidity at two locations was significant. Cloudiness was caused by the suspended solids (mainly soil particles) that were suspended in the water course.

Higher TSS also lead to higher conductivity. Additionally, conductivity is an indirect measure of the presence of inorganic dissolved solids such as nitrate, phosphate, sulphate, sodium, etc. As above, TAN Burrup site still unpaved and stormwater contents of inorganic solids are higher in SW2.

While taking both samplings, oil and grease was not observed as a film, sheen or discoloration at the monitoring location.

It can be concluded, that results of TSS, Turbidity and pH are related to the fact to be in an early stage of the project execution. As long as the project moves forward, sealing of roads, pavement installation and embankments completion will avoid such a run off along site.

6.3 Summary of Erosion Control and Stormwater Management Actions

6.3.1 Site inspections

Contractor has performed periodical inspections thus using the Attachment 02 – Site Inspection Checklist from the Erosion Control and Stormwater Management Plan included as attachment 03 of the CEMP.

Evidences to show compliance to CEMP´s requirements have been included in the Compliance reports for Erosion Control and Stormwater management Doc. Nos. 2-250-329-REP-TRE-8032&8045.

None damage/alteration to the declared rare flora and priority flora survey on site construction area have occurred. This has already been confirmed in the Compliance reports for Terrestrial Vegetation and Flora management Doc. Nos. 2-250-329-REP-TRE-8038/45.

6.3.2 Temporary channels

A significant rainfall event has happened on 31st December 2013 (112.8 mm) due to Tropical cyclone (TC) Christine. Information of TC Christine and site records were included as part of the Compliance Report Doc. No. 2-250-329-REP-TRE-8045. The temporary/permanent channels already built up, worked out well, and impact on site was minimum (Figures 11-14). Drainage channels and creek diversions are inspected on a periodically basis, and prior to, during and after a rainfall event or cyclone alert.

Figure 11. Routing Temporary Channels in TAN Burrup Project.

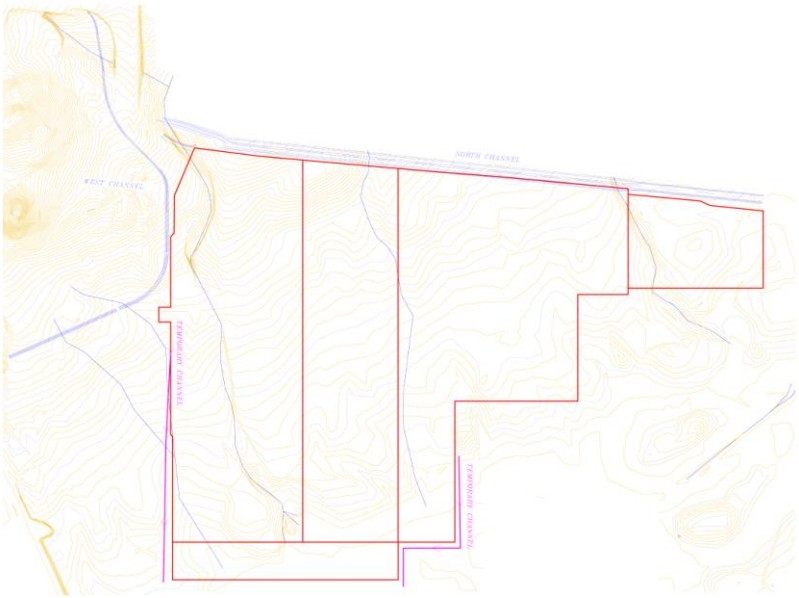


Figure 12. North Creek Diversion.

Figure 13. North West Creek diversion.

Figure 14. North Creek diversion once complete.

6.3.3 Mitigation measures

Additional actions for managing storm water and erosion/sedimentation and for responding to any incidents are:

- Clean stormwater discharges take in natural watercourse. Discharge is to open, shallow, gentle sloping drains.
- Construction of drainage channels at north and west side of the site area has started at an early stage.
- The total area to be disturbed is 35ha area required for TANFP and laydown areas, with disturbance to remaining landforms to be minimised where practicable.
- Stockpiles of earth or topsoil are not allowed at TANFP. After clearing and grubbing, all friable material shall be removed from site immediately. Only piles of rock for embankment or rip rap had remained on site. Therefore, there is not risk of sediment run off.
- A single stabilised access to the site to prevent mudtracking. Access is prohibited outside approved disturbance boundary. A Heritage Permit Approval shall be raised to YPNPL if a work need to be carried out outside of the site fence. Signs are installed at the entrance to the Project Area and also at no less than 50m intervals along the fence. The signs state that no construction and operation staff are permitted to enter areas surrounding the Project. This also includes controls for movement of vehicles and personnel on-site to avoid disturbance to undisturbed drainage lines or vegetation which may lead to increased erosion and/or sedimentation.
- A designated concrete washout basin has been installed at the site. Regularly monitor to ensure basin is emptied as required and concrete is disposed of appropriately.

7. WASTE MANAGEMENT

The Construction Waste Management Plan is included in the CEMP as attachment 04. The purpose of this plan is to identify and take all necessary measures, especially preventive measures, to achieve an appropriate waste disposal during the execution of the TANFP. This Plan describes in detail how solid and liquid waste generated during Construction, Pre-Commissioning and Commissioning shall be handled, treated and disposed of according with environmental provisions stated in the Construction HSE Plan.

Two Compliance Reports for Waste Management Doc. Nos. 2-250-329-REP-TRE-8033&8051 have already been issued. Both reports outline the monitoring activities and commitments, thus providing discussion and evidences of how compliance with each point has been met.

7.1 Philosophy of waste management

The Construction Waste Management Plan outlines below philosophy of waste management:

- Establishing an adequate hierarchy while planning waste management strategy:
    1. Source reduction.
    2. Reuse when possible.
    3. Recycling when possible.
    4. Treatment (under specialized waste management companies).
    5. Responsible disposal (under specialized waste management companies).
- Reconsidering the use of substances with problematic waste characteristics and choosing substances or materials that are re-usable or recyclable where practicable (early planning).

7.2 Solid waste inventory

Waste generated, removed and disposed of is controlled and identified. A waste inventory register is produced and updated on a monthly basis including all relevant information required to allow waste traceability and identification at any moment.

Table 25 summarises the waste for this reporting year as it is shown on the monthly waste register on February 2014.

Table 25. Waste disposal register February 2014.

Solid Waste Disposal Register	Tonnes (t)	*Litres (l)*	*Cubic metres (m^3)*	*Remarks*
Hazardous Waste			21	.
Inert Waste	-	-	-	
Domestic Waste			488.5	
Recyclable Waste	115.5 m^3			Plastic, paper and cardboard
Timber Waste				Included in Domestic waste inventory
Sewage Waste		206746		Additional information Table 20
Metal Scrap (kg)	4,3			
Waste Oil	-	-	-	
Others – Topsoil	6151.5			
Other - Concrete			66.24	
Other-Quarantine Waste			3	Wood without ISPM15 stamp.

7.3 Solid waste management

Collection, segregation and storage of waste is carried out according with the following principles:

- Waste storage areas and waste containers are properly identified by means of signs and pictures to help workers segregate waste.
- Waste is collected and segregated according to waste classification so that no different types of waste are mixed.
- Hazardous and non-hazardous waste are never mixed.
- Waste storage areas are protected against soil and groundwater contamination because of potential accidental spills.

- Waste storage areas are provided with fire prevention measures, pest control, and odour control measures.
- Stock-piling of waste material and/or waste burning is forbidden.
- All leaks, spills and releases shall be recorded and reported (attachment 01).
- Storing areas are inspected and audited on a periodic basis to ensure they comply with requirements and no contamination is produced.

In case of the controlled waste, the following requirements are considered:

- Containers are marked with warning labels and waste composition identification.
- Storage is done in specific areas clearly identified and provided with emergency response equipment (fire extinguishers, spill kits, MSDS, first aid cabinet, eyewashes).
- Waste is handled according to the initial products manufacturer's instructions.
- Containers are appropriate for the waste stored and provided with secondary containment for liquid wastes so as to minimize the potential for an uncontrolled release.
- Carriers, drivers and vehicles and tanks must be licensed according with the Environmental Protection (controlled waste) regulations 2004.

7.4 Liquid waste management

Only sanitary wastewater is generated at this stage of TANFP. Sanitary Wastewater is driven to septic tank until it is collected by truck and carried to an offsite treatment plant for necessary treatment prior to disposal. Additional information can be found in Section 5.1.2.1 and Table 20.

7.5 Training

All parties are required to participate in the site induction prior to the commencement of work. Waste management is discussed, thus tackling:

- How to handle, store and manage any kind of waste.
- Potential environmental problems recognition (e.g. spills, improper handling or storage, etc) for all waste streams.
- The recommended practices for reusing, recycling and disposal of different types of waste.
- Communication protocols in order to solve problems.

Records, which detail the attendees, content of the induction/training as well as any additional information provided, are maintained.

8. TRAFFIC MANAGEMENT

The Construction Traffic Management Plan (CTMP) is included in the CEMP as attachment 05. The purpose of this plan is to identify and analyse all traffic movements foreseen during TANFP so as to prevent adverse environmental impact due to traffic operations. The main aim of this Plan is to ensure traffic is managed in an adequate manner so that all vehicle movements are performed in safe conditions and so that no impact is generated on the surrounding community, road users, sensitive habitants, terrestrial fauna and rock art.

Two Compliance Reports for Traffic Management Doc. Nos. 2-250-329-REP-TRE-8034&8050 have already been issued. Both reports outline the monitoring activities and commitments, thus providing discussion and evidences of how compliance with each point has been met.

Between February 2013 and February 2014, below documents have been developed and issued to ensure that traffic operations are carried out safely onsite and offsite TANFP:

- Traffic management at Tan Burrup site.
- Traffic Management plan for Yara Ammonia Plant Facility.
- Traffic Management Plan. Heavy haulage of modules from an off-loading point at Dampier Port authority warf to Laydown Tan Burrup site.
- Transport Management Plan. Heavy haulage of oversize modules from an off-loading point Dampier Port authority to Tan Burrup site laydown.
- HSE Notices and Traffic Management Bulletins issued Contractor and Subcontractors.
- Site Instructions.
- Travel plan.
- Site security. Vehicle/Plant and Mobile Equipment Access form. Vehicle Hygiene and Weed inspection form.

Traffic issues are discussed as part of Site induction. Specific toolboxes about traffic rules, positive communication, Shift pre start motor vehicle inspection and interaction between Heavy vehicles and Light vehicles have been carried out.

8.1 Mitigation measures

Mitigation measures that are implemented to mitigate the traffic impact are described below:

- Most of workforce (TRSA, WBHO, WENCO, DOWNER) is bussed to and from the site to avoid significant traffic impacts.
- Circulation routes are properly planned, identified and signalised so that vehicles and equipment movements are under control, minimised and, therefore, potential impacts minimised.
- Dust minimization policies and best practices are applied while transporting soils and ground material by means of dump trucks (covers placed over trucks).
- Concrete trucks are washed after its use inside the site in the specific area designed for such purpose to ensure no remains are spread while driving back to origin concrete plant across Western Australia's roads.
- All vehicles, equipment and machinery entering the site are properly inspected and maintained so that neither accidental spill nor non-expected air emission takes place.
- Records on such inspections and performed maintenance are provided to HSE team who shall keep them for evidence.
- Random inspections and controls to vehicles and equipment are carried out on a periodic basis in order to ensure compliance with all applicable requirements and statutory regulations.
- Any vehicle found non-compliant will be removed from the site; movements and operations with it will be stopped until deviations are corrected and evidenced in writing.
- Awareness and training regarding circulation routes, timeframe criteria and traffic best practices will be provided to all workers to promote traffic impact minimization.
- Restrict site traffic to designated internal roadways to prevent disturbance of vegetated or natural areas.

9. BLASTING MANAGEMENT

A Blast Management Plan was included as an attachment 06 of the CEMP to describe in detail how blasting activities will be managed at the TANFP to ensure compliance with works approvals, applicable regulations and standards so as to grant personnel, asset's, environment, heritage and operating neighboring plant protection.

TANFP required blasting to achieve Final Excavation Level with blasting generally required down to a maximum depth of 5.5m. Blasting in this area is typified by 'shallow' blasting, where the depth of blast holes is not significantly greater than the distance between blast holes. Good control of blasting operations ensure that this type of blast does not generate flyrock and airblast. The major hazards identified were due to the proximity to the neighboring (YPFPL) plant, heritage areas and the temporary construction facilities.

Two Compliance Reports for Blasting operations Doc. Nos. 2-250-329-REP-TRE-8035&8044 have already been issued. Both reports outline the monitoring activities and commitments, thus providing discussion and evidences of how compliance with each point has been met. In addition, a Noise and Vibration monitoring report for Blasting Operations Doc. No. 2-250-329-REP-TRE-8042 has also been issued once blasting has been finalized.

9.1 Noise regulations and standards

Airblast conditions for TANFP are:

Table 26: Air blast limits.

AIRBLAST LIMITS FOR HUMAN COMFORT CHOSEN BY SOME REGULATORY AUTHORITIES (see Note to Table J5.4(B))

Category	Type of blasting operations	Peak sound pressure level (dBL)
Human comfort limits		
Sensitive site*	Operations lasting longer than 12 months or more than 20 blasts	115 dBL for 95% blasts per year. 120 dBL maximum unless agreement is reached with occupier that a higher limit may apply
Sensitive site*	Operations lasting for less than 12 months or less than 20 blasts	120 dBL mm/s for 95% blasts. 125 dBL maximum unless agreement is reached with occupier that a higher limit may apply
Occupied non-sensitive sites, such as factories and commercial premises	All blasting	125 dBL maximum unless agreement is reached with the occupier that a higher limit may apply. For sites containing equipment sensitive to vibration, the vibration should be kept below manufacturer's specifications or levels that can be shown to adversely effect the equipment operation

* A sensitive site includes houses and low rise residential buildings, hospitals, theatres, schools, etc., occupied by people.

1. for 95% of blasts, air blast over pressure must not exceed 115dB (Linear Peak);
2. airblast over pressure must not exceed 120dB (Linear Peak);

Table 27: Ground vibration limits.

GROUND VIBRATION LIMITS FOR HUMAN COMFORT CHOSEN BY SOME REGULATORY AUTHORITIES (see Note to Table J4.5(B))

Category	Type of blasting operations	Peak component particle velocity (mm/s)
Sensitive site*	Operations lasting longer than 12 months or more than 20 blasts	5 mm/s for 95% blasts per year 10 mm/s maximum unless agreement is reached with the occupier that a higher limit may apply
Sensitive site*	Operations lasting for less than 12 months or less than 20 blasts	10 mm/s maximum unless agreement is reached with occupier that a higher limit may apply
Occupied non-sensitive sites, such as factories and commercial premises	All blasting	25 mm/s maximum unless agreement is reached with occupier that a higher limit may apply. For sites containing equipment sensitive to vibration, the vibration should be kept below manufacturer's specifications or levels that can be shown to adversely effect the equipment operation

*A sensitive site includes houses and low rise residential buildings, theatres, schools, and other similar buildings occupied by people.

NOTE: The recommendations in Table J4.5(A) are intended to be informative and do not override statutory requirements with respect to human comfort limits set by various authorities. They should be read in conjunction with any such statutory requirements and with regard to their respective jurisdictions.

Vibration conditions for the project are:

1. for 95% of blasts ground vibration must not exceed 5mm/sec peak particle velocity;
2. ground vibration must not exceed 10 mm/sec peak particle velocity.

Above airblast and ground vibration limits are the same as applied to quarry blasting operations, which comply with Australian Standard (AS2187.2-2006) Explosives-Storage and use Part 2: Use of Explosives. This standard provides information on hazards presented by explosives and ways to manage and control the identified risks at a level that is acceptable to the community and in accordance with safe and secure industrial practice.

Australian Standard (AS 2436-2010) Guide to noise and vibration control on construction, demolition and maintenance sites provides guidance on noise and vibration control in respect to construction, demolition and maintenance sites. This standard provides guidance for the preparation of noise and vibration management plans, work method statements and environmental impact studies.

9.2 Air Blast and ground vibration monitoring results

Table 28 summaries the ground vibration and airblast levels recorded during twelve blasting operations carried out between 18th March and 31st July 2013.

Table 28: Summary of Airblast and ground vibration measurements for blasting operations.

Blast Design (TRS-WBH-BLST-)	Date	Time	Area (refer to Figure 07)	Airblast (dB(A))		Ground vibration (mm/s)	
				Estimated	Measured	Estimated	Measured
001	18-Mar-13	17:15	Area 1 Southern Face	87.4	102.8	1.1	1.89
002	27-Mar-13	17:26	Area 1 South to north	106	109	4.2	5.12
003	10-Apr-13	17:30	Area 1	104	109.5	2.9	4.11
004	17-Apr-13	17:24	Area 1	104.3	107.5	2.3	3
005	24-Apr-13	17:16	Area 1 and 2	106.3	105.9	3	2.6
006	1-May-13	17:16	Area 1	105.9	114.8	2.1	2.57
007	8-May-13	17:24	Area 1 and Area 3	106.6	101.9	1.7	1.33
008	16-May-13	17:30	Area 1, Area 2 and Area 3	107.5	116.9	2.9	2.45
009	22-May-13	17:15	Area 1, Area 2 and Area 3	108.1	108.3	2.4	1.48
010	14-Jun-13	17:30	Main access	113.6	114.8	8	6.55
011	20-Jun-13	17:30	Main access	112.1	110.8	5.1	3.4
012	31-Jul-13	17:30	Main access	104.3	110.8	3.1	3.21

As per table 28, it is confirmed that blasting activities has complied with trigger limits within the Australian Standard (AS2187.2-2006) Explosives-Storage and use Part 2: Use of Explosives.

Airblast measurements for TANFP were:

1. For 95% of blasts, air blast over pressure must not exceed 115dB (Linear Peak) => only in blasting TRS-WBH-BLST-008 was measured 116.9 dB (A).

2. Airblast over pressure must not exceed 120dB (Linear Peak) => it was complied in all cases.

In case of ground vibration measurements:

1. For 95% of blasts ground vibration must not exceed 5mm/sec peak particle velocity => only blastings TRS-WBH-BLST-002/10 measured 5.12 and 6.55 mm/s respectively.

2. Ground vibration must not exceed 10 mm/sec peak particle velocity) => it was complied in all cases.

The recorded airblast and ground vibration measurements complied with trigger limits within the Australian Standard (AS2187.2-2006) Explosives-Storage and use Part 2: Use of Explosives.

10. NOISE MANAGEMENT

Attachment 07 of CEMP includes Construction Noise Management Plan (CNMP), which lays down the measures to be adopted to minimise noise generation during the construction of the TAN Burrup Project so as to ensure that noise impact does not affect workers, the nearby public and/or amenities and that it complies with applicable statutory regulations.

Two Compliance Reports for Noise Management Doc. Nos. 2-250-329-REP-TRE-8036&8047 have already been issued. Both reports outline the monitoring activities and commitments, thus providing discussion and evidences of how compliance with each point has been met.

10.1 Definitions

LAeq T. This is the continuous equivalent sound level. It is a widely used noise parameter that calculates a constant level of noise with the same energy content as the varying acoustic noise signal being measured. The letter “A” denotes that the A-weighting has been included and “eq” indicates that an equivalent level has been calculated. Hence, LAeq is the A weighted equivalent continuous noise level. A-weighting is a filter incorporated into a sound level meter which when measuring noise replicates the sensitivity of human hearing.

LAeq, 8h (daily noise exposure level). It means an 8 hour equivalent continuous A-weighted sound pressure level in decibels (dB(A)) referenced to 20 micropascals, that is to say, the steady noise level which would, in the course of an 8 hour period, cause the same A-weighted sound energy that would be caused by the actual noise during an actual working day, determined in accordance with Australian/New Zealand Standard AS/NZS 1269.1.

LC,peak. It means peak noise level, that is to say, C-weighted peak hold sound pressure level in decibels (dB(C)) referenced to 20 micropascals determined in accordance with Australian/New Zealand Standard AS/NZS 1269.1.

LASN, T percentile levels. The level of A-weighted noise exceeded for N% of the measurement time. LAS90, T is often used as a measure of background noise in many standards and guidelines. The LAS90, T parameter would therefore represent the level exceeded for 90% of the measurement period, T. Likewise the LAS10, T would indicate the level exceeded for 10% of the measurement period, T indicating the higher noise levels measured.

LANmax. Maximum A-weighted noise level measured with N time weighting, and usually given as LAFmax for fast (F) time weighting, or LASmax for slow (S) time weighting. It is the highest levels of environmental noise occurring during the measurement time, often used in conjunction with another noise parameter (e.g. LAeq) to ensure a single noise event does not exceed a limit.

10.2 Noise standards and guidance

Environmental Protection (Noise) Regulations 1997 states that main construction activities are not subject to assigned noise levels set forth in such regulations (except for blasting) but that noise shall be dealt with by making every effort to reduce noise emission at source.

Hearson's Cove and Deep Gorge are considered noise sensitive premises according with regulations' definitions. Amenity criterion level of 50 dB(A) for Hearson Cove beach has been established by the former Department of Minerals and Petroleum Resources (SKM, 2002).

Section 4 of Construction Noise Management Plan Doc. No. 2-250-329-PRO-TRE-0111-att07 records predicted noise levels at site boundary, as below.

Table 29: Predicted noise levels at TANPF's site boundary.

SITE PREPARATION		
Activity	**Source**	**Noise level prediction** *Sound pressure level at boundary*
Blasting	Explosion (shot)	< 125 dB(A)
Earth moving & backfilling	Excavators, trucks	< 60 dB(A)
CIVIL WORKS		
Activity	**Source**	**Noise level prediction** *power / pressure at boundary*
Earth moving & excavations	Excavators, trucks	< 60 dB(A)
Back filling	Leveller	<75 dB(A)
Roads & pavement	Engines and equipment.	< 75 dB(A)
Concrete pouring	Concrete pump, vibrator	< 75 dB(A)
MECHANICAL ERECTION & MODULE HOOK UPS		
Activity	**Source**	**Noise level prediction** *power / pressure at boundary*
Equipment erection, piping installation, lifting operations	Engines, equipment, signals.	< 75 dB(A)
Scaffolding erection	Material lifting and tools use.	< 50 dB(A)
PRE-COMMISSIONING & COMMISSIONING		
Activity	**Source**	**Noise level prediction** *power / pressure at boundary*
Chemical cleaning	Material being swept	< 85 dB(A)
Air / steam blowing	Material being swept	< 85 dB(A)
Material transport	Trucks	< 65 dB(A)

Therefore, measurements of existing ambient noise levels without any activity related to the TANPF should be carried out to identify the impact of noise level increases over low ambient noise levels at sensitive premises and site boundary.

The exposure standard for noise set in the Occupational Safety and Health Regulations 1996 is:

• A daily noise exposure level, $L_{Aeq,8h}$ of 85 dB(A); or

• A peak noise level, $L_{C,peak}$ of 140 dB(C)

measured at the position of the person's ear without taking into account any protection which may be provided to the person by personal hearing protectors.

An $L_{Aeq,8h}$ of 85 dB(A) means that the actual energy of varying noise levels experienced by a person over the working day is equivalent to the energy from 8 hours of exposure to a constant noise level of 85 decibels.

The table below shows a range of noise levels and exposure times that are all equal to an $L_{Aeq,8h}$ of 85 dB(A).

Table 30: Noise levels and exposure times.

Noise Level dB(A)	Exposure Time
85	8 hours
88	4 hours
91	2 hours
94	1 hour
97	30 mins
100	15 mins
103	7 ½ mins

The 85 dB(A) exposure standard for noise in Western Australia is legally the maximum acceptable exposure level for noise at the workplace. Workplace noise exposure levels therefore must not exceed 85 dB(A), and should be kept below that level where practicable.

Peak noise levels, $L_{C,peak}$, above 140 dB(C) can cause immediate hearing damage from a single event and must therefore be avoided.

10.3 Noise Studies

10.3.1 Environmental Noise baseline report

A baseline noise survey was carried out to support the Construction Noise Management Plan with aim of ensuring that compliance with all applicable statutory regulations is achieved and there is no adverse impact on the sensitive premises (Hearson Cove and Deep Gorge).

10.3.1.1 Methodologhy

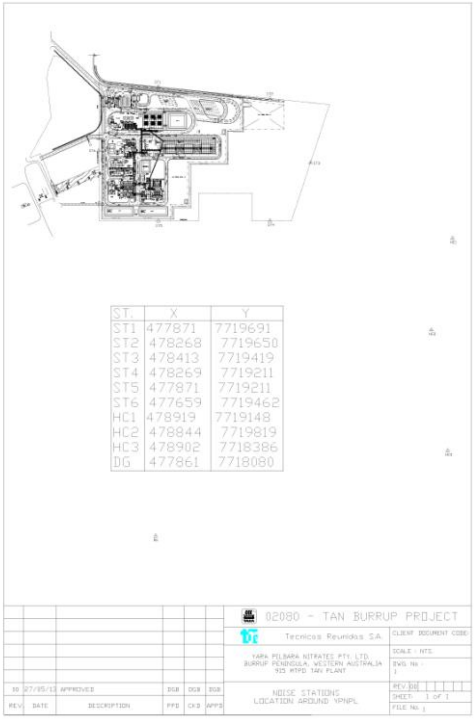
A series of short-term measurements were recorded during the day, evening and night on 10th-11th May, and 16th June 2013. Measurements for each period were recorded only once due to the remoteness of the site and associated security risks.

The baseline noise survey was undertaken in accordance with best practice as specified in AS1055.1-1997.

Short-term measurements were recorded at a total of six locations at TANPF's site fence, three locations in Hearson Cove and one location in Deep Gorge. Noise monitoring sites are shown in Figure 15.

Measurements were recorded for 16 minute intervals during ante meridiem (a.m) and post meridiem (p.m) hours at each location. Time periods are classified as follows: daytime (7 a.m to 7 p.m), evening (7 p.m to 10 p.m) and night (10 pm to 7 a.m).

Figure 15. Noise measurement locations at site fence and sensitive premises.



10.3.1.2 Results

Table 31 summaries the baseline noise measurement results recorded at each of the ten noise monitoring locations.

Table 31: Summary of Ambient Noise Level across the Project Site.

Measurement location		Noise Metric				Higher noise records
		Lowest LAeq dB(A) (16min)	Highest LAeq dB (A) (16min)	Highest LAFmax dB(A)	Lowest LA90 dB(A)	
Sensitive areas	HC1	38.5	48.5	57.6	35.8	Evening
	HC2	41.7	52.1	66.8	37.7	Daytime
	HC3	43.4	53.3	77.3	41.5	Daytime
	DG	39.7	50.8	58.7	36.6	Evening
Site fence	ST1	40.2	59.1	67.3	37.9	Evening
	ST2	41.1	45.9	68.5	40.1	Daytime
	ST3	40	53.1	56.3	37.1	Night
	ST4	40.6	44.5	51.5	38.4	Night
	ST5	44	52.4	68.5	40.1	Evening
	ST6	43.5	57.2	65	40.7	Evening

The environmental noise baseline of Tan Burrup area is a combination of noise due to visitors, natural environmental sounds and the existing industry. As result of that, table 2 shows that background noise level in Sensitive areas are already higher than the amenity criterion level of 50 dB(A) set up by for the WA Department of Mineral and Petroleum Resources.

During evening and night hours, readings in Hearson Cove are a combination of environmental sounds due to the proximity of the shore to noise monitoring locations (high tide, waves, wind) as well as birds and insect noise. Moreover, readings in daily noise levels are also affected by activities of beach users (traffic along the beach as well as in the parking or picnic area). In addition, Hearson Cove is in the route of Helicopters from Karratha Airport to Offshore facilities. In case of Deep Gorge, higher noise measurements were recorded during evening and night period. Environmental noise sounds are the main contributors of the noise readings.

The background noise at TANPF's site boundary is due to the existing YPNPL facility and also the environmental noise from wind, birds and insect noise as well as the route of Helicopters from airport.

Section 4 of Construction Noise Management Plan records a predicted noise at site boundary level between 60 and 75 dB (A) during Site Preparation and Civil works stages. The background noise level at site fence is still lower than the above criterion level, in spite of proximity of noise monitoring locations (ST05, ST06 and ST01) to the YPNPL boundary.

10.3.2 Construction noise assessment reports

Each of the Compliance Reports for Noise Management Doc. Nos. 2-250-329-REP-TRE-8036&8047 include noise surveys undertake in and around the TANPF project site during operations.

Noise surveys were carried out on 6th and 10th May, between 11th and 13th June, between 27th and 31st August, and between 9th and 13th December 2013

10.3.2.1 Methodologhy

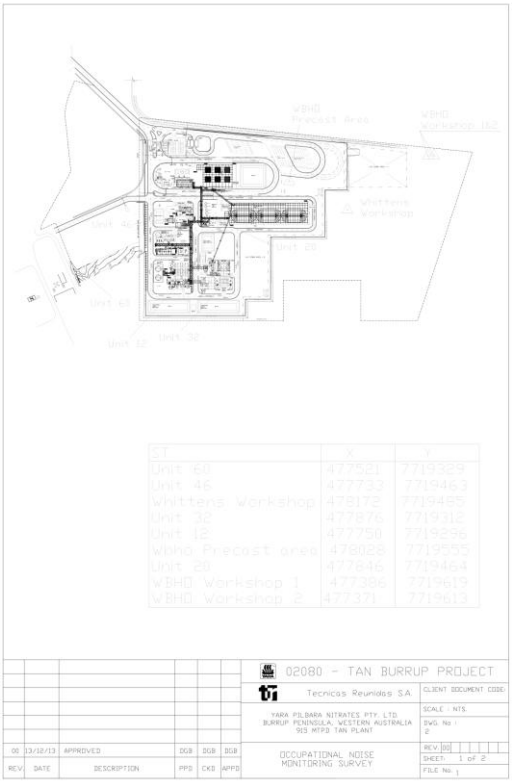
Noise measurements were performed daytime during site preparation, civil works and mechanical erection activities of TANPF project.

The noise survey was undertaken in accordance with best practices as specified in AS/NZS 1269.1:2005, AS2436-2010, and AS1055.1-1997.

Short-term measurements were recorded at a total of six locations at TANPF's site fence, four workplace locations within TANPF's site fence, three locations in Hearson Cove and one location in Deep Gorge. Noise monitoring sites are shown in Figures 15 and 16.

Measurements were recorded for 16 minute intervals during ante meridiem (a.m) and post meridiem (p.m) hours at each location.

Figure 16. Occupational Noise monitoring location.



10.3.2.2 Results

Table 32 summaries the baseline noise measurement results recorded at each of the nineteen noise monitoring locations.

Table 32: Summary of Noise Level across the Project Site.

Measurement location		Noise Metric			
		Lowest LAeq dB(A) (16min)	Highest LAeq dB (A) (16min)	Highest LAFmax dB(A)	Lowest LA90 dB(A)
Sensitive areas	HC1	38.5	39.2	64.5	33.3
	HC2	32.7	38.6	58.6	27.3
	HC3	38.4	48.3	67.2	36.1

Measurement location		Noise Metric			
		Lowest LAeq dB(A) (16min)	Highest LAeq dB (A) (16min)	Highest LAFmax dB(A)	Lowest LA90 dB(A)
	DG	42.2	42.6	63.3	34.5
Site fence	**ST1**	62.7	64	79.7	51.2
	ST2	52.9	68.4	87.2	46.9
	ST3	47.2	52.9	68	45.2
	ST4	45.7	50.2	47.5	43.7
	ST5	58.7	62.7	77.9	55.4
	ST6	60.8	64.1	79	54.6
Workplace	**WBHO workshop station 1**	60.7	63.1	84.2	54.5
	WBHO workshop station 2	54.5	-	76.1	50.4
	Unit 12	68.2	-	78.6	60.3
	Unit 60	57.8	62.4	70.9	56.3
	Unit 46	54.2	-	70.5	47.4
	WBHO Precast area	63.5	-	83.4	48.9
	WHITTENS workshop area	55.6	62.2	78.4	51.3

As per table 32, noise at sensitive areas comply with criterion level of 50 dB(A) set up by for the WA Department of Mineral and Petroleum Resources. Therefore, TANPF construction activities may only have a minor contribution to the noise measurements at Deep Gorge and Hearson Cove.

Section 4 of Construction Noise Management Plan records a predicted noise at site boundary level between 50 and 75 dB (A) during Site Preparation, Civil works stages and Mechanical erection. Table 4 shows that noise levels at site fence are still lower than the above criterion level, even when some of noise monitoring locations are close to the YPNPL boundary (ST05 at 400 m, ST06 at 200m and ST01 at 400 m).

All the noise measurements at workplace comply with daily noise exposure level, LAeq,8h of 85 dB(A) and there is not record of any peak noise level, LC,peak of 140 dB(C) at the site.

10.4 Mitigation measures

General practices implemented in TANFP to minimise noise are:

- Accurate construction strategy planning.
- Subcontractors to use quietest equipment and machinery available and practicable.
- Organizing and signalling circulation routes so as to minimise vehicle movement during deliveries and plant operation on site.
- Subcontractors to perform regular and effective maintenance of equipment, vehicles and machinery.
- Promoting workers' awareness on noise reduction while performing their assigned tasks (take care while driving vehicles and equipment).
- Promoting supervision awareness on noise control and plant inspection for deficiencies in requirements or defective maintenance.
- If during periodic inspections carried out, any equipment and/or machinery is found to be generating more noise than desirable or expected, maintenance certificates and records are required. Non compliances are identified and immediately corrected and equipment and/or machinery removed from the site until deficiencies disappear.

In addition, site induction includes a couple of slides related to noise management, personal protective equipment (PPE) and also the identification of which of PPEs to be worn as result of the Job Hazard Analysis (JHA).

11. TERRESTRIAL FAUNA MANAGEMENT

Attachment 08 of CEMP includes the Construction Terrestrial Fauna Management Plan (CTFMP), which describes in detail the management strategies to be implemented to ensure fauna (including terrestrial and subterranean) are managed in an appropriate manner during project execution of TANFP.

Two Compliance Reports for Terrestrial Fauna management Doc. Nos. 2-250-329-REP-TRE-8037/49 have already been issued. Both reports outline the monitoring activities and commitments, thus providing discussion and evidences of how compliance with each point has been met.

None rare fauna sightings have been recorded and reported to DEC / SEWPaC (Nature Conservation).

Below fauna was referred to the Pilbara Wildlife Carers Association:

- A joey was found at site fence on 7th March 2013.
- A red kangaroo was found injured (hit by car) in the northeast access on the 21st March 2013.
- A red kangaroo was found exhausted in Clean surface water pond 2 on 30th November 2013.
- A joey was found next to the northwest fence on 9th December 2013.
- Three red kangaroos found exhausted in Clean surface water pond 1-1 in January 2014.

Between February 2013 and February 2014, a set of reports, register and fauna catalogues have been developed to support Fauna management activities at TANFP:

- Fauna Habitat report. Fauna is considered to have the potential to suffer harm if not removed from the work site and any fauna that may be perceived to pose a threat to the safety of persons within the workplace, is to be removed to a suitable location. This report aimed to identify the fauna habitats located within the immediate vicinity and the fauna groups that are likely to utilise these habitats.
- Site clearing report. This report has been prepared as an account of the fauna, flora and weeds recorded during the clearing process of theTANFP. Clearing occurred during January 2013 with all fauna encountered recorded by HSE team present on site during this time.
- Fauna register and Fauna catalogues (94 records).
- HSE notices (six releases).
- Fauna interaction card.

Fauna management is included in the Site induction. Two toolboxes have been carried out by contractor; Bites and stings safety talk on 28th September 2013 and First aid training in case of snakes bites on 5th October 2013.

Contractor staff has joined a Snake awareness , management and safe catching techniques course in April 2013. TANFP HSE team has held Wildlife conservation act 1950 Regulation 15 License to take fauna for education or public purpose and got personnel with Reptile Removalist License Regulation 17 Wildlife conservation (reptiles and amphibians) regulation 2002.

11.1 Summary of Monitoring and commitments

11.1.1 Excavations and trenching inspections and monitoring for fauna protection

Site inspections are undertaken in accordance with what is outlined in the Construction Terrestrial Fauna management plan (CTFMP). For fauna this comprises the inspections of open excavations. Job Hazard Analysis (JHA) for earthworks and excavations include statement related to inspect excavation, before commencing works and after breaks, and during backfilling. All JHAs include statement of inspect machine prior start-up for fauna presence, and in case of interaction with fauna, to contact with HSE team. All project staff shall report and monitor if any fauna is spotted.

11.1.2 Management actions and responsabilities

All staff is inducted on the requirement to protect threatened fauna and habitat. Induction includes the following statements:

- No pets are allowed on site.
- Removal of refuse and waste from construction areas with reference to the measures outlined in the Integrated Pest Management Plan (section 14).
- No feeding of any native wildlife is allowed.
- Machinery shall be checked prior to start-up for the presence of native wildlife.
- No backfilling or pumping out pooled water within trenches or construction-related voids until they have been monitored and cleared by experienced and designated fauna handlers.
- Vehicle speeds limited on unformed access tracks and construction worksite. As general rule, speed limit is 20km/hour on site.
- Fauna is only to be captured and/or relocated by experienced and designated fauna handlers from HSE team.

Below requirements shall be considered in order to carry out clearing and grubbing:

- Before proceeding, a work permit for clearing shall be issued by Subcontractor and approved by Contractor.
- Footprint shall be clearly marked on a drawing and physically flagged on the ground during clearing to ensure only the minimum area required is cleared.
- Mechanical clearing will progress in a systematic manner, slowly progressing so as not to create habitat islands and allow fauna within the area of disturbance to move out of the area of their own accord.
- Trained HSE team is present during clearing activities to remove fauna (including snakes) from the site with appropriate efforts taken to minimise stress to animals.
- HSE tem and TANFP site held appropriate licences for the translocation of fauna with the DEC / SEWPaC prior to clearing.

All fauna spotted or relocated is recorded in the Fauna register and a Fauna Catalogue is filled.

Signage warning drivers of the potential of fauna on the road, is posted at the main entrance of YPFPL Ammonia plant

12. TERRESTRIAL VEGETATION AND FLORA MANAGEMENT

Attachment 09 of CEMP includes the Construction Terrestrial Flora and Vegetation Management Plan (CTFVMP), which details the required vegetation and flora conservation management requirements for the construction phase of TANFP. The CTFVMP outlines the controls and measures required to minimize adverse impacts to terrestrial vegetation and flora within the affected area.

Two Compliance Reports for Terrestrial Vegetation and Flora management Doc. Nos. 2-250-329-REP-TRE-8038&8046 have already been issued. Both reports outline the monitoring activities and commitments, thus providing discussion and evidences of how compliance with each point has been met.

Between February 2013 and February 2014, a set of reports have been issued by HSE team to record Flora management activities at TANFP:

- Site Clearing Report. This report has been prepared as an account of the fauna, flora and weeds recorded during the clearing process of the TAN Burrup Project.

- Declare Rare Flora and Priority Flora Survey for West location of Air Quality Monitoring Equipment. Equipment for Air Quality Monitoring has been installed on an area of land (Site) between the current project and the pre-existing YARA Ammonia Plant (west site boundary). The project area was subjected to environmental surveying as part of the approvals process for TANFP (ERM 2010) and this targeted Declared Rare Flora (DRF) survey was undertaken of the additional site to be cleared.

- Declare Rare Flora and Priority Flora Survey for Unit 60 and Main Access road. Native vegetation was cleared on an area of land between the current project and the pre-existing YARA Ammonia Plant (west site boundary). The project area had previously been subjected to environmental surveying as part of the approvals process and this targeted Declared Rare Flora (DRF) survey was undertaken for two additional sites to be cleared.

    - An area of native vegetation, referred to as Unit 60' was cleared between the TAN Burrup Project and the Yara Nitrate Plant. This area covered less than 1.5 hectares (ha) and will contain infrastructure joining the TAN Burrup Project to the existing plant.
    - A second area of native vegetation was cleared from the corner of Village Road to the Western Access at Tan Burrup. This area was 0.7 ha and is to facilitate the delivery of large construction modules during the construction of the TANFP.

Above DRF reports documented the results of the Level 1 flora survey of the area to be cleared. The objectives of above surveys were to:

- Conduct a desktop review to collect the ecological information relevant to the project area and surrounds.
- Undertake a site visit to conduct a targeted Declared Rare Flora survey of the additional area to be cleared.
- Confirm previous vegetation mapping conducted for the site.
- Record any additional weed species identified during the site visit.

- Weed Mapping Report. This report was prepared as a record of the occurrence and distribution of weed species inTANFP. During May and December 2013, vegetation on the site was traversed and species of vegetation identified as invasive were recorded and mapped.

- Reinstatement Plan for the Widening of King Bay Road January 2014. 0.514 hectares of native vegetation within Lot 646 on plan 28839, King Bay Road, were cleared for the purpose of road widening. A permit was granted under section 51 E of the Environmental Protection Act 1986 by Department of Environment and Conservation (DEC). This report documents the results of the survey performed on the 11th January 2014. The objectives of the report were:
    - Confirm findings of previous surveys. Record any additional finding issued during the visit.
    - Establish the environmental impact that will occur during the clearance and to establish the actions necessary to ensure minimum disturbance in the area.
    - Develop a program for restoration of the area to be cleared.

None threatened, rare flora or DEC/SEWPaC Priority listed species have been recorded in TANFP site in any of the above reports.

12.1 Summary of Monitoring and commitments

12.1.1 Routine Site inspections

Site inspections are undertaken in accordance with what is outlined in the Terrestrial Flora and Vegetation Management (CTFVMP). Site HSE team members are properly skilled and trained in the identification and survey of rare and threatened flora species likely to occur on Site. Different reports have been issued to record these activities. Reports are included as attachments in Compliance Reports for Terrestrial Vegetation and Flora Management Doc. Nos. 2-250-329-REP-TRE-8038&8046.

12.1.2 Management actions and responsabilities

All personnel shall attend to TANFP´s site induction and inducted on the requirement to protect threatened flora and vegetation.

Specific activities and requirements shall be complaint prior clearing and grubbing, and are already discussed in section 11.1.2 above.

Prohibit access to green field areas outside approved disturbance boundary. A Heritage Permit Approval shall be raised to YPNPL if any work needs to be carried out outside of the site fence. Signs are installed at the entrance to the Project Area and also at no less than 50m intervals along the fence. The signs state that no construction and operation staff are permitted to enter areas surrounding the Project.

Establishing and maintaining plant, vehicles and equipment hygiene as per the Construction Weed Management Plan. Vehicles/Plant and mobile equipment must be in safe operating condition and are subjected to a HSE inspection

13. WEED MANAGEMENT

The Construction Weed Management Plan (CWMP) is included in the CEMP as attachment 10. The purpose of this CWMP is to manage weeds so as to meet weed management obligation by weed control, prevention and rehabilitation actions such as: prevention of weed introduction, control or reduction of existing weed populations in order to protect WA natural ecosystems and agricultural industries.

A Biosecurity Management Plan and a Site Plan for Department of agriculture actions for the modules shipments have also been developed and implemented for TANFP. Both documents address activities for identification of seeds, which are classified as a Biosecurity risk and therefore must be removed immediately from any cargo or module. The risk of seed contamination can be further mitigated during Module wash down or final cleaning and by means of housekeeping through implemented plant and weed eradication programs.

Two Compliance Reports for Weed management Doc. Nos. 2-250-329-REP-TRE-8036&8047 have already been issued. Both reports outline the monitoring activities and commitments, thus providing discussion and evidences of how compliance with each point has been met.

Following documents have been developed during this reporting period:

- Site clearing report.
- Weed mapping report.
- Declare Rare Flora and Priority Flora Survey for West location of Air Quality Monitoring Equipment.
- Declare Rare Flora and Priority Flora Survey for Unit 60 and Main Access road.
- Reinstatement Plan for the Widening of King Bay Road January 2014.

All above reports were briefly explained in section 12.

- Quarentine Inspection reports.

    - YAR-0001 Mv Donaugracht on 6th November 2013.
    - YAR-0002 Deltagracht on 5th December 2013.
    - YAR-0003 Deltagracht on 7th February 2014.

All personnel shall attend to TANFP´s site induction, which includes information about Flora and Weeds management. A Quarentine Approved Premises Class one sea and air freight deports Accreditation training was also organised for the site team who will be involved in the inspection of modules and the management of the Quarentine secure area.

13.1 Summary of Monitoring and commitments

13.1.1 Site inspections.

Site inspections are undertaken in accordance with what is outlined in the Terrestrial Flora and Vegetation Management plan, Weed Management Plan, Biosecurity Management Plan and Site Plan for Department of agriculture actions for the modules shipment.

Since construction activities started, there have not been introduced weed species on the newly exposed areas at TANFP site. Designated HSE team members are properly skilled and trained in the identification and treatment of weed species.

13.1.1.1 Weed surveys.reports

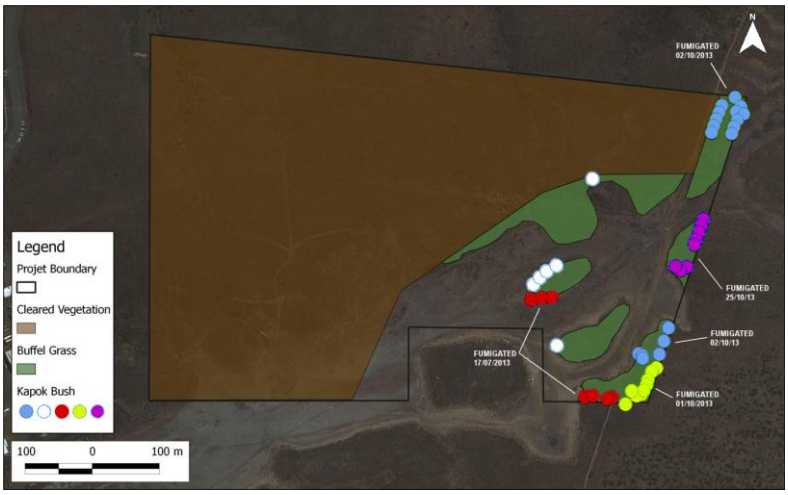
Weed survey reports have been issued as a record of the occurrence and distribution of weed species in the TANFP site. Last survey was carried out on 11th December 2013, the remnant vegetation on the site was traversed and species of vegetation identified as invasive were recorded and mapped. This report was included as an attachment 04 in the Compliance report for Weed Management Doc. No. 2-250-329-REP-TRE-8052.

Three species of flora, Cenchrus ciliaris (Buffel Grass), Aerva javanica (Kapok Bush), and Vachellia farnesiana, have previously been recorded within the project area. Of the three species identified as occurring in the project area prior to clearing, only two, Cenchrus ciliaris (Buffel Grass) and Aerva javanica (Kapok Bush) were encountered during the survey.

Due to Buffel Grass being widespread outside of the project area, control of this species in the remnant vegetation is unachievable. This is mainly due to the dispersal of this species' seeds being by wind. However, as the Kapok occurs only in isolated clumps the management of this species within the TAN Burrup Project Area is a lot more feasible. It is recommended to keep spraying of individuals in order to remove this specie from within the project area.

On 11th December, after fumigation campaigns carried out for Kapok Bush in July and October 2013, an updated weed survey map was developed, refer to Figure 17 below.

Figure 17. Weed Map.



13.1.1.2 Biosecurity inspections.

All cargo and modules shipped via Dampier Port, pre inspection at the vessel and in the containers will be carried out by contractor and Department of Agriculture, if all found to be clean, the cargo will be delivered to TANPF site and unload in the warehouse, quarantine laydown area.

Modules that are found and clean of BRM, go straight to footings or alongside foundations, if any suspect material is found, material will be bagged, tagged and given to the Department of agriculture.

Biosecurity inspections will be recorded and reported to the Department of agriculture. These reports have already been included as an attachment of Compliance Report for Integrated Pest Management Doc. No. 2-250-329-REP-TRE-8048.

13.1.2 Management actions and responsabilities

All staff is inducted on the requirement to prevent the spread of weeds:

- No access is allowed to greenfield areas outside of approved disturbance boundary.
- All off road vehicles and equipment is free of any weed propagules.
- Water trucks are available on site in case of wash-down is needed.

All Vehicles/Plant and mobile equipment are subject to Vehicle Hygiene and Weed inspection once they arrive on site. Inspections of all earthmoving machinery are conducted prior to enter the undisturbed portions of the Site, to ensure they are clean of mud and plant debris, which may contain weed propagules.

Fill material is coming from Six Mile Quarry between Burrup and Karratha. Therefore, fill is obtained from a suitable weed free source. Results of organic analysis of fill material are kept in the Quality folders.

14. INTEGRATED PEST MANAGEMENT

The Integrated Pest Management Plan (IPMP) is included in the CEMP as attachment 11. The purpose of this IPMP is to set thresholds for pest populations, monitoring for pests, prevention of pest establishment and control of pests choosing the safest and most effective tools to prevent damage and impact from pest species. It also addresses all mosquito and other nuisance insects outlining how to achieve an acceptable level of mosquito control based on an integrated approach that combines various methods to minimize interaction between mosquitoes and the public and to reduce the risk of mosquito-borne disease.

Two Compliance Reports for Integrated Pest management Doc. Nos. 2-250-329-REP-TRE-8040/8048 have already been issued. Both reports outline the monitoring activities and commitments, thus providing discussion and evidences of how compliance with each point has been met.

No records of mosquito nuisance and breeding grounds on TANFP site. Therefore, sampling of larvae, and use of chemical larvicides or adulticides was not foreseen.

Documents related to pest management and issued in the report period are:

- Media releases for Mosquito-borne disease risk. Two media releases for mosquito-borne disease risk were issued by Shire of Roeburne and Dampier Port Authority. Both media releases were distributed to all workforce.
- Biosecurity Management Plan. If wasps, moths, bees, bats, ants or other hitchhiker pests, or nests or houses that pose biosecurity risk are detected in any cargo, it shall be reported to Department of agriculture and the area thoroughly cleaned utilizing an approved cleaning agent.
- Site Plan for Department of Agriculture actions for the modules shipments. The purpose of this document is to establish the procedure to comply with the Quarantine requirements on the landing and installation of the modules and cargo when arriving at the site.
- Quarentine Inspection reports (refer to section 13.1.1.2 above).

Integrated Pest management has not been included as part of the site induction. Specific training and awareness was provided to personnel on the mosquito and nuisance insect problem, and the management strategies and responsibilities for their own health. Below toolboxes have been carried out on site:

- Bites and stings safety talk on 28th September 2013.
- First aid training in case of bites on 5th October 2013.
- Ross river presentation on 26th October 2013.

A Quarentine Approved Premises Class one sea and air freight deports Accreditation training was also organised for the site team who is involved in the inspection of modules and the management of the Quarentine secure area.

14.1.1 Site inspections.

In 2013, there have not been records of mosquito nuisance and breeding grounds within TANFP site. Therefore, sampling of larvae was not carried out in:

- Ponds and basins.
- Stormwater drainage systems.
- Low lying areas.

Site inspections are undertaken by HSE team in accordance with what is outlined in the Integrated Pest Management Plan. Preventive measures to avoid mosquito breeding were raised as result of these inspections.

The site is visually inspected for all containers and vessels capable of holding water to prevent water pooling. Laydown areas, including pipes and under pallets, are also inspected for nests and other signs of pest presence.

Routine inspections, and control measures for other pests such as spiders (red backs), bees and wasps have been carried out.

Findings and records of site inspections have been included in Compliance Reports for Integrated Pest management Doc. Nos. 2-250-329-REP-TRE-8040/8048.

14.1.2 Management actions and responsabilities

Personnel has been trained and is aware of preventive measures such us:

- Avoid being outdoors at peak biting times, specifically at dusk.
- Avoid areas of dense vegetation near breeding sites.
- Information about clothing, because it is recommended to wear hats, socks, light coloured clothing with long pants and long sleeves. Head nets (with 1-1.5 mesh) and gloves are also recommended to be worn. Sleeves and collars are kept buttoned and trousers tucked into boots.
- Use of mosquito repellents. Contractor has distributed mosquito repellent Red-eyed Gotchal neutral scent between workforce.

Preventive measures already considered in the design are:

- Ponds are not less than 60 cm deep, and batter slopes are not greater than 1:6.
- Basins and swales are designed to empty in less than seven days to prevent the completion of mosquito breeding cycles.
- Design of final drainage system shall prevent material accumulation and debris.
- Surface water run-off from non-process/storage areas and building roofs are directed to the clean water pond to be evaporated.
- Erosion control measures will be installed on drain batters to prevent silting. Embankments and drainage systems for final plant are under construction at this stage of the project.
- Temporary channels and swales are well maintained and free of sediments.

Good practices already implemented at the Construction stage are:

- Irrigation rates are effectively managed to prevent the creation of temporary pools. Water for dust suppression and preconditioning of material is carried out and none temporary pools are recorded on site.
- Temporary channels and swales are already built on site.
- Reinstated sites are re-contoured to the original surface profiles to prevent ponding. Backfilling of excavation is carried out as soon as civil works are completed for each foundation.
- Drainage is designed so that no stagnant ponding occurs during and after construction.
- Vegetation is removed from paths and buildings.
- Rubbish is removed daily from all buildings.
- Hoppers and bulk bins are removed and emptied regularly.
- All discarded or unused material, including pallets and cardboard boxes, is removed off the site as soon as possible. Waste segregation is performed at TANFP.
- Food is consumed only in designated areas.
- Feeding of wildlife is forbidden. This is already included in the site induction.
- Water holding systems, including air conditioners are maintained to prevent water leaks.
- Machinery, if left idle, is regularly checked for any infestation or nests. Prior to start up, machinery is checked by operators.

15. MAIN ACTIVITIES FORECAST FOR 2014

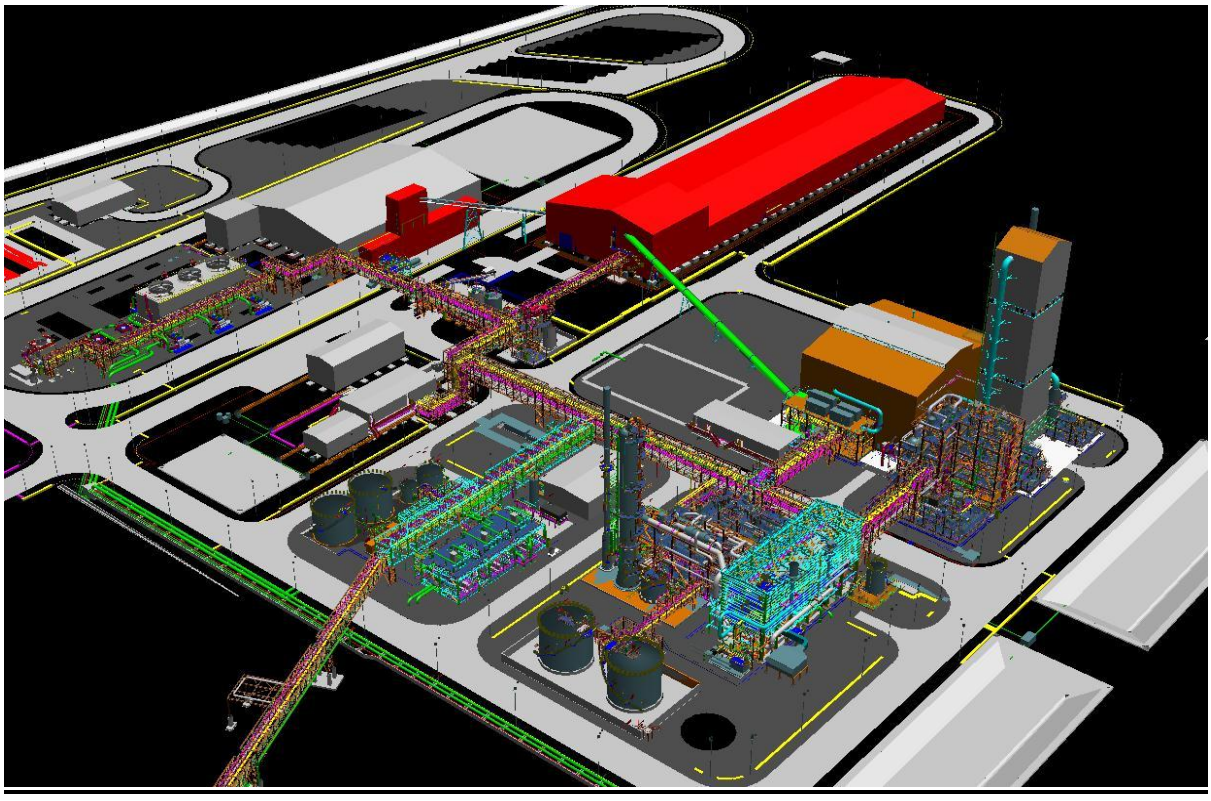
Project overall progress forecast at the end of 2014 is 88.00%, from which 100.00% corresponds to Home Offices services, 99.00% to manufacturing, 100.00% to module construction at yard and 75.00% to construction at site.

Main achievements for 2014 will be:

- Mechanical Completion of all modules erected at yard.
- Fourth, Fifth, sixth, seventh, eighth, ninth and tenth module shipment arrival at Dampier without any incident.
- More than 6000 tons of modules already installed in final position at site.

- Material deliveries:
  - 100% equipment and materials delivered in Subcontractor's yard.
  - 95% equipment and materials delivered to Site.
- Yard Progress:
  - 100% accomplishment.
- Site Progress
  - All Stick build and modular Buildings completed and ready for commissioning.
  - All Utilities Units completed and ready for commissioning.
  - 80% Process Units completion.

Figure 18: 3D Model for TANFP.



16. CONCLUSION

This Annual Environmental Compliance Report February 2013/2014 forms the basis for proactive reporting to SEWPaC, and DEC/OEPA on status of the project and its performance between 2013 and 2014.

YPNPL acknowledges the importance of preserving environment across site boundaries and surrounding environment. This report shows the monitoring activities and corrective actions already taken at TANFP site in order to comply with requirements gathered under different Works approval, legislation, standards and within CEMP.

YPNPL is looking forward to the inputs and comments of SEWPaC, DEC and OEPA and also continuing the construction of TANFP with a strong commitment to environment.

17. REFERENCES

- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC, 2000).
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC, 2000).
- Australia Standard AS 3580.1.1 Methods for sampling and analysis of ambient air - Guide to siting air monitoring equipment.
- Australia Standard AS 3580.9.8 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM10 continuous direct mass method using a tapered element oscillating microbalance analyser (TEOM).
- Australia Standard AS 3580.10.1. Methods for sampling and analysis of ambient air Method 10.1: Determination of particulate matter—Deposited matter—Gravimetric method
- Australia Standard AS 3580.14. Methods for sampling and analysis of ambient air Part 14: Meteorological monitoring for ambient air.
- Australian Standard (AS2187.2-2006) Explosives-Storage and use Part 2: Use of Explosives
- Australian Standard (AS 2436-2010) Guide to noise and vibration control on construction, demolition and maintenance sites.
- Australian Standard (AS 1055.1-1997) Acoustic-Description and measurement of Environmental Noise Part 1: General Procedures.
- Australian/New Zealand Standard AS/NZS 1269.1:2005 Occupational noise management Part 1: Measurement and assessment of noise immission and exposure.

- Biosecurity Management Plan, 20Cube.
- Burrup Rock Art Monitoring Program – Summary of Study Reports, (SKM 2009).
- Construction Environmental Management Plan (CEMP) Doc. No. 2-250-329-PRO-TRE-0111.
- Compliance Assessment Plan (MS 870) Doc. No. 2-250-329-PRO-TRE-0104.
- Compliance Assessment Report (CAR) Doc. No. 2-250-329-REP-TRE-8001.
- CSIRO monitoring program are presented in the Burrup Rock Art Monitoring Program Summary of Study Reports, (SKM 2009).
- DEC NSW document Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in New South Wales
- Department of Environment and Conservation (NSW), Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales.
- Environmental Protection (Noise) Regulations 1997, Department of Environment.
- Environmental Protection (Controlled waste) Regulation 2004.
- Environmental Protection Act 1986 (Western Australia).
- Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth).
- Environmental Protection (Noise) Regulations 1997, Department of Environment.
- Hazardous Management Plan Doc. No. 2-250-329-PRO-TRE-0122.
- Introductory Erosion and Sediment Control guidelines for Queensland Councils, Local Government Association of Queensland Inc.
- National Environment Protection Measure (Ambient Air Quality) 2003 (NEPM) Commonwealth Government.
- National Code of Practice for Noise Management and Protection of Hearing at Work [NOHSC:2009(2000)] 2nd Edition.
- Occupational Safety and Health Regulation 1996
- Occupational Safety and Health Act 1984, WorkSafe Western Australia Commision.
- Pilbara Airshed Study, conducted by then WA Department of Environmental Protection in 1999 (DoE 2004).
- Russell, R.C., 2011, 'Public Health and Mosquitoes', in Department of Health (WA), Mosquito Management Manual, Department of Health, Perth.
- Shire of Roebourne, 2011, Mosquitoes Environmental Health Information Sheet, accessed 20 July 2012, http://www.public.health.wa.gov.au/3/1152/2/mosquitoes.pm.
- Site Plan for Department of agriculture actions for the modules shipments, Tecnicas Reunidas, October 2013.

- Source: “Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in New South Wales” (Revised 2005) NSW DECC
- State of WA Statement No. 870 (07/07/2011).
- Strategic Assessment of Amenity at Hearson Cove Beach, July 2002, prepared by SKM for the WA Department of Mineral and Petroleum Resources.
- Technical Ammonium Nitrate Production Facility Public Environmental Review (PER) for Burrup Nitrates Pty Ltd January 2010.
- Western Australia Department of Environment and Conservation Landfill Waste Classification and Waste Definition 1996 (as amended December 2009).
- Work Approval EPBC 2008/4546 by Australian Government Department of Sustainability, Environment, Water, Population and Communities (SEWPaC).

ATTACHMENTS

2-250-329-REP-TRE-8055-ATT01 ENVIRONMENTAL INCIDENTS

ATTACHMENT 01

Environmental Incidents

INDEX

TAN-008 (5TH AUGUST 2013)

DOC NO: HSE-F-003	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO | CIVIL
VERSION NO: V2	REVIEWED DATE: 01/08/12	

ACCIDENT / INCIDENT INVESTIGATION REPORT

EMPLOYEES NAME: Joel Davis

DATE OF INCIDENT: 5-8-2013

PROJECT / LOCATION OF INCIDENT: TAN Burrup Area 2

Accident / Incident Reporting Procedure

1. Supervisor to make area safe and tend to any injured employee.
2. Supervisor to ensure area is secure if further investigation of site is required.
3. Supervisor to notify Project Manager or Site Manager immediately of incident
4. Project Manager or Site Manager to notify Safety Manager, Site Safety Advisor and Divisional Manager immediately of incident.
5. Safety Advisor to notify the site safety representative (if one has been elected for the site).
6. Project Manager or his delegate to obtain statements from all relevant parties.
7. Incident is to be investigated, the Divisional Manager to nominate the Investigation team.
8. Investigation Leader to complete all relevant sections of incident report form.
9. Investigation Leader to forward completed incident report to Safety Manager and Project Manager or Site Manager.
10. Safety Manager to review report and forward to Divisional Manager and General Manager.
11. Divisional Manager and General Manager to review, comment and sign report.
12. Corrective actions to be implemented as per responsibilities and due date.
13. Evidence of corrective actions being completed to be attached to report.
14. Incident to be recorded on Incident register.
15. Completed report to be filed in Incident file.

Refer to HSE-P -033 for full procedure

Page **1** of **7**

DOC NO: HSE-F-003	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT
VERSION NO: V2	REVIEWED DATE: 01/08/12

WBHO | CIVIL

REPORT NO:

Part A: Incident / Accident Report

TYPE OF OCCURRENCE

☐ Near Miss ☐ Personal Injury ☐ Fire ☒ Environment

☒ Equipment/Property ☐ Serious Potential Incident ☐ Procedural Violation

Regulatory Body Notification Required? Yes ☐ No ☒ **If yes authorised by:**

PERSON/S INVOLVED - DETAILS

NAME (persons involved) **Surname: DAVIS** **First Name: JOEL**

SUPERVISOR NAME	Chris Anastazjew	**SHIFT**	Day ☒ Night ☐ Other ☐
REPORTED TO	Chris Anastazjew	**REPORT COMPILED BY : Shane Beezley**	
DEPARTMENT	Projects	**SUBCONTRACTED TO : WBHO**	
WORK LOCATION	Area 2		
WITNESSES	NIL	**Start Time:** 6:30 am	Shift Hours: 10
WORK RELATED	YES ☒ NO ☐	**Consecutive Days Worked:**	1

INCIDENT DETAILS

Date of Incident: 5-8-2013	**Time of Incident: 1:45pm**	**Date Reported: 5-8-2013**	**Time Reported: 1:50pm**

Describe the Incident: Operating loader, moving material to stockpile when the hydraulic hose gave way on the Left ram. Stopped the machine and contacted supervisor. We contained the spill with spill kit pads. On closer inspection of the hose it was noticed the clamp had broken (see attached photo). Approximately 40 lt of hydraulic oil was spilt.

Injured Person Signature:

Immediate Actions Taken to Control the Incident (Brief):

INJURY ☐ N/A		**ILLNESS ☐**	
Nature of Injury *(Brief description of injury / treatment given)*:			
Is this a recurrence of a previous injury? N/A	**Yes ☐**	**No ☐**	
EXTENT OF TREATMENT GIVEN	**FIRST AID ☐** *(i.e. Medical Centre on Site)*	**GP ☐**	**HOSPITAL ☐**
Did the patient return to work?	**Yes ☐** *(Pre-injury duties)*	**Yes ☐** *(Alternate duties)*	**No ☐**
Patient to be Reviewed	**Yes ☐ No ☐**	**Date to be reviewed**	

DOC NO: HSE-F-003	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO | CIVIL
VERSION NO: V2	REVIEWED DATE: 01/08/12	

STATEMENT

Employee and Witness statement (if applicable)

Employee / Witness Name:

Employee / Witness Signature: **Date:**

DOC NO: HSE-F-003	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO CIVIL
VERSION NO: V2	REVIEWED DATE: 01/08/12	

Part: B - Investigation

INJURY DETAILS *(please circle appropriate code number and write code in space provided)*

Location (Part of Body)	Nature (Nature of injury)	Agency (Agency of Injury)	Cause (Type of Incident)
001 Head	031 Fractures	051 Machinery/Cranes	071 Fall
002 Eyes	032 Dislocation	052 Power Tools	072 Slip/Trip/Stumble
003 Neck	033 Sprain/Strain	053 Other hand tools	073 Struck by falling object
004 Trunk	034 Concussion	054 Lifting Equip/Hoist	074 Step Down/Jumping
005 Back	035 Amputation	055 Transport/other	075 Strike against object
006 Arm	036 Laceration	056 Manual Handling	076 Struck by object
007 Hand	037 F/Body (eye)	057 Equipment	077 Caught in/between
008 Leg	038 Superficial	058 Environment	078 Strain/exertion
009 Foot	039 Contusion/Crush	059 Ladders	079 Wind blown object
010 General	040 Burns/scalds	060 Scaffolds	080 Temp/weather/heat/cold
011 Multiple	041 Multiple	061 Grinding	081 Elec/friction contract
012 Face	042 Welding Flash	062 Flying objects/particles	082 Chemical/harmful sub
013 Knee	043 Abrasion	063 Floor/Work surface	083 Vehicle inc
014 Other	044 Other	064 Other	084 Other
N/A	N/A	051	084

CONTRIBUTING FACTORS

JOB FACTORS

Level ground rocky in nature.

Comments:

PERSONAL FACTORS

VOC conducted

Experienced operator

Comments:

SUBSTANDARD CONDITIONS

Nil

Comments:

SUBSTANDARD PRACTICES

Nil

Comments:

DOC NO: HSE-F-003	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO | CIVIL
VERSION NO: V2	REVIEWED DATE: 01/08/12	

ROOT CAUSE *(Problems are rarely single cause events. Ensure all root causes are listed)*

Wear and tear on moving parts.

RECOMMENDATIONS TO PREVENT A RE-OCCURRENCE

Continue with preventative maintenance measures.

CORRECTIVE ACTIONS

CORRECTIVE ACTIONS REQUIRED:	BY WHOM	DATE CORRECTIVE ACTIONS DUE	DATE COMPLETED
Check service records of all machinery	Shane Beezley	9-8-2013	
Re-order more spill kits	Shane Beezley	9.8.2013	

Part C - INVESTIGATION COMPLETION

DOC NO: HSE-F-003	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO | CIVIL
VERSION NO: V2	REVIEWED DATE: 01/08/12	

SAFETY MANAGER COMMENTS

Name: **Signature:** **Date:**

DIVISIONAL MANAGERS COMMENTS

Confirmation of OHS Officer Action (Letter, etc)

Name: **Signature:** **Date:**

GENERAL MANAGERS COMMENTS

Name: **Signature:** **Date:**

OFFICE USE ONLY

INJURY CLASSIFICATION

- ☐ LTI - Disability
- ☐ FAI - First Aid (Minor Injury)
- ☐ RWC - Restricted Work Case
- ☐ NWI - Non-work Injury
- ☐ MTI - Medical Treatment Injury

WORK CONSEQUENCES - STATUS

Returned to alternative duties	**Date:** / /	**Time:** **(Hrs)**
Ceased work	**Date:** / /	**Time:** **(Hrs)**

TAN-009 (6TH AUGUST 2013)

TAN BURRUP PROJECT

TECNICAS REUNIDAS YARA

 # TAN-009 Rev. 0

INCIDENT/ACCIDENT REPORT

GENERAL INFORMATION:

INCIDENT DATE: 6/08/2013 PLANT: TCF TR OFFICES
INCIDENT TIME: 13:45 AREA: SEPTIC TANKs

INCIDENT/ACCIDENT CONSEQUENCE: (Put a cross in the right answer)

☐ Cuasi-accident
☐ Personal Injury

Name of Injured Person (s):
Company:
Injured Body Part:
Injury Type:

■ Product
Spill/Release: Sanitary wastewater
Quantity: 2-3 litres

☐ Fuel
Fire/Explosion:
Fire equipment used:

☐ Material Damages:

Medical assistance required: YES ☐ NO ■
Lost Work: YES ☐ NO ■
Notification to Official Authorities? YES ☐ NO ■

INCIDENT/ACCIDENT DESCRIPTION:

Two 7000 LTR underground tanks are installed at Tecnicas Reunidas' offices.
One of the tanks was 2/3 full, and the second was empty. Despite that, there was a superficial leak in the overflow line.

WITNESS REPORT: After noticing the grey water plumbing was not draining sufficiently I went outisde to look at the underground tanks. I noticed a small leak from the overflow line. I advised the HSE team and contacted a plumber and waste disposal contractor to attend.

INCIDENT/ACCIDENT POTENTIAL CAUSES:

Plumbing problem. There installation have redundancy for avoiding such kind of spills. If one septik tank is full, the overflow line, divert the sanitary wastewater flow to the second one, and in case of high level is reached there, and alarm will rise. Once per fortnight, controlled waste carrier comes to site.

CORRECTIVE ACTIONS TAKEN:

Controlled waste carrier was called inmmediately. Western resource recovery was called and arrive at 14:15.
Both tanks were checked, the tanks was emptied and the overflow line unplugged. The plumber came on 7th August to inspect the installation.Following the plumbers visit , TCF sewerage system is functional again.
Tthe plumbers findings were as follows:
A blockage was discovered between the offices and tanks. The cause of the blockage is unknown but could be due to unsuitable material being flushed down the toilets.
Because of the blockage, the level in the primary septic tank had not reached a high enough level to set off the high level alarm. The high level alarm was tested and is functional.
There is no issue with overflow into the secondary tank; once again due to the blockage, the volume in the primary tank had not reached a high enough level to allow it to flow into the secondary tank.
The blockage was cleared using a drain machine ("Electric EeL") which feeds rotating lengths of flexible rod down the pipe through the inspection point. The rod has a cutting head on the end. A small cutting head was used initially to clear the obstruction and then a larger head was fitted to clear any remaining debris.

CORRECTIVE ACTIONS FOLLOW-UP:

Spill kit 120 l is going to be purchased immediately.

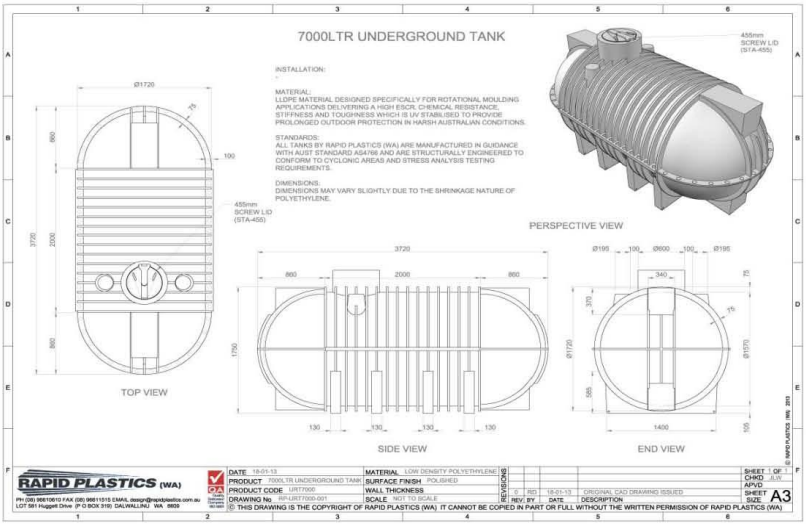
Página 1

*Pictures and details of tanks attached.

Signed by CONTRACTOR

Maria del Mar Folgar Vallejo

7000 LTR underground tanks at Tecnicas Reunidas' offices.



Picture of Sanitary wastewater spill

TAN-024 (11TH SEPTEMBER 2013)

TAN BURRUP PROJECT

TECNICAS REUNIDAS YARA

Rev. 0

INCIDENT/ACCIDENT REPORT

GENERAL INFORMATION: **Rep#-TAN-024**

INCIDENT DATE: 11/09/2013 PLANT: TCF TR OFFICES
INCIDENT TIME: 15:00 AREA: SEPTIC TANKs

INCIDENT/ACCIDENT CONSEQUENCE: (Put a cross in the right answer)

☐ Cuasi-accident
☐ Personal Injury

Name of Injured Person (s):
Company:
Injured Body Part:
Injury Type:

■ Product Spill/Release: Sanitary wastewater
Quantity: 1 litre

☐ Fuel
Fire/Explosion:
Fire equipment used:

☐ Material Damages:

Medical assistance required:	YES ☐	NO ■
Lost Work:	YES ☐	NO ■
Notification to Official Authorities?	YES ☐	NO ■

INCIDENT/ACCIDENT DESCRIPTION:
Two 7000 LTR underground tanks are installed at Tecnicas Reunidas' offices.
The tanks filled and overflow of about 2 LTR occurred to ground. Pump truck called and service performed. Upon investigation it was found the audible alarm was not working and but the visual alarm was.

WITNESS REPORT: After noticing the grey water plumbing was not draining sufficiently I went outisde to look at the underground tanks. I noticed a small leak from the inspection lid of both tanks. Immediate call was made to the pumping company who attended site and emptied the tanks.

INCIDENT/ACCIDENT POTENTIAL CAUSES:
Fault in audible alarm

CORRECTIVE ACTIONS TAKEN:
Tanks to be pumped every two weeks on standing order.

CORRECTIVE ACTIONS FOLLOW-UP:
Plumber to investigate alarm fault

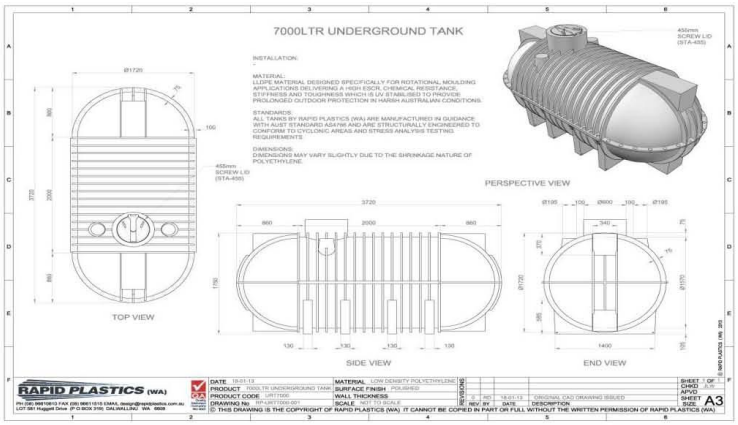
*Pictures and details of tanks attached.

Signed by CONTRACTOR

Roy Lee

Página 1

7000 LTR underground tanks at Tecnicas Reunidas' offices.



Picture of Sanitary wastewater spill

TAN-030 (24TH OCTOBER 2013)

DOC NO: HSE-F-033	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO | CIVIL
VERSION NO: V2	REVIEWED DATE: 01/08/12	

ACCIDENT / INCIDENT INVESTIGATION REPORT

EMPLOYEES NAME: Joel Davis

DATE OF INCIDENT: 24-10-2013

PROJECT / LOCATION OF INCIDENT: TAN Burrup Unit 32

Accident / Incident Reporting Procedure

1. Supervisor to make area safe and tend to any injured employee.
2. Supervisor to ensure area is secure if further investigation of site is required.
3. Supervisor to notify Project Manager or Site Manager immediately of incident
4. Project Manager or Site Manager to notify Safety Manager, Site Safety Advisor and Divisional Manager immediately of incident.
5. Safety Advisor to notify the site safety representative (if one has been elected for the site).
6. Project Manager or his delegate to obtain statements from all relevant parties.
7. Incident is to be investigated, the Divisional Manager to nominate the Investigation team.
8. Investigation Leader to complete all relevant sections of incident report form.
9. Investigation Leader to forward completed incident report to Safety Manager and Project Manager or Site Manager.
10. Safety Manager to review report and forward to Divisional Manager and General Manager.
11. Divisional Manager and General Manager to review, comment and sign report.
12. Corrective actions to be implemented as per responsibilities and due date.
13. Evidence of corrective actions being completed to be attached to report.
14. Incident to be recorded on Incident register.
15. Completed report to be filed in Incident file.

Refer to HSE-P -033 for full procedure

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DOC NO: HSE-F-002	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO CIVIL
VERSION NO: V2	REVIEWED DATE: 01/08/12	

REPORT NO:

Part A: Incident / Accident Report

TYPE OF OCCURRENCE

☐ Near Miss ☐ Personal Injury ☐ Fire ☒ Environment

☐ Equipment/Property ☐ Serious Potential Incident ☐ Procedural Violation

Regulatory Body Notification Required? Yes ☐ No ☐ **If yes authorised by:**

PERSON/S INVOLVED - DETAILS

NAME (persons involved) **Surname: Davis** **First Name: Joel**

SUPERVISOR NAME	Richard Biggs	**SHIFT**	Day ☒ Night ☐ Other ☐
REPORTED TO	Richard Biggs	**REPORT COMPILED BY : Shane Beezley**	
DEPARTMENT	Projects	**SUBCONTRACTED TO : WBHO**	
WORK LOCATION	Unit 32		
WITNESSES	N/A	**Start Time:** 0600	Shift Hours: 10
WORK RELATED	YES ☒ NO ☐	**Consecutive Days Worked:**	1

INCIDENT DETAILS

Date of Incident: 24-10-2013	Time of Incident: 1:00pm	Date Reported: 24-10-2013	Time Reported: 1:05 pm

Describe the Incident: Compacting material with twin drum roller in unit 32. The operator had completed compacting the Eastern side of the footing and was manoeuvring the machine clear of the work area when a hydraulic hose burst on the front Right of the front drum. One Litre of Hydraulic oil was discharged, the operator informed his supervisor and organised a spill kit to be deployed. Once the oil was contained the affected ground was double bagged and placed in the Hydrocarbon bin. On closer inspection on the Hydraulic pipe it was noted that the pipe bracket was tight however the pipe could slide back and forth within the bracket.

Injured Person Signature:

Immediate Actions Taken to Control the Incident (Brief):

Informed supervisor and arranged clean up.

INJURY ☐ **N/A**		**ILLNESS** ☐	
Nature of Injury *(Brief description of injury / treatment given)*:			
Is this a recurrence of a previous injury? N/A	**Yes** ☐ **No** ☐		
EXTENT OF TREATMENT GIVEN	**FIRST AID** ☐ *(i.e. Medical Centre on Site)*	**GP** ☐	**HOSPITAL** ☐
Did the patient return to work?	**Yes** ☐ *(Pre-injury duties)*	**Yes** ☐ *(Alternate duties)*	**No** ☐
Patient to be Reviewed	**Yes** ☐ **No** ☐	**Date to be reviewed**	

DOC NO: HSE F 009	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO | CIVIL
VERSION NO: V2	REVIEWED DATE: 01/08/12	

STATEMENT

Employee and Witness statement (if applicable) On the 24-10-13, I Joel Davis was working in area 32 back filling up against and around the footing. I was operating a 13 Tonne excavator and as I was pushing material out towards the footing with the bucket, I contacted the footing.

The spotter was positioned on my left hand side and did not see the bucket hit the footing. I moved the machine clear of the area to check damage, I informed my supervisor and stopped work.

Employee / Witness Name: JDavis

Employee / Witness Signature: JDavis **Date:** 24.10.13

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DOC NO: HSE F 003	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO CIVIL
VERSION NO: V2	REVIEWED DATE: 01/08/12	

Part: B - Investigation

INJURY DETAILS *(please circle appropriate code number and write code in space provided)*

Location (Part of Body)	Nature (Nature of injury)	Agency (Agency of Injury)	Cause (Type of Incident)
001 Head	031 Fractures	051 Machinery/Cranes	071 Fall
002 Eyes	032 Dislocation	052 Power Tools	072 Slip/Trip/Stumble
003 Neck	033 Sprain/Strain	053 Other hand tools	073 Struck by falling object
004 Trunk	034 Concussion	054 Lifting Equip/Hoist	074 Step Down/Jumping
005 Back	035 Amputation	055 Transport/other	075 Strike against object
006 Arm	036 Laceration	056 Manual Handling	076 Struck by object
007 Hand	037 F/Body (eye)	057 Equipment	077 Caught in/between
008 Leg	038 Superficial	058 Environment	078 Strain/exertion
009 Foot	039 Contusion/Crush	059 Ladders	079 Wind blown object
010 General	040 Burns/scalds	060 Scaffolds	080 Temp/weather/heat/cold
011 Multiple	041 Multiple	061 Grinding	081 Elec/friction contract
012 Face	042 Welding Flash	062 Flying objects/particles	082 Chemical/harmful sub
013 Knee	043 Abrasion	063 Floor/Work surface	083 Vehicle inc
014 Other	044 Other	064 Other	084 Other
		051	081

CONTRIBUTING FACTORS

JOB FACTORS

Congested area

Material rocky in nature

Comments:

PERSONAL FACTORS

First day back from R&R

Comments:

SUBSTANDARD CONDITIONS

Nil

Comments:

SUBSTANDARD PRACTICES

Nil

Comments:

ROOT CAUSE *(Problems are rarely single cause events. Ensure all root causes are listed)*

The bracket holding the hydraulic line was too large and did not prevent the pipe being affected by vibration.

RECOMMENDATIONS TO PREVENT A RE-OCCURRENCE

Install correct size bracket to prevent movement.

CORRECTIVE ACTIONS

CORRECTIVE ACTIONS REQUIRED:	BY WHOM	DATE CORRECTIVE ACTIONS DUE	DATE COMPLETED
Install correct size bracket to prevent movement.	WBHO Fitter	26-10-2013	

Part C - INVESTIGATION COMPLETION

DOC NO: HSE-F-003	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO CIVIL
VERSION NO: V2	REVIEWED DATE: 01/08/12	

SAFETY MANAGER COMMENTS

Name: **Signature:** **Date:**

DIVISIONAL MANAGERS COMMENTS

Confirmation of OHS Officer Action (Letter, etc)

Name: **Signature:** **Date:**

GENERAL MANAGERS COMMENTS

Name: **Signature:** **Date:**

OFFICE USE ONLY

INJURY CLASSIFICATION

- ☐ LTI - Disability
- ☐ RWC - Restricted Work Case
- ☐ MTI - Medical Treatment Injury
- ☐ FAI - First Aid (Minor Injury)
- ☐ NWI - Non-work Injury

WORK CONSEQUENCES - STATUS

Returned to alternative duties	**Date:** / /	**Time:** **(Hrs)**
Ceased work	**Date:** / /	**Time:** **(Hrs)**

WBHO | CIVIL

• Kwinana Phone 08 9410 2100 Fax 08 9410 2387
• Karratha Phone 08 9143 2900 Fax 08 9143 2950
• Geraldton Phone 08 9923 7000 Fax 08 9923 7050

DAILY EQUIPMENT PRE-START CHECK & TEST

Job No

Checklists are to be handed in to Manager who will verify and schedule appropriate action on listed items

OPERATOR: Joel Davis

MACHINE:	Start Kms or Hrs:	Finish Kms or Hrs:
Tipper	1081.2	1081.6

NOTE: *Operators will carry out a pre-start and operational check of their equipment. Indicate your findings by placing in the adjacent box either a tick (✓) if items are within safe working limits, or a cross (X) if a fault or damage that requires repair or attention is noted. Note items requiring attention below.* ***All faults that affect the safe operation of equipment MUST be reported immediately. Equipment must NOT be operated until these faults are rectified.***

Comments:
- scratch on bonnet P/H/S
- no reversing alarm
- no mirror
- no two way

I declare that the machinery is in good working order and I am fit to operate it

Operator Signature: [signature]

Date: 24-10-13

Supervisor Sign & Date:

EXTERIOR CHECKS

- ✓ Hand & Foot Holds [ALL]
- ✓ Tyres & Wheel Nuts / Tracks & Frames [ALL]
- X Panels & Guards [ALL]
- ✓ Windows (clean) & Doors [ALL]
- ✓ Fire Equipment (hose/ pin/ gauge) [ALL]
- ✓ Chassis & Sub Frame
- Hoses & Lines (damage & leaks) [ALL]
- Hydraulic Rams [E][B][L][G][T]
- Booms [E][B]
- Buckets, Teeth & Pins [E][B][L]
- Quick Hitch [E]
- Blade Circle [G]
- Mouldboard, Blade, Cutting Edge & Bolts [G]
- Ripper/ Scarifier (arms/ shanks/ tips) [G]
- Cutting Edges. Plates & Bolts [B][L][G]
- Stabiliser Feet [B]
- Water Tank, Pump & Hoses [W]
- Pressure Spray & Dribble Bar [W]
- Water Control Valves [W]
- Portal [W]
- Hoist & PTO [T][W]
- Tail Gate & Body [T]
- Tarpaulin, Ropes [T]
- Jacks & Levers [T][W]
- Safety Pins [E]

INTERIOR CHECKS

- ✓ Cabin Clean/ 1st Aid Kit [ALL]
- ✓ Seat Belts/ Seat Adjustments [ALL]
- X Mirrors [ALL]
- ✓ Emergency Steering & Steering [ALL]
- ✓ Control Levers (trans, bucket, blade etc) [ALL]
- ✓ Lights, Horn, Wipers [ALL]
- ✓ Air Conditioner/ Heater [ALL]
- ✓ Reversing Alarm [ALL]
- X Two Way Radio [ALL]
- Transmission Lock [L]
- Air Hose [W]

FLUID LEVELS & GAUGES

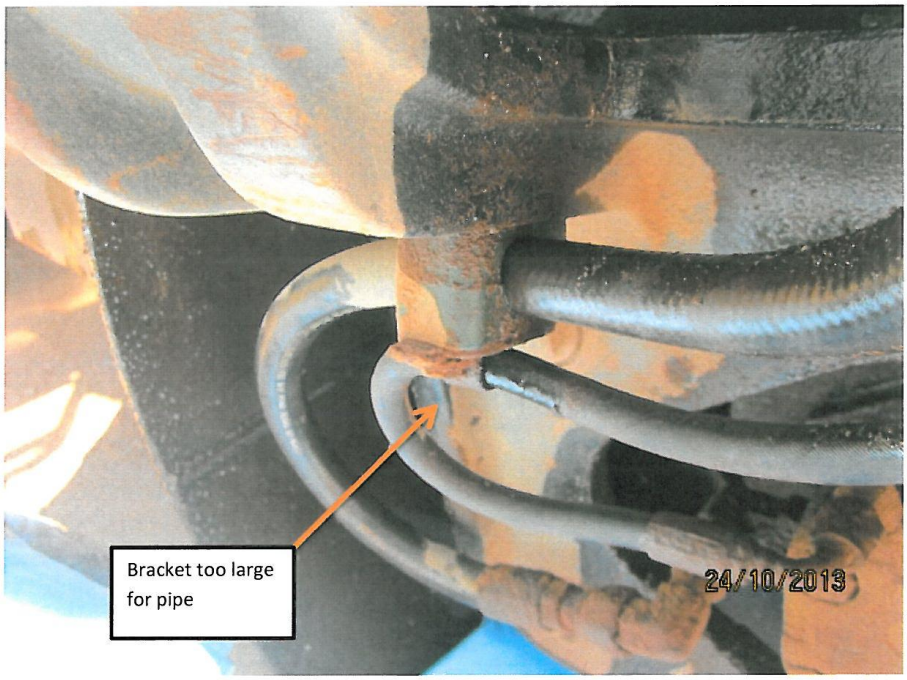
- ✓ Fuel [ALL]
- ✓ Engine Oil [ALL]
- ✓ Hydraulic Oil [ALL]
- ✓ Coolant Level (cold) [ALL]
- ✓ Grease Points [ALL]
- ✓ Air Pressure Range [ALL]
- ✓ Engine Warning Systems [ALL]
- Transmission Oil [B][L][G][T][W]
- Pre-cleaner (air) [B][L]
- Left & Right Air Tank (drain) [T][W]

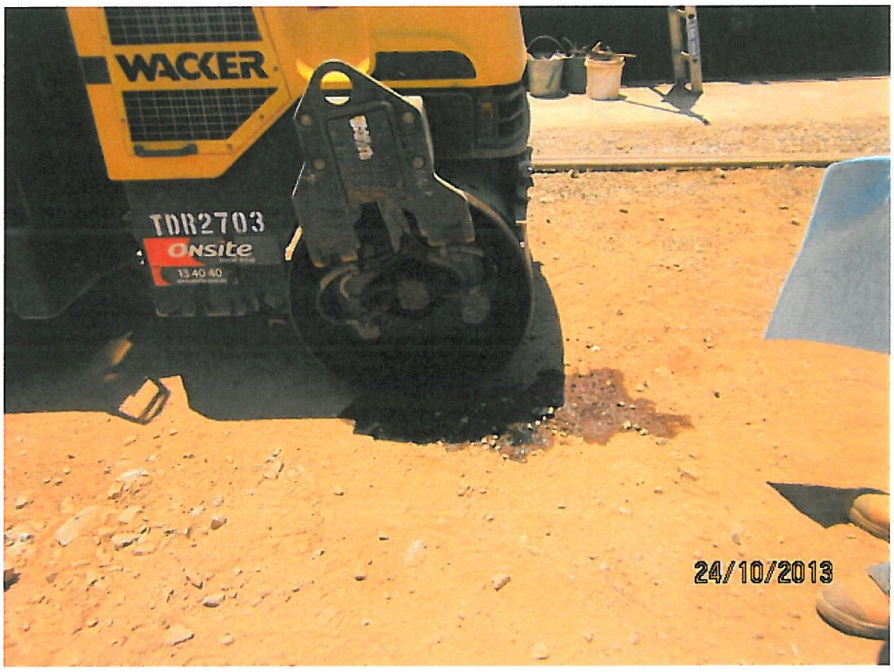
BRAKING SYSTEMS

- ✓ Service & (foot brake) [B][L][G][T][W]
- ✓ Park [B][L][G][T][W]
- ✓ Emergency [T][W]
- Retarder [T][W]
- Slew Brake [E]

[ALL] All Plant [E] Excavator [B] Backhoe [L] Loader / Bobcat [G] Grader [T] Tipper [W] Watercart

WBHO-CIVIL-DEPS A5 Rev1.1 2013





TAN-041 (6TH DECEMBER 2013)

INJURY & INCIDENT REPORT PART A

FORGE

1 PART A OF THIS FORM MUST BE COMPLETED & EMAILED TO incidents@forgegroup.com.au WITHIN 2 HOURS OF ANY INJURY OR INCIDENT For assistance in completing this form, contact your Project HSE Advisor, or phone Group HSE on (08) 6389 8560 or (08) 6389 8561 Reports may also be faxed to (08) 6389 8399 Signatures are not required for email transmittal

Project / Site Name	TAN BURRUP	Project / Site Reference No.	C5010
Division	Forge Construction - SMPT	Date of Injury / Incident	06/12/13
Client	TENICAS REUNIDAS	Time of Injury / Incident	0945
Report Title	SPILL TO GROUND OF HYDRAULIC OIL FROM AN UNIDENTIFIED LEAK IN MANITOU (TR INCIDENT NUMBER 041)		

2 INJURY TYPE

Lost Time Injury LTI	☐	
Restricted Work Injury RWI	☐	
Medical Treatment Injury MTI	☐	
First Aid Injury FAI	☐	

3 INCIDENT TYPE

Motor Vehicle Accident MVA	☐	
Property, Plant, Equip Damage DAM	☐	
Security, Theft, Disturbance SEC	☐	
Environmental Spill or Damage ENV	☒	

Fire FIRE	☐
Near Miss NM	☐
Non-Compliant D&A Test D&A	☐
Non-Work Related NWR	☐

4 INJURY DATA

Injured Person:	Occupation:	Employer: FORGE
Date of Birth:	Date Injury Occurred:	Time Injury Occurred:
Reported to:	Date Injury Reported:	Time Injury Reported:
Nature of Injury / Disease (*what*):		Code (*as per AS1885*) ... ...
Bodily Location of Injury /Disease (*where*):		Code (*as per AS1885*) ... ...
Mechanism of Injury / Disease (*how*):		Code (*as per AS1885*) ... ...
Agency of Injury / Disease (*by what*):		Code (*as per AS1885*) ... ...

5 INJURY / INCIDENT DETAILS (*what happened, where it happened, who was involved*)

09:43 FORGE'S MANITOU WAS CONDUCTING BASIC LIFTS (RIGGING GEAR) IN THE HV LAYDOWN, WHEN THE SPOTTER NOTICED A SMALL AMOUNT OF HYDRAULIC OIL ON THE GROUND WHICH APPEARED TO BE COMING FROM UNDERNIETH THE MANITOU.

Name of person making report: ROBERT THOMPSON Signature: not required for email Date: 06/12/13

6 IMMEDIATE & CORRECTIVE ACTIONS (*what action has or will be taken in response to the incident*)

PRESTART COMPLETED ON THE MANITOU 6/12/13 AT 06:30 NO FAULTS FOUND

09:43 THE SPOTTER CONTACTED THE OPERATOR AND THE MANITOU STOPPED AND MADE SAFE.

THE SPILL KIT WHICH WAS IN THE AREA WAS BOUGHT OVER TO THE AREA AND SPILL DUST WAS PLACED OVER THE SPILLS ON GROUND AND OIL SOAKER MATS PLACED UNDER THE MANITOU.

09:44 SUPERVISOR CALLED TO THE SCENE,

09:45 SUPERVISOR CONTACTS FORGE'S FITTER AND HSE

09:46 CLIENT (TR NOTIFIED VERBALLY)

09:50 CLIENT TR NOTIFIED BY EMAIL

THE MANITOU HAD A BUND TIED TO ITS UNDERCARRAIGE AND WILL BE DRIVEN SLOWLY WITH SPOTTER PRESENT FROM THE HV LAYDOWN TO AREA 31 (FORGE WORKSHOP AREA).

FORGE'S FITTER BUNDED UNDERNEATH THE MANITOU AND PLACE ITS BOOM ON TOP OF A 20FT ISO CONTAINER TO INVESTIGATE THE SOURCE OF THE LEAK AS IT IS BELIEVED TO BE LEAKING FROM THE UNDERNEATH SIDE OF THE BOOM, WHICH SITS INSIDE THE VEHICLE STRUCTURE.

AT 14:00 THE SPILL DUST HAD SOAKED UP THE HYDRAULIC OIL AND THE CONTAMINATED WASTE WAS CLEANED UP WITH A DUST PAN AND BRUSH, THE CONTAMINATED WASTE WAS PLACED IN A CONTAMINATED WASTE BAG AND DISPOSED OF IN FORGE'S HYDROCARBON BIN.

THE MANITOU WAS DRIVEN AND ESCORTED TO AREA 31 WHERE IT WAS FOUND TO HAVE A SMALL CUT IN THE HOSE CAUSED FROM AN O CLAMP, FORGE'S FITTER WILL REPAIR.

NO FURTHER ACTION CAN BE TAKEN IN REGARDS TO THIS EVENT. THE CORRECT PROCEDURES FOR THE SPILL AND SPILL PREVENTION WERE TAKEN.

Name of supervisor responsible: JAMIE GEORGE Signature: not required for email Date: 06/12/13

7 ACTUAL & POTENTIAL SEVERITY Actual [L] Potential [L] Level of investigation is based on highest reasonably credible consequence

Highest reasonably credible consequence with existing controls		*Frequency of activity in our business*			1	2	3	4	5
5	Fatality, Long Term Environmental Impact, Damage > $1M	A	Almost Certain, Daily or Weekly Activity	A	L	M	H	E	E
4	LTI, Significant Environmental Impact, Damage $10K-$1M	B	Likely, Activity occurs monthly	B	L	L	M	H	E
3	RWI / MTI, Environmental Impact <1 month, Damage < $10K	C	Possible, Activity occurs at least once per year	C	N	L	M	H	E
2	FAI, Immediately contained spill, Damage < $500	D	Unlikely, Activity occurs once per 10 years	D	N	N	L	M	H
1	No Treatment, < $100 Damage, No Environmental Impact	E	Rare, Activity occurs once per 30 years	E	N	N	N	L	M

FGE-HSE-FO-001 (Rev 3) January 2013 Uncontrolled when printed. Refer Forge Intranet or QA Department for latest revisions. Page 1 of 4

INJURY & INCIDENT REPORT PART A

FORGE

8	INVESTIGATION LEVEL REQUIRED		9	SITE MANAGER REVIEW
N/L	**Summary** Only (*Part A of this form*) **2 Hours**	☒	Comments:	
M	**Detailed** (*Complete Part B of this form*) **3 Days**	☐		
H/E	**Root Cause** Analysis (*TapRoot / iCAM*) **7 Days**	☐	Name: JAMES LAW	Signature: not required Date: 06/12/13

10	GROUP HSE REVIEW			
Accept Investigation Level	☐ YES	☐ NO	Comments:	
Close Report	☐ YES	☐ NO		
Date dd/mm/yy	Group Ref:		Name:	Signature: Date: dd/mm/yy

INJURY & INCIDENT REPORT PART B

FORGE

11	TIMELINE OF EVENT	Provide a step by step description of what happened. Start at the earliest reasonable point – for example morning pre-start meeting – and finish when the incident was concluded and situation had been stabilised.

12	PEOPLE	Provide relevant & factual information about the person or persons involved in the event.

NO PEOPLE ISSUES PRESENT

13	ENVIRONMENT	Provide relevant & factual information about the working environment.

GRAVEL SURFACES

14	EQUIPMENT	Provide relevant & factual information about any equipment (including substances) involved.

MANATOU FORKLIFT, FAULTY CONNECTION ON HYDRAULIC HOSE

15	PROCEDURES	Provide relevant & factual information about any documentation relevant to the event ie: Procedures, Instructions, Manuals, JHA's, Start Cards, Permits to Work, Drawings,

PROCEDURES WERE FOLLOWED

16	OTHER	Provide relevant & factual information about any other matters not already included.

17	ANALYSIS & CAUSE	Provide an analysis of the event. What specific acts, omissions, uncontrolled hazards or other failure caused the event? What went wrong?

FAULTY CONNECTION ON HOSE, NO VISIBLE SIGNS OF FAULT PRIOR TO FAILURE

18	ACTION REQUIRED	S.M.A.R.T. (Specific, Measurable, Accountable, Reasonable, Timely)	PERSON RESPONSIBLE	TARGET DATE	DATE COMPLETED
	INSPECT MACHINE FOR ANY OTHER POSSIBLE FAULTS TO HYDRAULIC HOSES		J GEORGE	9/12/13	dd/mm/yy
				dd/mm/yy	dd/mm/yy
				dd/mm/yy	dd/mm/yy
				dd/mm/yy	dd/mm/yy
				dd/mm/yy	dd/mm/yy
				dd/mm/yy	dd/mm/yy

INJURY & INCIDENT REPORT PART B

FORGE

19	**STATEMENTS**	Provide a list of all statements attached to this report.

OPERATOR

20	**PHOTOGRAPHS**	Provide a list of all photographs attached to this report.

REFER ATTACHED

21	**OTHER**	Provide a list of any other attachments; (licences, certificates, drawings, sketches, notes, log book records, inspection records, SnapCharT®, ForgeSafe Alert, Toolbox Minutes)

JHA
MSDS FOR HYDRAULIC FLUID
PRESTART CHECKLIST COMPLETED FOR MACHINE

22	**SITE MANAGER COMMENT ⇨**	When complete, forward this report plus attachments to HSE Coordinator

Approved ☐ Name: Signature: not required for email Date: dd/mm/yy

23	**HSE COORDINATOR COMMENT⇨**	When complete, forward this report plus attachments to General Manager

Reviewed ☐ Name: Signature: not required for email Date: dd/mm/yy

24	**GENERAL MANAGER COMMENT⇨**	For MEDIUM level incidents, General Manager may accept, close & return to HSE Coordinator For HIGH level incidents, review with ForgeSafe Leadership Team and forward to Managing Director For EXTREME level incidents, report is to be tabled at ForgeSafe Leadership Team for review

Accepted / Closed ☐ Name: Signature: not required for email Date: dd/mm/yy

25	**MANAGING DIRECTOR COMMENT⇨**	For HIGH level incidents, Managing Director may accept, close & forward to Group HSE Manager For EXTREME level incidents, forward to CEO after review by ForgeSafe Leadership Team

Accepted / Closed ☐ Name: Signature: not required for email Date: dd/mm/yy

26	**CEO COMMENT**	For EXTREME level incidents, CEO may accept, close & forward to Group HSE Manager

Accepted / Closed ☐ Name: Signature: not required for email Date: dd/mm/yy

27	**GROUP HSE COMMENT**	

Report Complete ☐ Name: Signature: not required for email Date: dd/mm/yy

TAN-046 (7TH JANUARY 2014)

TAN BURRUP PROJECT

Rev. 0

INCIDENT/ACCIDENT REPORT

GENERAL INFORMATION: **Rep#-TAN-046**

INCIDENT DATE: 7/01/2014 PLANT: Evap Pond # 1
INCIDENT TIME: 8:30 AREA: Area 1

INCIDENT/ACCIDENT CONSEQUENCE: (Put a cross in the right answer)

☐ Cuasi-accident
☐ Personal Injury
Name of Injured Person (s):
Company:
Injured Body Part:
Injury Type:

☒ Fauna: Kangaroo deceased
Spill/Release:
Quantity:
☐ Fuel
Fire/Explosion:
Fire equipment used:
☐ Material Damages:

Medical assistance required:	YES ☐	NO ☒
Lost Work:	YES ☐	NO ☒
Notification to Official Authorities?	YES ☐	NO ☒

INCIDENT/ACCIDENT DESCRIPTION:
Kangaroo found deceased floating in Pond # 1. Unknown how long the carcass has been there

WITNESS REPORT:
During works inspection the deceased kangaroo was found floating in the pond. Reported to TR HSE

INCIDENT/ACCIDENT POTENTIAL CAUSES:
Fauna entered pond and drowned, no physical barriers to prevent access to pond

CORRECTIVE ACTIONS TAKEN:
Assess means of access for these types of fauna to site

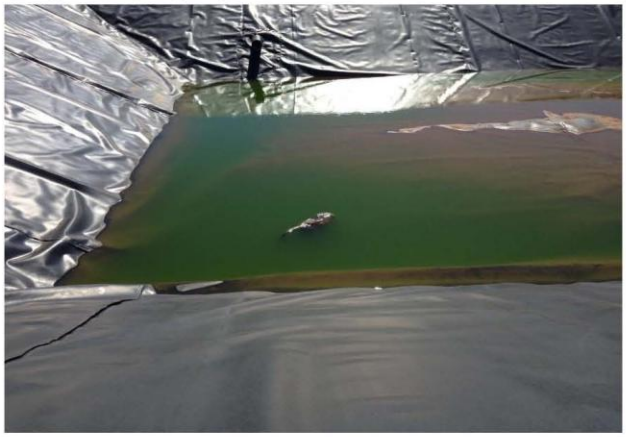
CORRECTIVE ACTIONS FOLLOW-UP:
Reinstate temporary construction fence on West end of road 5 at boundary fenceline. Forge/WBHO 8-01-14
Assess the need for temp construction fence around ponds containing water. TR - R Lee 8-01-14
Assess all access points to site for out of hours closing access. TR - R Lee 8-01-14
Implement inspections of ponds every morning and night - WBHO - Christo Opperman 8-01-14

Signed by CONTRACTOR

Roy Lee

Página 1

Kangaroo floating in pond



TAN-057 (25TH JANUARY 2014)

Maria del Mar Folgar Vallejo

De: Roy Lee
Enviado el: Sunday, 26 January 2014 2:13 PM
Para: Abilio Ciro Gutierrez Hernandez; Alejandra Merlo Reyes; Antonio Del Pino Sastre; Antonio Jesús Machuca Minero; Armando Jose Lopez Abad; Beatriz Herrera Peña; 'Bernard Limbourg'; David Hegerty; Guiomar Tuero O´Donell Zulaica; Jason Roberts; Kerry Coe; Loreto Diaz Barrera; Manuel Boo Acuña; Maria del Mar Folgar Vallejo; Ryan Webster; Sergio Paccione; Yassin Al-Khudairi
CC: alan.blackford@wbho.com.au; Christo Opperman; Michael Aris; Maria del Mar Folgar Vallejo; Alejandra Merlo Reyes; Ryan Webster
Asunto: TAN-TBA-ENVI-Reptile deceased in Vehicle

Refer below Incident Notification.

Incident Notification:
Time: 0930 hrs approx..
Date: 25.01.2014
Date Reported: 25.01.2014
Type: ENVI – Death Adder inside cab of Truck deceased
Location: Main Access Road
Description
Approximately 400mm long Pilbara Death Adder inside cab of Truck.
Initial Summary
Operator driving truck into site and looked down to see a Snake between his feet. He stamped his feet in fear subsequently the reptile did not survive.
Operator was not bitten and was checked by Paramedic.
Notifications
Supervisor – Mick Aris
WBHO HSE – Alan Blackford
Manager – Christo Opperman
TR HSE Manager – Roy Lee

Investigation Status and estimated time/date for issue of investigation Report: Investigation report commenced and will be issued 28.01.2014.

Roy M Lee
HSE Manager

TECNICAS REUNIDAS
TAN Burrup Project
Lot 3017 Village Road, Burrup Peninsula WA 6714
Tel. +61 (0) 447 799 278
Ext. 697012

Think before you Print

1

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TAN-062 (5TH FEBRUARY 2014)

DOC NO: HSE-F-003	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO CIVIL
VERSION NO: V2	REVIEWED DATE: 01/08/12	

ACCIDENT / INCIDENT INVESTIGATION REPORT

EMPLOYEES NAME: WOOLF Todd

DATE OF INCIDENT: 5-2-2014

PROJECT / LOCATION OF INCIDENT: TAN Burrup Road Widening

Accident / Incident Reporting Procedure

1. Supervisor to make area safe and tend to any injured employee.
2. Supervisor to ensure area is secure if further investigation of site is required.
3. Supervisor to notify Project Manager or Site Manager immediately of incident
4. Project Manager or Site Manager to notify Safety Manager, Site Safety Advisor and Divisional Manager immediately of incident.
5. Safety Advisor to notify the site safety representative (if one has been elected for the site).
6. Project Manager or his delegate to obtain statements from all relevant parties.
7. Incident is to be investigated, the Divisional Manager to nominate the Investigation team.
8. Investigation Leader to complete all relevant sections of incident report form.
9. Investigation Leader to forward completed incident report to Safety Manager and Project Manager or Site Manager.
10. Safety Manager to review report and forward to Divisional Manager and General Manager.
11. Divisional Manager and General Manager to review, comment and sign report.
12. Corrective actions to be implemented as per responsibilities and due date.
13. Evidence of corrective actions being completed to be attached to report.
14. Incident to be recorded on Incident register.
15. Completed report to be filed in Incident file.

Refer to HSE-P -033 for full procedure

Page 1 of 8

DOC NO: HSE-F-003	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO CIVIL
VERSION NO: V2	REVIEWED DATE: 01/08/12	

REPORT NO:

Part A: Incident / Accident Report

TYPE OF OCCURRENCE

- ☐ Near Miss
- ☐ Personal Injury
- ☐ Fire
- ☒ Environment
- ☒ Equipment/Property
- ☐ Serious Potential Incident
- ☐ Procedural Violation

Regulatory Body Notification Required? Yes ☐ No ☒ **If yes authorised by:**

PERSON/S INVOLVED - DETAILS

NAME (persons involved) **Surname: WOOLF** **First Name: Todd**

SUPERVISOR NAME	Richard Biggs	**SHIFT**	Day ☒ Night ☐ Other ☐
REPORTED TO	Richard Biggs	**REPORT COMPILED BY : Shane Beezley**	
DEPARTMENT	Projects	**SUBCONTRACTED TO : WBHO**	
WORK LOCATION	King Bay Road		
WITNESSES	N/A	**Start Time:** 6:00 am	Shift Hours: 10
WORK RELATED	YES ☒ NO ☐	**Consecutive Days Worked:**	10

INCIDENT DETAILS

Date of Incident: 5-2-2014	Time of Incident: 1:20pm	Date Reported: 5-2-2014	Time Reported: 1:25pm

Describe the Incident: Grader working on water drain on the toe of the embankment on King Bay road widening project. The operator was concentrating on the levels of the drain, as he was attempting to place the outside of the blade deeper into the drain, the inside of the blade contacted the hydraulic line snapping of a fitting. The operator then stopped and informed his supervisor of the event. The supervisor contacted site HSE and the fitter to attend. Spill kits were deployed to contain the spill. Soiled material was bagged and disposed of.

Injured Person Signature:

Immediate Actions Taken to Control the Incident (Brief):

Stopped work and informed supervisor.

INJURY ☐ **N/A**		**ILLNESS** ☐	
Nature of Injury *(Brief description of injury / treatment given)*:			
Is this a recurrence of a previous injury? N/A	**Yes** ☐	**No** ☐	
EXTENT OF TREATMENT GIVEN	**FIRST AID** ☐ *(i.e. Medical Centre on Site)*	**GP** ☐	**HOSPITAL** ☐
Did the patient return to work?	**Yes** ☐ *(Pre-Injury duties)*	**Yes** ☐ *(Alternate duties)*	**No** ☐
Patient to be Reviewed	**Yes** ☐ **No** ☐	**Date to be reviewed**	

DOC NO: HSE-F-003	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO | CIVIL
VERSION NO: V2	REVIEWED DATE: 01/08/12	

STATEMENT

Employee and Witness statement (if applicable)

I was operating Grader cutting in road side drain I had just finished a cut and started to reverse up, looking at the cut side of the blade. As I lifted the blade to position it for the drain work the other side of the blade came in contact with the hydraulic lines on my Left. I stopped the machine and informed my supervisor, I guess there was about 6lt of fluid lost. My supervisor contacted site HSE and the fitter to attend to the spill. The amount of material disposed of was approximately 6-8 litres of hydraulic oil within 5 plastic bags of material.

Employee / Witness Name:

Employee / Witness Signature: **Date:**

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DOC NO: HSE-F-003	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO CIVIL
VERSION NO: V2	REVIEWED DATE: 01/05/12	

Part: B - Investigation

INJURY DETAILS *(please circle appropriate code number and write code in space provided)*

Location (Part of Body)	Nature (Nature of injury)	Agency (Agency of Injury)	Cause (Type of Incident)
001 Head	031 Fractures	051 Machinery/Cranes	071 Fall
002 Eyes	032 Dislocation	052 Power Tools	072 Slip/Trip/Stumble
003 Neck	033 Sprain/Strain	053 Other hand tools	073 Struck by falling object
004 Trunk	034 Concussion	054 Lifting Equip/Hoist	074 Step Down/Jumping
005 Back	035 Amputation	055 Transport/other	075 Strike against object
006 Arm	036 Laceration	056 Manual Handling	076 Struck by object
007 Hand	037 F/Body (eye)	057 Equipment	077 Caught in/between
008 Leg	038 Superficial	058 Environment	078 Strain/exertion
009 Foot	039 Contusion/Crush	059 Ladders	079 Wind blown object
010 General	040 Burns/scalds	060 Scaffolds	080 Temp/weather/heat/cold
011 Multiple	041 Multiple	061 Grinding	081 Elec/friction contract
012 Face	042 Welding Flash	062 Flying objects/particles	082 Chemical/harmful sub
013 Knee	043 Abrasion	063 Floor/Work surface	083 Vehicle inc
014 Other	044 Other	064 Other	084 Other
N/A	N/A	051	075

CONTRIBUTING FACTORS

JOB FACTORS

Rocky material

Comments:

PERSONAL FACTORS

8 years experience, VOC conducted

Concentration was focused on the drain side only.

Operator had been using a GPS fitted grader with the reception poles preventing the blade having the same amount of movement.

Comments: Complacency

SUBSTANDARD CONDITIONS

Nil

Comments:

SUBSTANDARD PRACTICES

Operator did not check both sides of the blade.

Comments:

Page 4 of 8

DOC NO: HSE-F-003	TITLE: ACCIDENT/INCIDENT INVESTIGATION REPORT	WBHO CIVIL
VERSION NO: V2	REVIEWED DATE: 01/08/12	

ROOT CAUSE *(Problems are rarely single cause events. Ensure all root causes are listed)*

Operator error (complacency)

RECOMMENDATIONS TO PREVENT A RE-OCCURRENCE

Verify operator is competent on the grader.

Complacency

CORRECTIVE ACTIONS

CORRECTIVE ACTIONS REQUIRED:	BY WHOM	DATE CORRECTIVE ACTIONS DUE	DATE COMPLETED
Verify operator is competent on the grader.	Supervisor	7-2-2014	6-2-2014
Discuss concentration and complacency to remind work crew to maintain focus.	Safety	7-2-2014	7-2-2014

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Part C - INVESTIGATION COMPLETION

SAFETY MANAGER COMMENTS

Name: **Signature:** **Date:**

DIVISIONAL MANAGERS COMMENTS

Confirmation of OHS Officer Action (Letter, etc)

Name: **Signature:** **Date:**

GENERAL MANAGERS COMMENTS

Name: **Signature:** **Date:**

OFFICE USE ONLY

INJURY CLASSIFICATION

- ☐ LTI - Disability
- ☐ RWC - Restricted Work Case
- ☐ MTI - Medical Treatment Injury
- ☐ FAI - First Aid (Minor Injury)
- ☐ NWI - Non-work Injury

WORK CONSEQUENCES - STATUS

Returned to alternative duties	**Date:** / /	**Time:** (Hrs)
Ceased work	**Date:** / /	**Time:** (Hrs)

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