



MOOI MGENI TRANSFER SCHEME PHASE 2 (MMTS-2)

Construction of the Spring Grove Dam & Appurtenant Works

[DEA Reference Number: 12/12/20/220]



MONTHLY ECO REPORT : May 2012



ENVIRONMENTAL AND SOCIAL CONSULTANTS

P.O. BOX 1673
SUNNINGHILL
2157

Offices 4 & 5
23 Jan Hofmeyr Road
Westville
3629

Tel : 031 266 3884
Fax : 031 266 5287
Email: info@nemai.co.za

TITLE AND APPROVAL PAGE

Project name: **Mooi Mgeni Transfer Scheme Phase 2 - Construction of the Spring Grove Dam & Appurtenant Works**

Report Title: **Monthly Environmental Control Officer Report**

Authors: **D Henning, A. Burke, N Naidoo**

DEA reference no.: **12/12/20/220**

Status of report: **Revision 01**

Compliance Report No: **14**

Date of issue: **22 May 2012**

PSP: Nema Consulting

Approved for PSP by:

N Naidoo

Project Manager

TCTA: Client

Approved for TCTA by:

K Govender

Environmental Manager

TABLE OF CONTENTS

TITLE AND APPROVAL PAGE	I
TABLE OF CONTENTS	II
LIST OF ACRONYMS & ABBREVIATIONS	IV
DEFINITIONS	V
1 INTRODUCTION	7
2 ECO MONITORING APPROACH	8
2.1 Weekly Monitoring	8
2.2 Monthly Monitoring	8
3 CONSTRUCTION ACTIVITIES FOR THE MONITORING PERIOD	11
4 ENVIRONMENTAL ACTIVITIES FOR THE MONITORING PERIOD	15
5 WATER, AIR AND NOISE MONITORING	19
5.1 Contractor's Monitoring Results	19
5.1.1 Air Quality	19
5.1.2 Environmental Noise	21
5.1.3 Water Quality	22
5.2 Conclusions	22
6 ENVIRONMENTAL PERFORMANCE	23
6.1 Weekly ECO Monitoring – Status of Issues	23
6.1.1 20 April 2012	23
6.1.2 26 April 2012	23
6.1.3 04 May 2012	24
6.1.4 17 May 2012	24
6.1.5 Conclusions	24
6.2 Monthly ECO Monitoring Checklist	24
6.2.1 Monitoring Categories	25
6.2.2 Areas of Non-Compliance	25
6.2.3 Overall Monitoring Results	28
6.2.4 Sequential ECO Monitoring Results	28
7 NON-CONFORMANCE / INCIDENT REPORTING	29

8	ISSUES AND COMPLAINTS	30
9	PROPOSED AMENDMENTS TO THE ROD AND EMP	35
9.1	Proposed Amendments to RoD	35
9.2	Proposed Amendments to EMP	36
10	REFERENCES	38

LIST OF TABLES

TABLE 1:	SUMMARY OF MONTHLY ECO MONITORING CHECKLIST CATEGORIES: MAY 2012	25
TABLE 2:	SELECTED AREAS OF NON-COMPLIANCE: MAY 2012	25
TABLE 3:	SUMMARY OF RESULTS OF MONTHLY ECO MONITORING CHECKLIST: MAY 2012	28
TABLE 4:	ISSUES AND COMPLAINTS REGISTER: APR - MAY 2012	31
TABLE 5:	PROPOSED AMENDMENTS / MATTERS FOR CLARIFICATION RELATED TO THE ROD	35
TABLE 6:	PROPOSED AMENDMENTS / MATTERS FOR CLARIFICATION RELATED TO THE EMP	36

LIST OF FIGURES

FIGURE 1:	ENVIRONMENTAL GOVERNANCE ARRANGEMENTS: LINES OF ACCOUNTABILITY	7
FIGURE 2:	BACKFILLING OF EARTH EMBANKMENT	12
FIGURE 3:	CONCRETE DRAINAGE CHANNEL	12
FIGURE 4:	TEST TRIAL OF SUBSTANCE "OILCAP" (HYDROCARBON ENCAPSULATOR)	13
FIGURE 5:	DAM FOUNDATION AREA	14
FIGURE 6:	WATER EXTRACTION AREA	14
FIGURE 7:	USE OF MOBILE TOILETS & STORAGE OF HAZARDOUS SUBSTANCES	16
FIGURE 8:	SIGNAGE DISPLAYED	16
FIGURE 9:	CONFIRMATION OF ENVIRONMENTAL AWARENESS	17
FIGURE 10:	SAFE CAPTURING OF A SNAKE FOR RELEASE	17
FIGURE 11:	DEWATERING THROUGH SILT SOCKS	18
FIGURE 12:	IMPROVED WASTEWATER MANAGEMENT	18
FIGURE 13:	AVERAGE DUST DEPOSITION RATES FOR 2010 BASELINE AIR QUALITY SURVEY	19
FIGURE 14:	DUST FALLOUT RATES FOR MAR 2012 COMPARED WITH SANS LIMIT VALUES	20
FIGURE 15:	PM ₁₀ CONCENTRATIONS FROM 01 – 20 MARCH 2012	21
FIGURE 16:	WATERING DOWN OF AREA AROUND OFFICE BLOCK	21
FIGURE 17:	ROAD GRADED BY FENCING CONTRACTOR THROUGH NATURAL VELD	26
FIGURE 18:	REPAIR BUNDED AREA USED TO CONTAIN DIESEL BOWERS	27
FIGURE 19:	DRIP TRAY REQUIRED	27
FIGURE 20:	GRAPH - SUMMARY OF RESULTS OF MONTHLY ECO MONITORING CHECKLISTS	28

LIST OF ACRONYMS & ABBREVIATIONS

DEA	Department of Environmental Affairs
ECO	Environmental Control Officer
EO	Environmental Officer
EMP	Environmental Management Plan
EM	Environmental Monitor
EMC	Environmental Monitoring Committee
MMTS-2	Mooi Mgeni Transfer Scheme Phase 2
TCTA	Trans-Caledon Tunnel Authority
RoD	Record of Decision

DEFINITIONS

Auditing

An 'environmental' audit is a methodical examination (including tests, checks, and confirmation) of environmental procedures and practices with the view of verifying whether they comply with internal policies, accepted practices and legal requirements

Environment

The surroundings in which humans exist and which comprise:

- The land, water and atmosphere of the earth.
- Micro-organisms, plant and animal life.
- Any part or combination of a) and b) and the interrelationships among and between them.
- The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that can influence human health and well-being.

Environmental Aspect

Those components of the company's activities, products and services that are likely to interact with the environment.

Record of Decision

The written statement from the relevant environmental authority in terms of the Environment Conservation Act (Act 73 of 1989), with or without conditions, that records its approval of a planned activity and the implementation thereof and the mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.

Environmental Feature

Elements and attributes of the biophysical, economic and social environment.

Environmental Impact

The change to the environment resulting from an environmental aspect (an activity) on the environment, whether desirable or undesirable. An impact may be the direct or indirect consequence of an activity.

Environmental Management Plan (EMP)

A detailed plan of action prepared to ensure that recommendations for enhancing positive impacts and/or limiting or preventing negative environmental impacts are implemented during the life-cycle of a project.

Environmental Objective

Overall environmental goal pertaining to the management of environmental features.

Environmental Target

Performance requirement that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.

Hazardous Waste

Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment

Monitoring

'Compliance' monitoring is a continuous and systematic process to ensure that the conditions in the Record of Decision (RoD) Environmental Management Plan (EMP) are being adhered to.

Pollution

Any change in the environment caused by substances, radioactive or other waves, or noise, odours, dust or heat, emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.

1 INTRODUCTION

Nemai Consulting was appointed as the independent Environmental Control Officer (ECO) for the Trans-Caledon Tunnel Authority (TCTA) for the Mooi-Mgeni Transfer Scheme Phase 2 (MMTS-2) project.

The ECO's functions in terms of environmental compliance monitoring are to systematically monitor the processes and activities required for the implementation of the Environmental Management Plan (EMP) and the conditions in the Record of Decision (RoD) (refer to environmental governance arrangements in **Figure 1**).

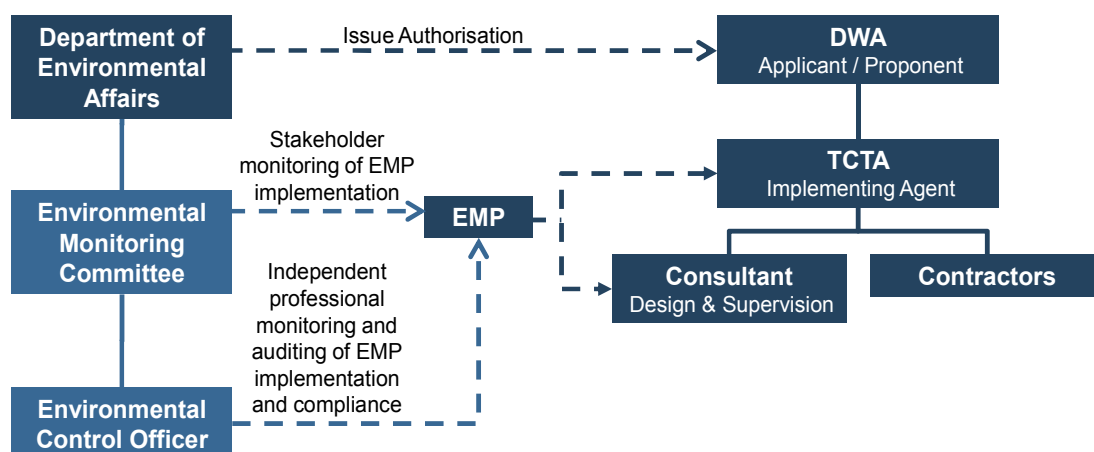


Figure 1: Environmental Governance Arrangements: Lines of Accountability

To date, the following EMPs have been approved by the Department of Environmental Affairs (DEA):

- Construction of the Spring Grove Dam Wall – approved on 03 May 2011;
- Traffic Management and Mitigation Plan – approved on 16 August 2011 (amendment application approved on 21 February 2012);
- Search, Rescue and Relocation – approved on 07 September 2011;
- Mooi River Gauging Weir – approved on 08 October 2011;
- Mooi River Fish Barrier – approved on 06 February 2012; and
- Mpofana River Gauging Weir – approved on 07 March 2012.

This document serves as the monthly ECO Report for May 2012. The monitoring event was undertaken on 17 May 2012, and the monitoring period commenced on 21 April 2012.

2 ECO MONITORING APPROACH

2.1 Weekly Monitoring

Weekly ECO monitoring sessions are carried out once a week where a full day is spent onsite to inspect the overall construction site. The weekly ECO monitoring reports, which are submitted to TCTA, serve as an overview of the following:

- New or improved areas of good environmental practices and compliance;
- Areas of poor practices or where concerns have been noted;
- Status of previous issues; and
- Conclusions.

The weekly ECO monitoring events are more focused on best environmental practices, rather than regulatory compliance.

2.2 Monthly Monitoring

Monthly ECO monitoring serves to check compliance against the following:

- Conditions of the RoD for the construction of the Spring Grove Dam and Appurtenant Works; and
- EMPs and associated conditions of approval.

The Monthly ECO monitoring reports are submitted to TCTA, the Environmental Monitoring Committee (EMC), and ultimately DEA. The monthly ECO monitoring includes once a month full day site inspections, checking environmental administrative provisions (e.g. documentation, files, registers), analysing monitoring data, checking complaints, interviewing the Environmental Manager, Environmental Monitor (EM) and Environmental Officer (EO) (as required) and completing a detailed ECO Monitoring Checklist.

The ECO Monitoring Checklist consists of monitoring items extracted from the EMP and RoD, and are categorised as follows:

- Environmental Authorisation;
- Administration;

- Environmental Education and Awareness;
- Construction;
- Materials;
- Water Quality;
- Air Quality;
- Noise;
- Community Engagement;
- Archaeology and Cultural Sites;
- Vegetation;
- Fauna;
- Traffic;
- Safety and Security;
- Waste;
- Rehabilitation; and
- Search, Rescue and Relocation (*pending*).

The following Conformance Scores, based on the level of compliance for the overall site, is allocated to each monitoring item in the checklist:

CONFORMANCE SCORES	DESCRIPTION
1	Task not achieved
2	Task 20% complete
3	Task 50% complete
4	Task 80 % complete
5	Task 100% completed in accordance with the EMP

Where non-conformance to the RoD conditions and EMP mitigation measures is encountered (i.e. COMFORMANCE SCORE < 5), the significance of the associated Impact is recorded based on the following guidelines):

IMPACT SCORES	IMPACT
1	Low – mitigation not needed/ mitigation measures to be maintained
2	Medium – mitigation should be considered
3	High – mitigation compulsory

The identified non-conformances and related impacts are also rated based on the following **Penalty** Scores:

PENALTY SCORES	DESCRIPTION
0	Not Applicable / Impact or Non-Conformance occurred in area of low Environmental Significance
1	Moderate – Impact/Non-Conformance occurred in area of moderate Environmental Significance (<i>1% Deduction from total conformance score</i>)
2	High – Impact/Non-Conformance occurred in area of high Environmental Significance (<i>3% Deduction from total conformance score</i>)
3	Very High – Impact/Non-Conformance Occurred in area of very high Environmental Significance (<i>5% Deduction from total conformance score</i>)

The overall compliance score is based on:

- No of items scored for the monitoring event;
- The highest conformance score for the monitoring event;
- The actual conformance score for the monitoring event;
- The conformance percentage for the monitoring event (%);
- Total Penalty Deductions (%); and
- Total Conformance Score Including Penalty Deductions (%).

3 CONSTRUCTION ACTIVITIES FOR THE MONITORING PERIOD

Amongst others, the following main construction activities took place during the monthly monitoring period, as identified during the monitoring sessions and from the EO's daily site diary:

- Preparations for pouring of the dental concrete at the dam foundation;
- Installation of shutters for the dam base at the dam foundation is ongoing;
- Clearing of the rock face of the river bed in preparation for pouring additional dental concrete at the dam foundation is ongoing;
- Backfilling of the earth embankment (see **Figure 2**);
- Pipe installation at the earth embankment is ongoing;
- Excavation and hauling of the clay soil adjacent to Millican's house is ongoing;
- Construction of a second coffer dam downstream from the dam wall;
- Use of a borrow pit for the dam's earth embankment on Garlic property is ongoing;
- Construction of a concrete drainage channel adjacent to the permanent access road into the dam basin (see **Figure 3**);
- Levelling of the area for the temporary storage of fill materials;
- Borrow pit excavation and use of associated loop access road for hauling on the Steve Morris property;
- Test trial of the substance "Oilcap" a hydrocarbon encapsulator for the *in situ* treatment of soil contaminated with petroleum based products (see **Figure 4**);
- Occupation of offices on the left bank;
- Expansion of the D146 Road /R103 intersection is ongoing;
- Water truck observed watering haul roads on site;
- Use of upstream river crossing.



Figure 2: Backfilling of earth embankment



Figure 3: Concrete drainage channel



Figure 4: Test trial of substance “Oilcap” (hydrocarbon encapsulator)

The following key areas were inspected during the monitoring session:

- Site offices;
- Stores area;
- Bunded area;
- Workshop;
- Waste transition area;
- Batch plant area;
- Laboratory area;
- Eating area;
- Dam basin;
- River crossings;
- Embankment;
- Tongue wall;
- Dam foundation (see **Figure 5**);
- Water extraction area (see **Figure 6**);
- D146 upgrade; and
- Borrow areas.



Figure 5: Dam foundation area



Figure 6: Water extraction area

*** COMMENTS:**

TCTA

4 ENVIRONMENTAL ACTIVITIES FOR THE MONITORING PERIOD

Some of the **key environmental activities** on site, which also include areas of good practices and compliance, were as follows:

- On-going activities –
 - Regular dust suppression;
 - Safe storage and use of hazardous substances (see **Figure 7**);
 - Use of mobile toilets (see **Figure 7**);
 - Management of siltation;
 - Mixing cement on impermeable surfaces;
 - Appropriate signage displayed (see **Figure 8**);
 - Waste management;
 - Housekeeping;
 - Trucks abiding by speed limit, displaying chevrons, covered loads and numbered;
 - Use of personal protection equipment;
 - Washing of trucks in dedicated areas;
 - Expansion of the D146 Road/R103 intersection;
 - Skills transfer;
 - Environmental awareness (see **Figure 9**);
- Activities identified during the monitoring event –
 - Safe capturing of a snake for release (see **Figure 10**);
 - Dewatering through silt socks (see **Figure 11**);
 - Rectification of wastewater management issues at batch plant (see **Figure 12**);
 - Toolbox talks –
 - Working in Wet Conditions - 23 April 2012;
 - Spillages (presentation given in Zulu) - 23 April 2012;
 - Spillages and Fire - 03 May 2012; and
 - Water Conservation - 15 May 2012



Figure 7: Use of mobile toilets & storage of hazardous substances



Figure 8: Signage displayed



Figure 9: Confirmation of environmental awareness



Figure 10: Safe capturing of a snake for release



Figure 11: Dewatering through silt socks



Figure 12: Improved wastewater management

*

COMMENTS:

TCTA

5 WATER, AIR AND NOISE MONITORING

Amongst others, the functions of the ECO include the following:

- Conduct third-party monitoring and auditing;
- Regularly monitor and review the progress towards achieving the specific strategies, objectives and performance targets of the EMP; and
- Review monitoring data and evaluate against performance targets.

5.1 Contractor's Monitoring Results

The Contractor has appointed Blue Sands to conduct monthly water, air and noise monitoring. The last set of reports received was for monitoring conducted March 2012. Raw data has been received for the monitoring in April 2012.

5.1.1 Air Quality

Dust Fallout

- The samples were collected on 30 March 2012, with a sampling period of 31 days.
- The average dust deposition rates for 2010 Baseline Air Quality Survey follows.

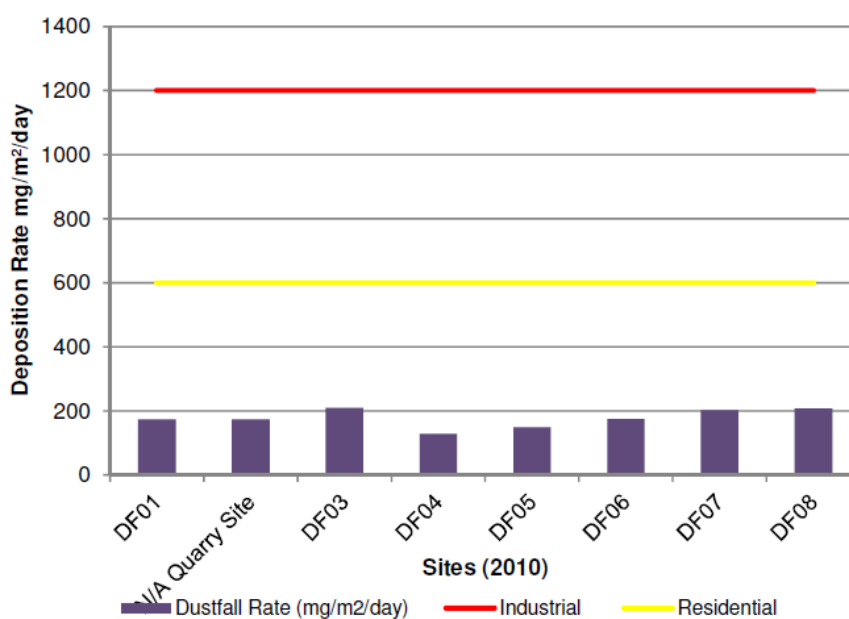


Figure 13: Average dust deposition rates for 2010 Baseline Air Quality Survey

- Dust fallout rates remained well within the residential band (see **Figure 14**).

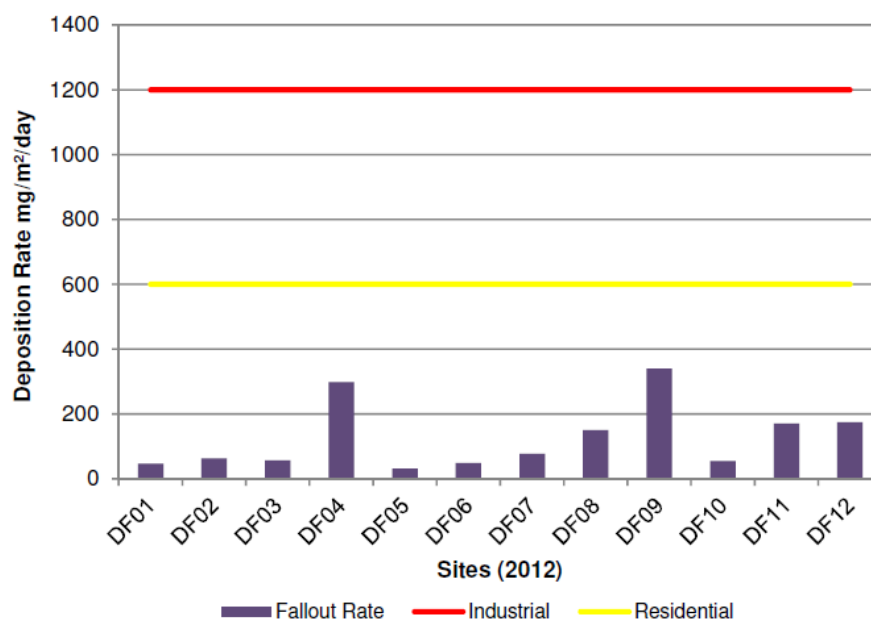


Figure 14: Dust fallout rates for Mar 2012 compared with SANS limit values (Blue Sands, 2012a)

- Marked increases from baseline dust fallout rates were recorded at sites DF04 (Construction Site, North Fence) and DF09 (between Offices and D146). However, the rates were still below the SANS limit values for the residential band.

Continuous Particulate Monitoring (PM₁₀) with Wind Speed and Direction

- The sample period was from 01 – 20 March 2012.
- The PM₁₀ concentrations are all below the 24-hour limit of 120 µg/m³, with the exception of three exceedences recorded for 10, 16 and 19 March 2012 (24-hour averages) (see **Figure 15**). A possible reason for the exceedance was provided by Blue Sands as follows: “As these days were close to or during weekends, it may be that the watering schedule was not as rigorous as during the mid-week...”. It is noted that no dust-related complaints were received on these days.
- The pollution rose shows that the major contribution to the dust levels recorded came from the D146 and from an area north of the office block. There are two sources in the area north of the office block one being the aggregate stock pile and the other being the parking area for the office block. During the monthly ECO monitoring event it was observed that the area around the office block was being watered down (see **Figure 16**).

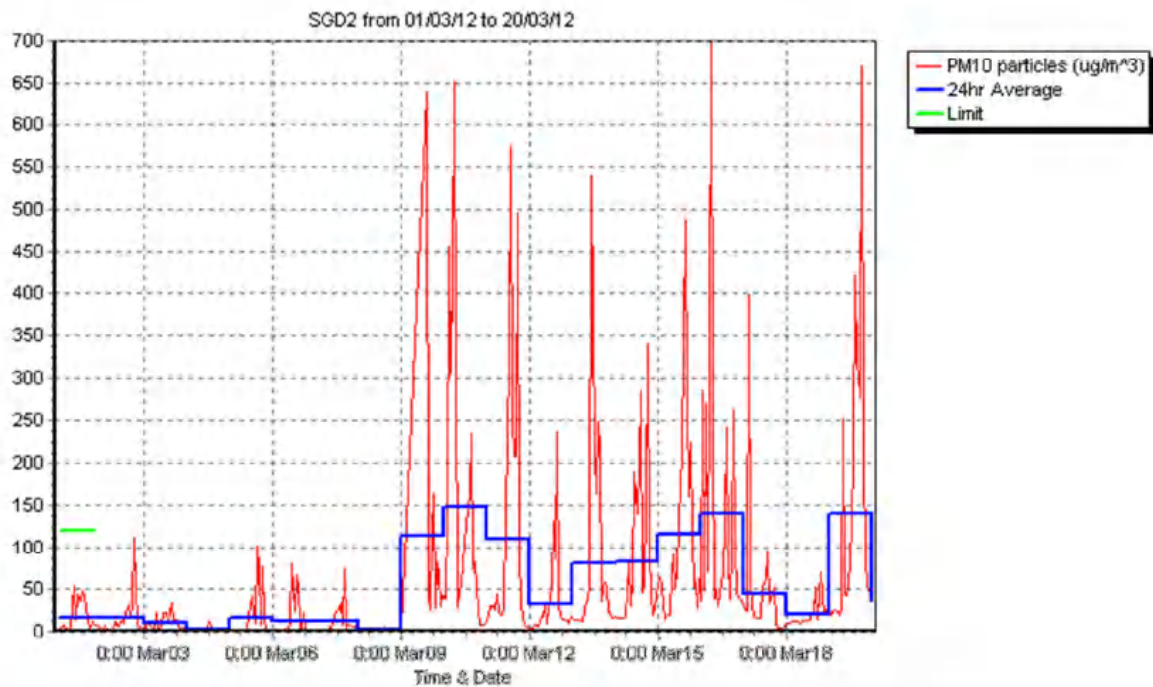


Figure 15: PM₁₀ concentrations from 01 – 20 March 2012 (Blue Sands, 2012b)



Figure 16: Watering down of area around office block

5.1.2 Environmental Noise

- Noise was monitored on 15 and 30 March 2012.
- On 15 March, there were exceedences at nine sites of the 50 dB level. Traffic continues to have an impact on sound levels, with water wetting vehicles having an impact on sound levels at EN02 (entrance to Shonalanga Cottages).

- On 30 March 2012 there were 5 exceedences of 50 dB.
- The largest contributing factor at sites where exceedences were recorded continues to be the influence of general road traffic.
- Complaint regarding noise in the evenings from trucks received on 24 April 2012.

5.1.3 Water Quality

Mooi River Sampling

- Samples were taken on 16 and 30 March 2012.
- Variables at sampling sites associated with construction activities were below thresholds. Where exceedance was recorded, it cannot be conclusively ascribed to the construction activities (e.g. upstream pollution source).

Separator Sampling

- The main exceedences of the threshold limits are for faecal coliforms, soap, oil and grease and the suspended solids.
- Smaller exceedences of the threshold limits are for fluoride, ammonia, phenol, phosphate and pH.
- According to Blue Sands (2012c), the complete results for the separator samples are still to be finalized, and they are seeking advice from another independent water chemist and will report back in the April 2012 monitoring report. This requires urgent attention.

5.2 Conclusions

The raw data and reports on the findings of the water, air and noise monitoring need to be received sooner to allow for a rapid response where thresholds are exceeded and for prompt feedback to the project team and the EMC. There is currently a two-month lag from when monitoring is conducted to when reports are received. However, it is acknowledged that the raw data for April 2012 was timeously received.

*

COMMENTS:

TCTA	
------	--

6 ENVIRONMENTAL PERFORMANCE

An overview of the environmental performance during the monthly monitoring period is provided in the sub-sections to follow.

6.1 Weekly ECO Monitoring – Status of Issues

Note that only significant environmental aspects and impacts are listed in this section, based on the following qualitative criteria that were used to screen the weekly ECO monitoring Reports:

1. **Hazardous** nature of the environmental aspect or impact;
2. **Extent** of impact (within / beyond the boundaries of the construction domain);
3. **Sensitivity** of receiving environment;
4. **Probability** of aspect resulting in significant impact;
5. **Regulatory** context;
6. **Liability / cost** related to corrective actions; and
7. Potential to lead to legitimate **concerns** by interested and affected parties.

6.1.1 20 April 2012

Issue Ref.	Category	Summary of poor practice / area of concern	Status
077	Wastewater management	Uncontrolled runoff observed at the batch plant area.	Attended to
129	Pollution	Lack of drip trays under equipment and fuel container at the dam foundation.	Unattended to

6.1.2 26 April 2012

Issue Ref.	Category	Summary of poor practice / area of concern	Status
129	Pollution	Lack of drip trays under equipment and fuel container at the dam foundation.	Attended to
133	Pollution	1. Lack of drip tray under diesel bowser at borrow pit on Garlic's property.	Attended to
		2. Lack of drip trays under generators and jerry cans at tongue wall area.	Unattended to
		3. Leak in the drip tray containing the used oil container at the workshop area.	Unattended to
		4. Bunded area used to contain diesel bowers at the work shop area has filled with soil run-off.	Unattended to
		5. Unlabelled containers in drip tray at water	Unattended to

Issue Ref.	Category	Summary of poor practice / area of concern	Status
		extraction point.	

6.1.3 04 May 2012

Issue Ref.	Category	Summary of poor practice / area of concern	Status
133	Pollution	1. Lack of drip trays under generators and jerry cans at tongue wall area.	Attended to
		2. Leak in the drip tray containing the used oil container at the workshop area.	Unattended to
		3. Bunded area used to contain diesel bowers at the work shop area has filled with soil run-off.	Unattended to

6.1.4 17 May 2012

Issue Ref.	Category	Summary of poor practice / area of concern	Status
133	Pollution	Leak in the drip tray containing the used oil container at the workshop area.	Attended to
137	Pollution	In spite of the use of a bidum sock, silt curtains and hay bales, de-watering operations at the second coffer dam releasing water with high silt content.	Improved mitigation under investigation.
140	Pollution	Single eruption of fly ash from the batch plant area.	Attended to

6.1.5 Conclusions

Spillages, storage of hazardous material and stormwater management at the batching plant were recurring issues identified from previous monitoring events. These issues were however systematically attended to.

*

COMMENTS:

TCTA

6.2 Monthly ECO Monitoring Checklist

Note that compliance against the EMP for the Search, Rescue and Relocation (approved on 07 September 2011) was not scored during the monthly monitoring event. The current works area does not encroach on possible sites for occurrence of protected species and a site walkabout for current works area was conducted prior to construction activities. The specialists for the search and rescue will be mobilised by TCTA in due course.

The results of the monthly ECO Monitoring Checklist are summarised in the sub-sections to follow.

6.2.1 Monitoring Categories

The results of the monitoring categories are summarised in **Table 1**.

Table 1: Summary of Monthly ECO Monitoring Checklist categories: May 2012

Monitoring Category	Conformance Score (%)
Environmental Authorisation	94.34
Administration	100.00
Environmental Education and Awareness	95.00
Construction	100.00
Materials	92.08
Water Quality	95.29
Air Quality	92.00
Noise	100.00
Community Engagement	100.00
Archaeology and Cultural Sites	100.00
Vegetation	100.00
Fauna	100.00
Safety & Security	100.00
Waste	93.33
Traffic	93.79

6.2.2 Areas of Non-Compliance

Selected areas of significant non-compliance for May 2012, which (amongst others) influenced the conformance and penalty scores contained in **Table 1**, are captured in the table to follow.

Table 2: Selected areas of non-compliance: May 2012

Condition / Mitigation Measure	Comments
Undertake dust abatement measures such as the wetting of construction areas and the application of chemical palliatives on heavily used unpaved roads and the re-vegetation of permanent stockpiles	Dust abatement measures include regular watering of haul roads and D146. Complaints received regarding excessive dust.
Disturbed areas outside the Dam basin that will no longer be used for construction purposes to be <u>immediately re-vegetated</u>	Road graded by fencing contractor through natural veld (Figure 17).
No heavy construction vehicles may access road P164 from Rosetta to Kamberg, the section of the Overdale Road between the D146 and the P164 in Rosetta or road D682 in Rosetta	Overdale Road used by heavy construction vehicles - complaints received and verified.
During the construction phase the speed limit of 40km/h on public and other roads within the project area to be adhered	Complaints received regarding speeding.

Condition / Mitigation Measure	Comments
to. This include roads and streets within Rosetta and Nottingham Road, sections of the R103, road D146, the access road to the Vaalekop South smallholdings and Riverholm, the Balgowan road for accessing the Mpofana outfall works (N3 Toll 25) and the access road to the quarry site on Springvale Farm 2170	
Construction truck traffic on P147 and R103 must be limited to weekdays only, with no traffic before 8h00 and after 22h00.	Complaints received and verified
A record of all types and quantities of hazardous materials on site to be kept	Hazardous material register available, which records fuel at bulk storage area. Need to include hazardous material in containers.
Hazardous and flammable substances must be stored and used in compliance with the applicable regulations and safety instructions	<ul style="list-style-type: none"> • Comply with conditions stipulated in MSDSs. • Containers to be adequately labelled. • Secondary containment of hazardous material in case of spillage. • Repair bunded area used to contain diesel bowers at the workshop (Figure 18).
Provisions of the Hazardous Substances Act (Act 15 of 1973) to be adhered to	
Waste disposal certificates to be maintained on site by the EO	
Products to be kept in the original containers unless they are not re-sealable; with all products and containers being labelled and original labels and MSDSs retained	
All hazardous materials to be stored in clearly identified containers or vessels	<ul style="list-style-type: none"> • Inadequate storage of hazardous material - containers to be labelled and secondary containment required (Figure 19). • Copies of MSDSs to be kept at storage areas and in file.
Containers to be labelled so that the hazard nature of the material is clear	
Flammable liquid containers to be clearly labelled and to be provided with earthed drip trays	



Figure 17: Road graded by fencing contractor through natural veld



Figure 18: Repair bunded area used to contain diesel bowers



Figure 19: Drip tray required

6.2.3 Overall Monitoring Results

A summary of the results of the ECO monitoring checklist follows.

Table 3: Summary of results of Monthly ECO Monitoring Checklist: May 2012

Description	Total	Percentage
Number of Items Scored for this Audit	193	
Highest Possible Conformance Score for this Audit	965	100
Actual Conformance Score	910	94.30

6.2.4 Sequential ECO Monitoring Results

A graph indicating the sequential ECO Monitoring Results from May 2011 until present follows.

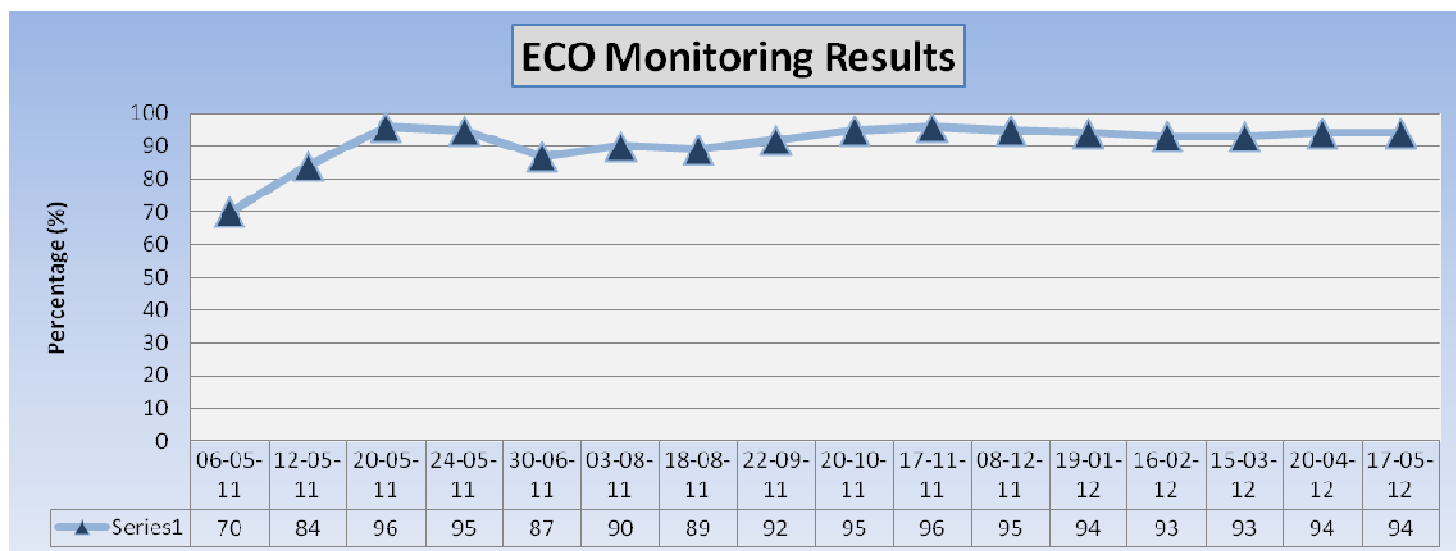


Figure 20: Graph - summary of results of Monthly ECO Monitoring Checklists

*

COMMENTS:

TCTA

7 NON-CONFORMANCE / INCIDENT REPORTING

There were no new entries in the Environmental Non-Conformance / Incident Register during the monitoring period.

The following non-conformances / incidents remain unattended to:

- NCR/Incident No. J00846-NCR19 (issued on 18-04-12) – pertaining to inadequate dust suppression on the D146.

*

COMMENTS:

TCTA	
------	--

8 ISSUES AND COMPLAINTS

Table 4 contains the issues and complaints (28 entries) that were recorded by the Social Monitor during the monthly ECO monitoring period (up to 17 May 2012).

The following issues remain unresolved, based on the Issues and Complaints Register, which require feedback / action from the project team:

- Unresolved Issues from previous monitoring event -
 - a) Issues no. 128, 134, 147 - relocation;
 - b) Issue no. 130 - fencing of the purchase line;
 - c) Issues no. 132, 135 - fish barrier and access road;
 - d) Issue no. 153 - upgrade of D146;
 - e) Issues no. 167, 170 - cattle grids and gates;
 - f) Issue no. 168 - road graded by fencing contractor;
 - g) Issue no. 173 - rates and taxes of expropriated properties;
 - h) Issue no. 174 - baseline dust monitoring results;
 - i) Issues no. 175, 181 - erosion at culverts on D146;
 - j) Issues no. 184, 194 - fencing;
 - k) Issues no. 186, 187 - use of Overdale Road;
 - l) Issue no. 190 - relocation; and
 - m) Issue no. 191 - upgrade of D146, impacts to wetland.
- Unresolved Issues from current monitoring event -
 - a) Issue no. 196 - fencing;
 - b) Issue no. 197 - upgrade of D146, R103 intersection, flagmen, stream crossing, dust;
 - c) Issue no. 199 - barrier on D146;
 - d) Issue no. 204 - drainage on D146;
 - e) Issue no. 211 - communication, hydroelectric scheme, alternative water source for domestic use, fire protection scheme, access road down to the river, and rehabilitation;
 - f) Issue no. 214, 215 - rehabilitation of scar along fence line;
 - g) Issue no. 219 - maintenance of concrete strip road (from entrance off the P164 - Kamberg road - through to Bruce Edmonds' property);
 - h) Issue no. 220 - relocation;
 - i) Issue no. 221 - flagmen; and
 - j) Issue no. 219 - felling of trees.

Table 4: Issues and Complaints Register: Apr - May 2012

No	Date	Submitted by	Description of Issue	Response to Issue	Date Resolved
195	23-Apr	Peter Warren	Dust is a problem again! Peter has a sore throat, and perhaps even an infection, and has had it since January 2012. He thinks that it is something in the aggregate that we're delivering, and doesn't have medical aid to sort his condition out. Flagmen? Shouldn't they work until 22h00?	Katie's response: water truck has been sent out to do more frequent spraying. Also, it was discussed with Peter that we don't know what his throat condition was like before the deliveries began this year, and so we cannot monitor against his original health. It was suggested to Peter that seasonal changes may be affecting his throat, and that he may need to take allergy tablets, which are available over the counter. The flagmen work from 06h00 until 18h00.	23-Apr-12
196	23-Apr-12	Piet Pelser	Fences are still not fixed!	The fencing team will fix the fences during the course of the week.	
197	24-Apr-12	John Wetton	1. When will the entrance to the D146 from the R103 be finished and cleaned up. I am concerned that this will remain an unfinished item 2. The erosion along the D146 has been made worse by present rain, can you let us know how this will be fixed for the future 3. The drain culverts are dangerous and need some sort of protection/mitigation from accident 4. The Armco barrier along our property has still not been finished. Another steel panel is required to connect to top section which is to bend around towards the fence. 5. Can the small stream at D146 and R103 be cleaned up, I am concerned that this will be another unfinished item. 6. The re engineering of the R103 going towards Nottingham Road has in my opinion been made into a lethal piece of road. It is only a question of time before a vehicle leaves the road and smashes into the R103 bridge or the little stream on the left of the R103 bridge. 7. Can you confirm that water carts are all now operational and that they are fully manned. In the event of break down or unavailability of a driver please advise the backup plan. 8. I received a comment that the flag men at the D146/R103 have little clue about directing traffic, please confirm that they have received appropriate training and that compliance with training is in place. I refer to almost mortal accident involving school children last Wednesday April 18 20102 at the R103/D146 intersection.	1. Information given at the last EMC meeting – end of May for surfacing. 2. Gavin Elliott (BKS) is back from leave. He is in charge of the road upgrade and will address and give instruction to G5PJV. 3. Gavin will issue instruction accordingly. 4. Materials were supplied by DOT but were insufficient, Andrew has told Fynn James to erect old barriers to close up this gap. 5. In progress (top soil has been laid on the Blind Society land), some works will only be done once the intersection is complete, as the trimming batters will only be done then and G5PJV awaits an instruction from Gavin Elliott to leave the road shoulder wider to accommodate the pedestrians permanently. 6. The final works do not extend this far. 7. In place: three trucks available. Break-downs will occur occasionally, as will human error such as forgetting to arrive at work, and for this there is no back-up plan due to the fact that residential dust limits are never exceeded. 8. Flag men have been trained, additional flagmen will be assigned to this area for the extended shifts.	03-May-12
198	24-Apr-12	Peter Warren	Have been counting trucks, and there are not 60 coming in per day. You're not receiving many trucks, and you don't need to run as late as you do! There are 3 hr breaks between trucks. Also, they hoot at night and talk loudly to each other, so noisy!	From Katie: Peter, on average 34 deliveries are made per day, with the lowest number being 6 and the highest 53. We applied to the department to allow us 60 deliveries per day in order to be able to catch up after bad days (such as the 6 deliveries). We can only deliver as fast as the quarry can produce, and at the moment the quarry is not producing enough for 60 loads a day. We have 12 trucks that do as many cycles a day as they can. David Hadebe, our traffic monitor, has issued a reminder to truck drivers about noise, hooting, shouting.	25-Apr-12
199	26-Apr-12	John Wetton	Crash barrier: bolts are sticking out, and it should curve properly. R103: the white line on the R103 is really dangerous!		
200	26-Apr-12	Mary Lund	Can you tell us when we will be having our properties evaluated? As far as we are aware no evaluations have been done since we acquired the property three years ago. As we will be having a portion expropriated we are very concerned that the property should be valued before any construction team moves on site. In fact could you tell us the legal implications from TCTA'S side – surely there must be some law that states that the evaluation has to be done within a certain timeframe of PAJA notices being served and prior to any construction beginning?	Dear Mary, Tente has said that you are their highest priority. He is hoping that the valuers will have been able to visit you by Friday 18 May 2012, but that PAJAs may be issued before then. The PAJAs will then initiate the discussions and once the valuers have been able to visit and the valuation reports have been received by the client the expropriation notices will be issued to you with an offer. Kind regards, Katie	26-Apr-12

No	Date	Submitted by	Description of Issue	Response to Issue	Date Resolved
201	27-Apr-12	Charles Jonsson	Hannes Jnr (fencing contractor) almost wrote-off Charles, he came flying around a corner on the Inchbrakie-Vaalekop South Access rd. Charles has thrown him off his land. Charles queries why contractors continue to use the private road, and why they can't use the road through the basin.	From Katie: thanks, Charles, for letting us know about the behaviour. The fencers do need to be able to access the properties that have been expropriated in order to fence the expropriation line. No construction vehicles will use the private road.	27-Apr-12
202	27-Apr-12	Peter Warren	Aggregate trucks running, don't see water truck!	Water cart driver had puncture, and he's just been collected from Mooi River and will start work soon. It has been logged as an incident. Water cart was in operation by 11h00.	27-Apr-12
203	27-Apr-12	John Zelenka	Aggregate deliveries are arriving but there are no water trucks to be seen. Will there be one for the long weekend? Surely there can't be deliveries on public holidays? Also, there are no flagmen!	27 April 2012: Water cart driver had puncture, and he's just been collected from Mooi River and will start work soon. It has been logged as an incident. Water cart was in operation by 11h00. 04 May 2012: Additional flagmen will be assigned to this area for the extended shifts.	04-May-12
204	30-Apr-12	John Zelenka	The drainage on the D146 is dangerous. When will it be sorted out?		
205	30-Apr-12	Dee Tallents	Via sms: Katie don't kind trucks coming along overdale as there is a problem on D146 but can't they keep to speed limit thus saving us being smothered in dust.	From Katie: huge apologies Dee, David Hadebe, the traffic monitor, has asked any drivers using the Overdale road as an emergency alternative to reduce their speeds drastically.	30-Apr-12
206	30-Apr-12	Alan Venables	Two trucks have just come along Overdale Road	From Katie: Huge apologies Alan. A truck has jack-knifed right across the D146 and so the two aggregate loads that were behind him decided to use Overdale Road as an alternative. From Alan: that's reasonable, but please could you let us know when things like this happen, and ask the trucks to drive really slowly.	30-Apr-12
207	02-May-12	Peter Greene	A query on that intersection [R103 - D146] is that flagmen only on duty in daylight hours - shouldnt they be there during the hours that hauling is taking place. Not sure if there was hauling yesturday but there were no flags then. Regards, Peter	From Katie: additional flagmen will be assigned to this area for the extended shifts.	04-May-12
208	02-May-12	Peter Warren	Must compliment water truck driver for Mon and Tues good job.	From Katie: Thanks so much Peter, that's really great feedback.	02-May-12
209	02-May-12	Dee Tallents	Via sms: Overdale Rd used - no 4045	From Katie: Hi Dee, it was a Stuttafords Van Line truck, not one of our trucks. Thanks for keeping a look out though.	02-May-12
210	03-May-12	Andrew Williams	Reverse beeper sound has kept him awake since 03h00 this morning. Can't they put tape across the beeper to dull the sound?	Due to health and safety regulations they cannot in any way modify the warning sounds and signals on site.	03-May-12
211	03-May-12	Mary Lund	As owners and permanent residents of the land on which the weir and the construction site is to be placed, our major concern is the lack of direct communication between the construction team and ourselves. Whilst we appreciate that the team is under considerable time pressures and that they may have every intention to still meet with us and answer our queries, we would ask for some assurance that the following will be discussed with us and decided upon before expropriation and construction. 1. The possibility of the incorporation of a hydroelectric scheme. 2. An alternative water source for domestic use. 3. Fire protection scheme. 4. Access road down to the river. 5. Visual aesthetics – how the site will be rehabilitated, will it be fenced off, can the “spurs” be grassed, what has been decided in terms of safety precautions.	Meeting with landowners at 11h00 on Wednesday 09 May. TCTA, BKS and G5PJV to attend.	

No	Date	Submitted by	Description of Issue	Response to Issue	Date Resolved
212	03-May-12	Mary Chettle	Hi Kogi, At 07h30 this morning we have had a serious traffic build-up on the R103 due to 4 large trucks (double loads) carrying material to the dam. They were travelling at between 30 and 40km / hour, (very frustrating for 10 km), with the result that 3 cars / bakkies overtook them on the double white line – luckily no incident/accident this morning!!! The revised traffic management plan does not allow them to transport between 08h00 and 22h00 (I think it is). Who is monitoring / enforcing this as this was 07h20 this morning ! We go to school before 8 and have never really had this problem before (as I think they generally stick to their time limits) but this is the second time of late that I have experienced this problem! Kind regards, Mary	Response from Kogi: Dear Mary, Thanks for bringing this to our attention. You are correct with regards to the time. This is a non-compliance in terms of the revised traffic management plan. Katie Fenenga is our Social Monitor on the project (cc'ed on this e-mail) and deals with all stakeholder queries and issues. Katie will log this as a formal issue and will also follow with the Contractor, get the required details and advise you of what action was taken. This issue and the action taken is monitored by an independent Environmental Control Officer and is also presented at the EMC and reported to the Department of Environmental Affairs. Thanks again for letting us know, Regards, Kogi. From Katie: Dear Mary. Thank you for bringing this to our attention. I have logged your concerns in the Social Monitoring Issue Register. Your reference number is 211. The playback from the traffic monitoring GPS shows that the following four trucks arrived on site yesterday at 08h10: SGDK 759, SGDK 753, SGDK 752 and SGDK 758. I am awaiting response from the traffic monitor as to what kind of action has been taken to warn or educate the drivers about the use of the P147/R103 before 08h00. I will get back to you as soon as possible. Kind regards, Katie. Response from Afrisam, issued to drivers: Please take note of restrictions placed on the drivers, that you need to adhere to; It is imperative that the drivers adhere to this as it has a ripple effect on the traffic congestion. Response from Mary: Thanks for the follow up – really appreciate the response and feedback!	05-May-12
213	05-May-12	Erica Millican	via sms: I didn't get to thank you for the peace and quiet last wekeend. If you had anything to do with it it was much appreciated.	Thanks Erica! Great to have positive feedback.	05-May-12
214	08-May-12	Pippa Huggins	At EMC: there's a scar along the fenceline on Piet Pelser's property. How long until it will be rehabilitated?	Response from Gavin Elliott at EMC: the Spec re rehabilitation can be sent to Pippa Huggins. The method statement re rehabilitation will cover the requirements of the spec.	
215	08-May-12	Derek Greene	At EMC: will all scars be rehabilitated? There's an old scar on his fenceline, from fencing done in 2011, that must be rehabilitated.		
216	10-May-12	Celestine Smith	Issue logged via phone called from Celestine Smith. e-mail to Ryan Phelan re issue: Celestine Smith called to ask who she should put a claim in to regarding a crack in her windscreen caused by a rock that was either kicked up by a truck or that flew off the back of a truck on the R103 between Rosetta and Mooi River. Celestine says that it happened about a week ago (so, around 03 May 2012) and that she has been encouraged by the local DA councillor to seek compensation for the windscreen from us. She can't remember what truck it was, just that it was an aggregate truck, and has no licence plate/SGD number/identifiable markings/name etc. to give us. She says that the truck was going too fast for her to get any details.	Response from Ryan Phelan: Hi Katie, With reference to the issue raised regarding the cracked windshield of Celestine Smith. It is unfortunate that such an incident happened, but due to the lack of evidence of the alleged truck that caused this incident it is impossible to track down who is responsible if it is even one of the JV vehicles as no number plate, SGD markings , colour description was given and there are a number of different contractors on that route and of course other trucks that have nothing to do with the project. I trust you all understand our situation.	10-May-12
217	11-May-12	Sheryl Pote	via sms: Hi, I was very angry, the one white guy came roaring through the jump paddock at lunch time yesterday and i was busy with a client and her horse and the staff were about to let mares and foals out as the farrier had come to finish off 12 of them. We have opened the far gate for bakkies and trucks and they have access to the camps from there!	Response from Katie: Sorry Sheryl, I've just called Hannes and Hannes and explained that the original agreement stands and that they cannot drive along any other route. Please call me if this happens again; we need to keep an eye on the fencing team.	11-May-12

No	Date	Submitted by	Description of Issue	Response to Issue	Date Resolved
218	14-May-12	John Wetton	Has the water truck been up and down the road today? It's very dusty. And, will the floodlights at the intersection of the R103 and D146 be operating today?	Dust: yes, the truck has been operating on the road today. It will do another session soon. Lights: the floodlight only operates from sundown until the last truck delivers, at approximately 22h00. During the day the floodlight is kept on site.	14-May-12
219	14-May-12	Stuart Winckworth	Hi Katy, I am not sure who to send this to but, as it involves a number of properties, I would imagine that you are the one. From the entrance off the P164 - Kamberg road - through to Bruce Edmonds' property there is a concrete strip road. This has been built, and is maintained by, the owners of the properties it passes through. Now that the dam is being built and there are many people living in Bruce Edmonds' old house the traffic on the road has increased considerably. The subcontractors clearing the basin, putting up fences, and all the allied work will also contribute to this wear and tear. There are a few sections which need maintenance at present and by the time the dam is complete there will be more. Another matter to consider, which has probably been brought up by the landowners affected, is that of replacing the concrete strips at the bottom where, in some places, the road lies within the expropriated area. Presumably this would mean creating a servitude slightly higher up and making a partially new road, also with concrete strips. The question is: has TCTA considered these situations and, if so, what will they do by way of compensation, be it monetary or by way of doing maintenance or construction on our behalf? Yours, Stuart Winckworth, Chairman Vaalekop Residents Association		
220	14-May-12	Angela Skosana, Riverholm	Phone call: very worried that everyone else is being shown houses that they can move into and she isn't!	Via phone call: the only people seeing houses are the ones who work on the Smythe's farm and who are being assisted by a lawyer. You will be shown houses, and you are part of the process. You have not been forgotten. Meeting set up for Monday 21 May 2012.	
221	16-May-12	John Wetton	Phone call: flag wavers at the R103/D146 intersection don't know how to use their flags properly and are not directing traffic properly. Also, the female flag waver at John's entrance was on her cell phone, texting, and waving the flag with no consideration of traffic movements. This is unacceptable. Have they been trained?	Via phone call: John, you are the licensed driver. If you don't trust the flag men then judge for yourself whether it is safe to pull into the intersection.	
222	17-May-12	Sue Marshall	Phone call: Please ensure that I can be present when the trees on our property are felled? It has been agreed that the trees between the FSL and expropriation line can be left standing, and Sue needs to be present to make sure that this agreement is honoured. Sue is not available from 18 May to 18 June, so no felling can take place until after 18 June.		

Note: Wording directly extracted from Issues and Complaints Register

*

COMMENTS:

TCTA

9 PROPOSED AMENDMENTS TO THE ROD AND EMP

9.1 Proposed Amendments to RoD

An application for an amendment to the RoD was submitted by DWA to DEA on 15 August 2011. Proposed amendments or matters for clarification related to the RoD are contained in **Table 5**.

Table 5: Proposed amendments / matters for clarification related to the RoD

Condition No.	Description	Comments / Amendment
Previously listed Conditions		
3.2.1.22	Indigenous vegetation removed from the dam basin must be kept in a temporary nursery to be used for rehabilitation	Addressed in EMP for Search, Rescue and Relocation, which was approved on 07 September 2011.
3.2.1.23	The wood from exotic and/or invasive species removed from the dam basin must be made available to the local community free of charge	Decision pending from Contractor regarding the way forward for the disposal of the cleared vegetation. RoD condition may prove to be costly.
3.2.3.1	Daily monitoring by ECO	ECO was not appointed as a daily monitor. Daily monitoring is undertaken by the EO on behalf of the Contractor and by the EM on behalf of the Engineer. Weekly ECO monitoring conducted.
3.2.3.3	ECO's quarterly environmental performance audits	Environmental performance audits undertaken by the ECO every six months.
3.2.3.4	Submission of environmental compliance report every two months by the ECO.	Environmental compliance report submitted monthly.
3.2.3.5	ECO to maintain – a) Daily site diary b) Non-conformance register c) Public complaints register d) Register of audits e) Copies of method statements f) Material Safety Data Sheets (MSDS) g) Monitoring reports of the contractor/s h) Compliance and audit reports i) Training registers j) Copies of the RoD and EMPs k) Waste disposal certificates l) Copies of all permits required during construction	ECO to ensure that these documents, registers, reports and permits are maintained.
3.2.3.6	ECO to remain employed until the end of rehabilitation	ECO to remain employed until the end of defects liability period

*

COMMENTS:

TCTA

9.2 Proposed Amendments to EMP

In accordance with the RoD condition no. 3.2.4.4, EMPs will be regarded as dynamic documents and any changes to the EMPs must be submitted to DEA for acceptance, which is to be accompanied by recommendations of the EMC.

An EMP Amendments Register was submitted by TCTA to DEA on 21 September 2011, which records the proposed amendments to the EMP for management measures that are deemed to be ineffective or redundant. These amendments were discussed with the EMC on 03 August 2011.

Proposed amendments or matters for clarification related to the EMP are contained in **Table 6**.

Table 6: Proposed amendments / matters for clarification related to the EMP

No.	Description	Comments
Mitigation Measures identified during previous ECO monitoring events		
Existing Mitigation Measures contained in EMPs		
1.	EMPs to provide rehabilitation measures for areas to be disturbed during the construction phase [RoD condition no. 3.2.4.3(b)].	EMP for the Construction of the Spring Grove Dam Wall to make provision for rehabilitation of areas affected by construction work outside of dam basin (e.g. access roads).
2.	EMPs to include implementation measures aimed at controlling invasive plant species and weeds [RoD condition no. 3.2.4.3(f)].	Addressed in EMP Register.
3.	Cover vehicles transporting spoil, topsoil or other dust generating materials.	Addressed in EMP Register.
4.	Dust suppression measures must be implemented on dry weather days.	The spoil area opposite Erika Millican's property is considered a working area and will not be watered down for dust suppression. Instead, visual inspections will be undertaken and if dust is a nuisance the area will be watered down.
5.	For each waste type create a MSDS that is always available to accompany the waste.	Addressed in EMP Register.
6.	All waste containers designated for off site transport to be secured and labelled with the contents and associated hazards, be properly loaded and be accompanied by a shipping paper (i.e. manifest) describing the load and its associated hazards	Impractical for all waste containers. Suitable for hazardous waste.
7.	Transporters of hazardous materials to ensure that: vehicles transporting hazardous materials are registered for this purpose; clearly display in English the nature of materials being transported; what to do in the event of an emergency and an emergency telephone number (24 hour) of a responsible person who	Bulk fuel transporters comply with this measure. However, requirements are too onerous for sub-contractors (e.g. mechanics). EMP deviation to be discussed.

No.	Description	Comments
	can provide advice in an emergency	
8.	The quantity of hazardous material used each month is to be documented	Requirement is more feasible in terms of fuel usage. Necessity of measure to be explored further in terms of other hazardous material used on site, such as material used for the maintenance of vehicles, material used at the laboratory, etc.
9.	Monitor the number of project related vehicles travelling off site per day	Trucks are being monitored through GPS tracking system. Monitoring of other construction-related vehicles is an onerous task, and the practicality thereof needs to be investigated further.
10.	Phase 2 of social monitoring is monthly local area monitoring where in-depth research will be done in all the local 'communities' identified in the MEP as constituting local social environment. These areas will be covered over 12 months and comprehensive narrative reports will be compiled. The first round of longitudinal survey will be conducted. A sample of households will be interviewed every four months until the project completion to determine how they experience social impacts related to MMTS2	Need to consider how current social monitoring conforms to original intentions of the associated mitigation measure.
11.	Phase 3 of social monitoring is in-depth investigation and participation appraisal where the focus shifts from area monitoring to specialist investigation of themes and participatory appraisal and planning with project communities to determine whether social changes claimed by respondents have significance in the project social environment, the level of significance, what they involve and what responses are required	Need to consider how current social monitoring conforms to original intentions of the associated mitigation measure.
Additional Mitigation Measures to supplement EMPs		
12.	Working within watercourses and safeguarding the characteristics of the watercourse, including flow, water quality, habitat (morphology) and aquatic biota	
13.	Borrow pits (e.g. stormwater management). It is noted that certain of the existing categories of the EMP for the Construction of the Spring Grove Dam Wall make provision for managing the environmental aspects and impacts associated with the borrow pits	
Mitigation Measures identified during last ECO monitoring event		
14.	None	

*

COMMENTS:

TCTA

10 REFERENCES

Blue Sands, 2012a. Air Quality Monitoring. March 2012. Spring Grove Dam Construction. Prepared for Group Five (Pty) Ltd.

Blue Sands, 2012b. Environmental Noise Surveys. March 2012. Spring Grove Dam Construction. Prepared for Group Five (Pty) Ltd.

Blue Sands, 2012c. Water Quality Monitoring. March 2012. Spring Grove Dam Construction. Prepared for Group Five (Pty) Ltd.