



MOOI MGENI TRANSFER SCHEME PHASE 2 (MMTS-2) Construction of the Spring Grove Dam Wall

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



MONTHLY ECO REPORT : September – October 2011



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TITLE AND APPROVAL PAGE

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TABLE OF CONTENTS

| | |
|--|-----------|
| TITLE AND APPROVAL PAGE | I |
| TABLE OF CONTENTS | II |
| LIST OF ACRONYMS & ABBREVIATIONS | IV |
| DEFINITIONS | V |
| 1 INTRODUCTION | 1 |
| 2 ECO MONITORING APPROACH | 2 |
| 2.1 Weekly Monitoring | 2 |
| 2.2 Monthly Monitoring | 2 |
| 3 CONSTRUCTION ACTIVITIES FOR THE MONITORING PERIOD | 4 |
| 4 ENVIRONMENTAL ACTIVITIES FOR THE MONITORING PERIOD | 7 |
| 5 WATER, AIR AND NOISE MONITORING | 9 |
| 5.1 Air Quality | 9 |
| 5.1.1 Dust Fallout | 9 |
| 5.1.2 Continuous Particulate Monitoring (PM10) with Wind Speed and Direction | 10 |
| 5.2 Environmental Noise | 10 |
| 5.3 Water Quality | 11 |
| 6 ENVIRONMENTAL PERFORMANCE | 12 |
| 6.1 Weekly ECO Monitoring – Status of Issues | 12 |
| 6.1.1 29 September 2011 | 12 |
| 6.1.2 06 October 2011 | 13 |
| 6.1.3 13 October 2011 | 14 |
| 6.1.4 20 October 2011 | 15 |
| 6.1.5 Conclusions | 16 |
| 6.2 Monthly ECO Monitoring Checklist | 16 |
| 6.2.1 Monitoring Categories | 17 |
| 6.2.2 Areas of Non-Compliance | 17 |

| | | |
|------------|---|-----------|
| 6.2.3 | Overall Monitoring Results | 20 |
| 6.2.4 | Sequential ECO Monitoring Results | 21 |
| 7 | NON-CONFORMANCE / INCIDENT REPORTING | 21 |
| 8 | ISSUES AND COMPLAINTS | 23 |
| 9 | PROPOSED AMENDMENTS TO THE ROD AND EMP | 27 |
| 9.1 | Proposed Amendments to RoD | 27 |
| 9.2 | Proposed Amendments to EMP | 27 |

LIST OF TABLES

| | | |
|----------|--|----|
| TABLE 1: | SUMMARY OF MONTHLY ECO MONITORING CHECKLIST CATEGORIES: SEPT – OCT 2011 | 17 |
| TABLE 2: | SELECTED AREAS OF NON-COMPLIANCE: SEPT – OCT 2011 | 18 |
| TABLE 3: | SUMMARY OF RESULTS OF MONTHLY ECO MONITORING CHECKLIST: SEPT – OCT 2011 | 20 |
| TABLE 4: | ENVIRONMENTAL NON-CONFORMANCE / INCIDENT REGISTER ENTRIES FOR JUL - AUG 2011 | 22 |
| TABLE 5: | ISSUES AND COMPLAINTS REGISTER ENTRIES FOR SEPT – OCT 2011 | 24 |
| TABLE 6: | PROPOSED AMENDMENTS / MATTERS FOR CLARIFICATION RELATED TO THE ROD | 27 |
| TABLE 7: | PROPOSED AMENDMENTS / MATTERS FOR CLARIFICATION RELATED TO THE EMP | 28 |

LIST OF FIGURES

| | | |
|------------|---|----|
| FIGURE 1: | ENVIRONMENTAL GOVERNANCE ARRANGEMENTS: LINES OF ACCOUNTABILITY | 1 |
| FIGURE 2: | CONSTRUCTION OF THE EARTH EMBANKMENT | 5 |
| FIGURE 3: | CONSTRUCTION OF CONDUIT AND OUTLET WORKS | 5 |
| FIGURE 4: | CONCRETE TRIAL MIX AREA | 5 |
| FIGURE 5: | OPERATIONS AT CRUSHER AREA | 5 |
| FIGURE 6: | MANAGEMENT OF ENVIRONMENTAL FILING SYSTEM | 7 |
| FIGURE 7: | ON-GOING DUST ABATEMENT | 8 |
| FIGURE 8: | GOOD HOUSEKEEPING | 8 |
| FIGURE 9: | USE OF DRIP TRAYS | 8 |
| FIGURE 10: | DELIVERY TRUCKS COMPLYING WITH REQUIREMENTS | 9 |
| FIGURE 11: | NOISE MONITORING UNDERWAY ALONG THE D146 | 10 |
| FIGURE 12: | WATER QUALITY MONITORING POINTS | 11 |
| FIGURE 13: | INADEQUATE STORAGE OF HAZARDOUS MATERIAL – AREA NOT BUNDED | 18 |
| FIGURE 14: | INTERVENTION UNDERWAY TO MANAGE WASTEWATER AT BATCH PLANT | 19 |
| FIGURE 15: | SEDIMENTATION AT THE WATERCOURSE CROSSING ON THE D146 | 19 |
| FIGURE 16: | CEMENT MIXING TO TAKE PLACE ON AN IMPERMEABLE SURFACE | 20 |
| FIGURE 17: | GRAPH - SUMMARY OF RESULTS OF MONTHLY ECO MONITORING CHECKLISTS | 21 |

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**).

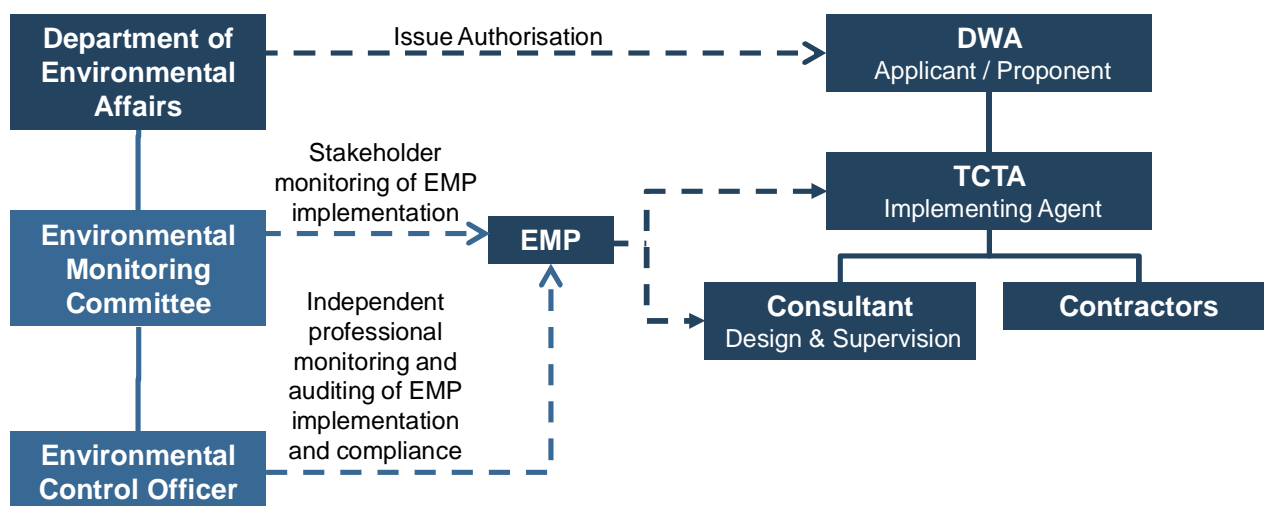


Figure 1: Environmental Governance Arrangements: Lines of Accountability

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

- EMP for the Construction of the Spring Grove Dam Wall – approved on 03 May 2011;
- EMP for Traffic Related Activities – approved on 16 August 2011; and
- EMP for Search, Rescue and Relocation – approved on 07 September 2011.

This document serves as the monthly ECO Report for September to October 2011. The monitoring event was undertaken on 20 October 2011.

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 Wall; 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; and
- Rehabilitation

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

| 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. CONFORMANCE 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:

1. Excavation of dam foundation on left and right bank of the river (on-going);
2. Construction of the earth embankment (on-going) (**Figure 2**);
3. Building of conduit and outlet works (on-going) (**Figure 3**);
4. Building of a structure for the servicing of vehicles at the workshop area (completed);
5. Operations at batch plant (on-going) (**Figure 4**);
6. Operations at crusher area (on-going) (**Figure 5**);
7. Construction of the concrete trial mix area;
8. Building of new road to access dam wall construction area; and
9. Upgrade of D146.



Figure 2: Construction of the earth embankment



Figure 4: Concrete trial mix area



Figure 3: Construction of conduit and outlet works



Figure 5: Operations at crusher area

The following areas were inspected during the monitoring session:

- Site offices;
- Stores area;
- Permanent bunded area;
- Workshop;
- Temporary bunded area;
- Area designated for waste storage;
- Heritage areas;
- Batch plant area;
- Laboratory area;
- Eating area;
- Crusher area;
- The three streams on site;
- Dam basin;
- Concrete trial mix area
- Temporary river crossing;
- River diversion; and
- Spoil sites.

*

| 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:

- Management of environmental filing system;
- Use of drip trays with spill caps for machinery and equipment;
- Continual dust abatement - water truck watering on site;
- Environmental team collecting litter on site;
- Safety signage placed at the crusher area;
- Use of drip trays with spill caps for machinery and equipment;
- Water truck watering on D146 Road;
- Environmental team undertaking de-weeding activities at the site offices;
- Safety signage placed at the river diversion area;
- Trucks delivering aggregate observed to be complying with requirements.
- Grass and indigenous vegetation planting undertaken at the Contractor's site camp;
- Toolbox talks held include –
 - Washing of Vehicles on Site - 13 October 2011;
 - Spillages - 28 September 2011;
 - Fire Awareness - 28 September 2011;
 - Spillages - 06 October 2011; and
 - Servicing of Vehicles on Site - 05 October 2011.



Figure 6: Management of environmental filing system



Figure 7: On-going dust abatement



Figure 8: Good housekeeping



Figure 9: Use of drip trays



Figure 10: Delivery trucks complying with requirements

*

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.

The Contractor has appointed Blue Sands to conduct monthly water, air and noise monitoring. Comments on these reports for Aug 2011, as received on 14 October 2011, follow below. It is noted that the raw data is now being received by the ECO as soon as it becomes available to ensure prompt feedback.

5.1 Air Quality

5.1.1 *Dust Fallout*

- Monitoring stations are similar to the baseline studies, and appear to adequately consider the proximity to source, community receptors and terrain.

- The highest dust deposition rate was recorded at DF08 (construction site, south fence).
- All results fall below the standards set for the residential band.

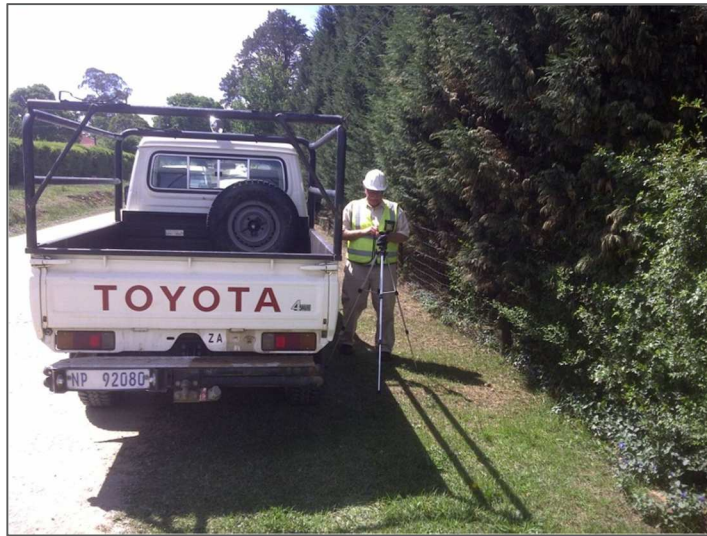


Figure 11: Noise monitoring underway along the D146

5.1.2 Continuous Particulate Monitoring (PM₁₀) with Wind Speed and Direction

- Standards were exceeded 10 times during the monitoring period. Exceedance was attributed to mist. To avoid future skewed results due to mist, a heated inlet is to be installed.
- Based on the Issues Register, no complaints were received regarding dust levels on the days when the standards were exceeded.

5.2 Environmental Noise

- Confirmation is required whether the monitoring points adequately consider the noise-related impacts to the immediate landowners from the batch plant.
- The sound level measurements at EN02 (entrance to Shonalanga Cottages) exceeded standards for both monitoring events in August 2011. This was partly ascribed to construction activities, construction vehicles and upgrading of the D146. Need for future mitigation to be checked.

5.3 Water Quality

Explanations are required for the exceedance of threshold levels for 22 August 2011 for the following variables at WQ03 and WQ04 (see map contained in **Figure 11**):

- Iron;
- Lead; and
- Zinc.

The potential contaminant sources, pollution pathways and impacts need to be investigated.



Figure 12: Water Quality Monitoring Points

*

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

6.1.1 29 September 2011

STATUS OF PREVIOUS ISSUES

| Issue Ref. | Category | Summary of poor practice / area of concern | Status | |
|------------|---------------|--|--|---|
| 017 | Pollution | 1. Inadequate storage of hazardous materials at the workshop area and the batch plant area | 1. NCR issued on 05/09/2011. Hazardous materials' storage: Fynn and James are using the temporary bunded area; Group 5 are using the drum in their store; Afrisam is using the metal drip tray at the batch plant area. | X |
| 029 | Waste | 1. Waste separation at the batch plant area requires attention. | 1. Colour coded bins at the batch plant are currently used correctly. Waste separation at the batch plant area requires attention: general waste designated colour coded bin used for paper and plastic; paper designated colour coded bin used for plastic. EM new suggested deadline: 06 October 2011. | X |
| 049 | Pollution | 1. Storage of hazardous substances at the trial mixing area. | 1. During the last monitoring event no hazardous materials were observed at the trial mixing area. EM issued an NCR for inadequate storage of hazardous materials on site. | ✓ |
| 050 | Water Quality | 1. Silt laden water observed at the left coffer dam. | 1. During the last monitoring event silt laden water was observed at the left coffer dam. Visual daily monitoring is being undertaken by the EM and EO. | X |
| 052 | Pollution | 1. Spillages observed at the batch plant area. | 1. Spillages have been removed on 23 September 2011. | ✓ |
| | | 2. Diesel rag (hazardous waste) observed in the waste skip at the batch plant area. | 2. Oil rag has been removed on 23 September 2011. | ✓ |
| | | 3. Spillages observed along the haul road opposite Erica Milican's house. | 3. Some of the spillages were removed on 23 September 2011 with additional clean up currently taking place. | ✓ |
| | | 4. Spillage observed under the stationary crusher at the crusher area. | 4. Spillage removed on 27 September 2011. | ✓ |
| | | 5. Petrol jerry can observed on the ground at the workshop area. | 5. Petrol jerry removed immediately. | ✓ |
| | | 6. Leaking equipment at the river diversion area not provided with a drip tray. | 6. Drip tray provided on 23 September 2011. | ✓ |
| | | 7. Jerry can at the river diversion area placed in a drip tray with no spill cap. | 7. Spill cap provided on 26 September 2011. | ✓ |
| | | 8. Diesel rag observed on the ground adjacent to the waste transition area. | 8. Diesel rag removed on 27 September 2011. | ✓ |

| Issue Ref. | Category | Summary of poor practice / area of concern | Status |
|------------|---------------------|--|---|
| 053 | Waste | 1. Litter observed on the ground adjacent to the waste transition area. | 1. Litter removed on 27 September 2011. ✓ |
| | | 2. Cigarette stubs observed on the ground at the workshop area and the batch plant area. | 2. Cigarette stubs removed on 27 September 2011. ✓ |
| | | 3. Litter observed at the permanent bunded area. | 3. Litter removed on 27 September 2011. ✓ |
| 054 | Housekeeping | 1. Poor housekeeping observed at the store room at the batch plant area. | 1. Poor housekeeping observed at the store room at the batch plant area to be improved. EM suggested deadline: 06 October 2011. X |

NEW ISSUES (i.e. areas of poor practice / areas for improvement / areas of concern)

| Issue Ref. | Category | Observations | Improvements Required / Objectives to be achieved |
|------------|------------------|--|--|
| 056 | Pollution | 1. Spillages observed at the batch plant area. 2. Spillage observed under the stationary crusher at the crusher area. 3. Spillages observed at the workshop area. 4. Spillage observed at the river diversion area. 5. Spillage observed at the water abstraction point. | 1. Spillages observed at the batch plant area to be removed. EM suggested deadline: 06 October 2011. 2. Spillage observed under the stationary crusher at the crusher area to be removed. EM suggested deadline: 06 October 2011. 3. Spillages observed at the workshop area to be removed. EM suggested deadline: 06 October 2011. 4. Spillage observed at the river diversion area to be removed. EM suggested deadline: 06 October 2011. 5. Spillage observed at the water abstraction point to be removed. EM suggested deadline: 06 October 2011. |
| 057 | Waste | 1. Litter observed at the batch plant area. | 1. Litter observed at the batch plant area to be removed. EM suggested deadline: 06 October 2011. |

6.1.2 06 October 2011
STATUS OF PREVIOUS ISSUES

| Issue Ref. | Category | Summary of poor practice / area of concern | Status |
|------------|----------------------|--|---|
| 017 | Pollution | 1. Inadequate storage of hazardous materials at the workshop area and the batch plant area | 1. NCR issued on 05/09/2011. Storage of hazardous materials has improved: Fynn and James are using a stainless steel bund which is housed in a ventilated storage area provided with fire-fighting equipment and signage. Improvement required with Group 5's hazardous substances storage. EM new suggested deadline: 13 October 2011. X |
| 029 | Waste | 1. Waste separation at the batch plant area requires attention. | 1. During the last monitoring event it was observed that waste separation at the batch plant area has improved. ✓ |
| 050 | Water Quality | 1. Silt laden water observed at the left coffer dam. | 1. During the last monitoring event no silt laden water was observed at the left coffer dam. ✓ |

| Issue Ref. | Category | Summary of poor practice / area of concern | Status | |
|------------|--------------|--|--|---|
| | | | Visual daily monitoring is being undertaken by the EM and EO. | |
| 054 | Housekeeping | 1. Poor housekeeping observed at the store room at the batch plant area. | 1. Poor housekeeping to be improved. EM new suggested deadline: 13 October 2011. | X |
| 056 | Pollution | 1. Spillages observed at the batch plant area. | 1. Spillages removed on 04 October 2011. | ✓ |
| | | 2. Spillage observed under the stationary crusher at the crusher area. | 2. Spillage removed on 04 October 2011. New spillage observed during the last monitoring event to be removed. EM suggested deadline: 13 October 2011. | ✓ |
| | | 3. Spillages observed at the workshop area. | 3. Most of the spillages observed at the workshop area have been removed on 04 October 2011. Additional cleaning required: EM suggested deadline: 13 October 2011. | ✓ |
| | | 4. Spillage observed at the river diversion area. | 4. Spillage removed on 04 October 2011. | ✓ |
| | | 5. Spillage observed at the water abstraction point. | 5. Spillage removed. | ✓ |
| 057 | Waste | 1. Litter observed at the batch plant area. | 1. Litter removed on 04 October 2011. | ✓ |

NEW ISSUES (i.e. areas of poor practice / areas for improvement / areas of concern)

| Issue Ref. | Category | Observations | Improvements Required / Objectives to be achieved |
|------------|--------------------|---|---|
| 058 | Pollution | 1. Spillage observed under the excavator at the crusher area. 2. Spillages observed under the truck adjacent to the workshop area. | 1. Spillage to be removed. EM suggested deadline: 13 October 2011. 2. Spillages to be removed. EM suggested deadline: 13 October 2011. |
| 059 | Water Conservation | 1. Leaking water pipe at the water abstraction point. | 1. Leaking water pipe at to be fixed. EM suggested deadline: 13 October 2011. |
| 060 | Waste | 1. Litter observed at the river diversion area. | 1. Litter to be removed. EM suggested deadline: 13 October 2011. |

6.1.3 13 October 2011

STATUS OF PREVIOUS ISSUES

| Issue Ref. | Category | Summary of poor practice / area of concern | Status | |
|------------|--------------|--|---|---|
| 017 | Pollution | 1. Inadequate storage of hazardous materials at the workshop area; the batch plant area and at the dam foundation offices. | 1. NCR issued on 05/09/2011. Storage of hazardous materials has improved: Fynn and James are using a stainless steel bund which is housed in a ventilated storage area provided with fire-fighting equipment and signage. Improvement required with Group 5's hazardous substances storage. EM new suggested deadline: 28 October 2011. | X |
| 054 | Housekeeping | 1. Poor housekeeping observed at the store room at the batch plant area. | 1. Housekeeping has improved. | ✓ |
| 058 | Pollution | 1. Spillage observed under the excavator at the crusher area. | 1. Spillage removed on 10 October 2011. | ✓ |

| Issue Ref. | Category | Summary of poor practice / area of concern | Status | |
|------------|--------------------|--|--|---|
| | | 2. Spillages observed under the truck adjacent to the workshop area. | 2. Spillages removed on 10 October 2011. | ✓ |
| 059 | Water Conservation | 1. Leaking water pipes at the water abstraction point and on the haul road leading to the batch plant. | 1. Leaking water pipe to be fixed. EM suggested deadline: 18 October 2011. | X |
| 060 | Waste | 1. Litter observed at the river diversion area. | 1. Litter removed on 10 October 2011. | ✓ |

NEW ISSUES (i.e. areas of poor practice / areas for improvement / areas of concern)

| Issue Ref. | Category | Observations | Improvements Required / Objectives to be achieved |
|------------|--------------|---|---|
| 061 | Pollution | 1. Spillage observed under the excavator at the crusher area. | 1. Spillage to be removed. EM suggested deadline: 20 October 2011. |
| | | 2. Spillages observed at the river diversion area. | 2. Spillages to be removed. EM suggested deadline: 20 October 2011. |
| | | 3. Spillages observed adjacent to the waste transition area. | 3. Spillages to be removed. EM suggested deadline: 20 October 2011. |
| | | 4. Spillages observed adjacent to the waste transition area. | 4. Spillages to be removed. EM suggested deadline: 20 October 2011. |
| | | 5. Wastewater observed at the batch plant area. | 5. Water management at the batch plant area to be undertaken. |
| 062 | Waste | 1. Litter observed at the batch plant area and the waste transition area. | 1. Litter to be removed. EM suggested deadline: 20 October 2011. |
| 063 | Housekeeping | 1. Poor housekeeping observed at the river diversion area and lab area. | 1. Poor housekeeping to be improved. |

6.1.4 20 October 2011
STATUS OF PREVIOUS ISSUES

| Issue Ref. | Category | Summary of poor practice / area of concern | Status | |
|------------|--------------------|--|--|---|
| 017 | Pollution | 1. Inadequate storage of hazardous materials at the workshop area; the batch plant area and at the dam foundation offices. | 1. NCR issued on 05/09/2011. Storage of hazardous materials has improved: Fynn and James are using a stainless steel bund which is housed in a ventilated storage area provided with fire-fighting equipment and signage. Improvement required with Group 5's hazardous substances storage. Designated hazardous storage area currently being built. | X |
| 059 | Water Conservation | 1. Leaking water pipes at the water abstraction point and on the haul road leading to the batch plant. | 1. Leaking water pipes have been attended to. | ✓ |
| 061 | Pollution | 1. Spillage observed under the excavator at the crusher area. | 1. Spillage removed on 18 October 2011. | ✓ |
| | | 2. Spillages observed at the river diversion area. | 2. Spillages removed on 19 October 2011. | ✓ |
| | | 3. Spillages observed adjacent to the waste transition area. | 3. Spillages removed on 17 October 2011. | ✓ |
| | | 4. Wastewater management at the batching plant. | 4. Mitigation measures currently underway with the installation of the drainage (to be completed week 24-30 October 2011) to the separator/recycling area. | X |

| Issue Ref. | Category | Summary of poor practice / area of concern | Status |
|------------|---------------------|---|---|
| 062 | Waste | 1. Litter observed at the batch plant area and the waste transition area. | 1. Litter removed on 18 October 2011. ✓ |
| 063 | Housekeeping | 1. Poor housekeeping observed at the river diversion area and lab area. | 1. Housekeeping improved - adequate housekeeping measures to be maintained. ✓ |

NEW ISSUES (i.e. areas of poor practice / areas for improvement / areas of concern)

| Issue Ref. | Category | Observations | Improvements Required / Objectives to be achieved |
|------------|------------------|--|--|
| 064 | Pollution | 1. Silt laden water being pumped into the stream at D146 Road watercourse crossing. 2. Inadequate storage of hazardous materials at the lab area. 3. Cement spills from cement mixing observed at the workshop area. mixing to be undertaken on plastic lining or impermeable surface to prevent | 1. Silt filtration measures to be implemented prior to water being released into the stream. EM suggested deadline: 27 October 2011. 2. Inadequate storage of hazardous materials at the lab area to be addressed. EM suggested deadline: 27 October 2011. 3. Cement spills to be removed. EM suggested deadline: 27 October 2011. |
| 065 | Waste | 1. Waste separation at the waste transition area. Cardboard observed in the general waste designated area. | 1. Waste separation to be undertaken at the waste transition area. EM suggested deadline: 27 October 2011. |

 * **COMMENTS:**

TCTA

 6.1.5 Conclusions

In general, the EO responded efficiently and addressed the identified issues and concerns timeously. Spillages observed were removed and certificates of safe disposal were received from the waste service provider. Continual improvements for storage of hazardous materials were also observed.

 * **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 below.

Table 1: Summary of Monthly ECO Monitoring Checklist categories: Sept – Oct 2011

| Monitoring Category | Conformance Score (%) |
|---------------------------------------|-----------------------|
| Environmental Authorisation | 96.10 |
| Administration | 100.00 |
| Environmental Education and Awareness | 100.00 |
| Construction | 100.00 |
| Materials | 93.82 |
| Water Quality | 80.00 |
| Air Quality | 100.00 |
| Noise | 100.00 |
| Community Engagement | 100.00 |
| Archaeology and Cultural Sites | 100.00 |
| Vegetation | 93.33 |
| Fauna | 100.00 |
| Safety & Security | 100.00 |
| Waste | 96.00 |
| Traffic | 96.52 |

* **COMMENTS:**

TCTA

6.2.2 Areas of Non-Compliance

Selected areas of significant non-compliance for September – October 2011, 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: Sept – Oct 2011

| Condition / Mitigation Measure | Comments |
|---|---|
| The hazardous storage area to be bunded with approved impermeable liner. The bund wall must cater 110% of the volume of the storage container | Dedicated storage area for hazardous material currently being built. Improved storage required for hazardous material at laboratory and in containers. See Figure 13 . |
| Provide treatment and/or disposal method for the wastewater | Washing of plant is causing pollution, where cement-laden wastewater is not adequately contained. Measures to improve this situation are underway. See Figure 14 . |
| Cement-laden water can only be discharged at the batch planting facility to settlement and treatment ponds | |
| Silt laden water shall not be directly discharged over land or directly into watercourses and shall be contained in settlement ponds and managed before release | Sedimentation at the watercourse crossing on the D146. Filtration of pumped water required. See Figure 15 . |
| Such overland discharge may not cause erosion | Scouring at release point of water pumped from excavation at D146 watercourse crossing. |
| Site to be kept clean and free of litter | Cement mixing to take place on an impermeable surface. See Figure 16 . |
| Provide emergency contact details for RTI on signposts on the R103 and P147 | Not undertaken to date. Orders for signs placed. |

**Figure 13: Inadequate storage of hazardous material – area not bunded**



Figure 14: Intervention underway to manage wastewater at batch plant



Figure 15: Sedimentation at the watercourse crossing on the D146



Figure 16: Cement mixing to take place on an impermeable surface

*** COMMENTS:**

TCTA

6.2.3 Overall Monitoring Results

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

Table 3: Summary of results of Monthly ECO Monitoring Checklist: Sept – Oct 2011

| Description | Total | Percentage |
|--|-------|------------|
| Number of Items Scored for this Audit | 171 | |
| Highest Possible Conformance Score for the monitoring period | 855 | 100 |
| Actual Conformance Score | 809 | 95 |

*** COMMENTS:**

TCTA

6.2.4 Sequential ECO Monitoring Results

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

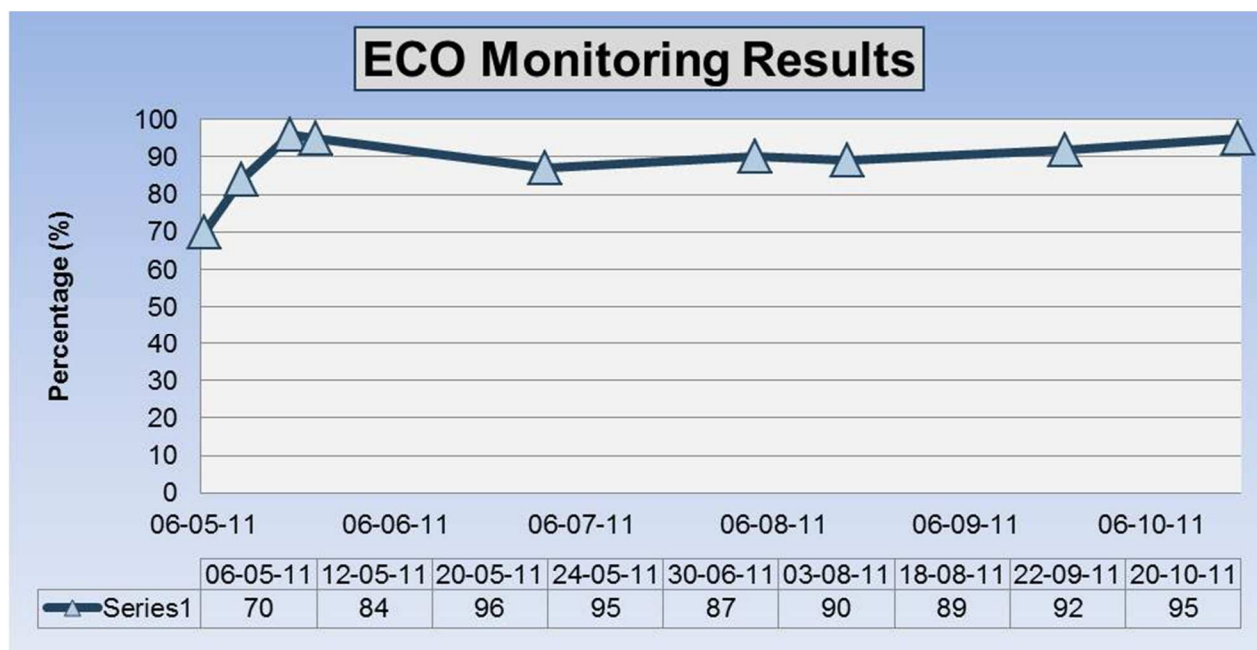


Figure 17: Graph - summary of results of Monthly ECO Monitoring Checklists

There was an improvement in the compliance score achieved from September 2011 to present.

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COMMENTS:

TCTA

7 NON-CONFORMANCE / INCIDENT REPORTING

The following environmental non-conformances / incidents were recorded by the EM during the monthly ECO monitoring period.

Table 4: Environmental Non-Conformance / Incident Register entries for Jul - Aug 2011

| Date of NCR / Incident | Description | Suggested Corrective Action | Actual Corrective Action | EM Suggested Deadline | Actual Date Corrected | Closed-Out |
|------------------------|---|--|--|-----------------------|-----------------------|------------|
| 01/10/11 | Daily water monitoring has not been undertaken for the past three weeks. | It is understood that the water monitoring machine is being repaired; however, the contractor must make provisions to satisfy specification P67 4.4.4 until such time the machine is operational | | 19/10/2011 | | NO |
| 17/10/11 | Due to excavation/placement of materials in the second coffer dam, a large amount of silt laden water was observed entering the river. The measures in place failed to prevent sedimentation. Additionally the silt curtain proved to be ineffective as silt laden water was observed further downstream. This is in contravention of P67 4.3.6 of the specification. | The contractor is requested to provide feedback on how such occurrences will be dealt with in future. | 18/10/2011: Feedback received from contractor highlighting measures to be undertaken before future activities of this nature occur. (Email filed in J00846-9.7.General and as attachment to NCR 09 in J00846-2.1) | 18/10/2011 | | YES |

The Contractor has requested assistance from Blue Sands on the daily water quality monitoring to temporarily deal with the non-conformance of 01 October 2011

The non-conformance of 17 October 2011 is to be attended to through improved mitigation for a future event.

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COMMENTS:

TCTA

8 ISSUES AND COMPLAINTS

Table 5 contains the issues and complaints (9 entries) that were recorded by the Social Monitor during the monthly ECO monitoring period.

In terms of the target set in the EMP for Issues and Complaints Management, all complaints must be responded to within 10 working days. Based on the entries in the register, this target has been met.

The following issues and complaints are unresolved:

- Issue no. 72 – feedback required to complainants regarding compensation; and
- Issue no. 73 – feedback needs to be provided to Mrs. King regarding the various issues raised.

For issues no. 67, confirmation is required whether the ledge outside of Mr. Wetton's property has been re-built.

The remaining issues have been adequately attended to.

Table 5: Issues and Complaints Register entries for Sept – Oct 2011

| No | Date | Submitted by | Description of Issue | Response to Issue | Resolved & Communicated | Date Resolved |
|----|-----------|-----------------|---|---|-------------------------|---------------|
| 65 | 27-Sep-11 | Brendan Grealy | Brendan called to say that a man (Dennis) pulled him over on the D146 and chastised him re overtaking. He said that he was not aware that speed limits and road rules on the Overdale Road and D146 were for residents; he assumed they were for contractors only. | Instead of singling Brendan out Katie Fenenga sent the following sms to all Overdale Road and D146 residents: Dear Overdale and D146 residents, a friendly reminder that the 30km/hr speed limit and no-overtaking signs apply to ALL traffic (private vehicles, site vehicles, residents, heavies) for the duration of the upgrade. Katie 0833874604 | YES | 27-Sep-11 |
| 66 | 03-Oct-11 | Peter Greene | The following e-mail was received by Katie Fenenga; (the e-mail was followed-up by a phone call from peter Greene). Hi Katie, At approximately 13h30 today 3 October 2011 one of your vehicles SGD K726 was parked in the middle of the offramp onto the Fort Nottingham Road. After a time the driver appeared from the shops and said that he had a problem with the vehicle and he was waiting for assistance. When I enquired as to why he didn't stay with the vehicle and flag down traffic he stated that he had gone to get air time so that he could make contact with his employer. He stood beside his vehicle whilst I was filling with fuel. I drove past 5 minutes later to see the vehicle driving off so he was obviously just waiting for me to drive off. There has also been a previous complaint that the trucks are parking in front of the taxi rank entrance in front of Hoosens shop. Please can we request that if these vehicles need to stop in the village that they do so on the verge beyond the post office where there is a wide safe and safe parking area. I will send photos under separate mail. Regards, Peter | Feedback given to Peter Greene: 1) Jay from Afrisam spoke to the driver of vehicle SGD K726 and he explained that the truck switched off as he took the bend and the warning light on the dashboard read "ENGINE SYSTEM MALFUNCTION ". Since the driver had no airtime he ran into a nearby store, bought airtime and called Afrisam's mechanic Jabu. Jabu advised him that the ignition should be switched for 5 minutes for the computer to reset and the truck to start. When the driver got back to the truck and started the vehicle the engine started, as computer had reset while the driver was buying airtime. 2) Note that all our drivers are instructed not to park anywhere unsafe but to park at designated parking areas for trucks. They have been reminded that the taxi rank is for light vehicles only. | YES | 14-Oct-11 |
| 67 | 04-Oct-11 | John Wetton | John Wetton called to say that his staff member, Elliot, who lives on his property was in danger on Monday 3 October as two heavy vehicles/aggregate trucks slid down the hill and backed onto the verge outside Elliot's house, due to wet weather. This proves his previous points re road safety and the need for a berm / embankment / step outside his property. | Andrew Olden had been aware of the issue; Group Five will add another layer of gravel to the road to counteract the wet conditions, and will also re-build the ledge outside John Wetton's property. | YES | 04-Oct-11 |
| 68 | 04-Oct-11 | Ryan Phelan | Ryan called to say that John Wetton's live-in staff member's kids were playing tag with the diggers and graders working on the D146. He asked that they be warned about traffic safety. | Katie called John Wetton, and then called Elliot (on 082 952 0620) to ask him to teach his children about road safety and to ask them not to ride their bicycles in the road while the upgrade is taking place. | YES | 04-Oct-11 |
| 69 | 11-Oct-11 | Carolyn Zelenka | Via sms: Katie, I'm curious! What is the siren that keeps going off every 5 minutes? It's driving me dotty! It will drive us to drink if it carries on! I do hope it's temporary, we have our UK family coming to visit next week and want to show them the best of SA. | Katie replied: It is a siren associated with the batch plant. I will find out more information and get back to you. Sorry about the noise. Response from Andrew Olden: The siren will be used while the batch plant is in operation, it is part of the safety procedures to inform the truck that it is clear to move once the mix is complete. | YES | 13-Oct-11 |

| No | Date | Submitted by | Description of Issue | Response to Issue | Resolved & Communicated | Date Resolved |
|----|-----------|-------------------------|--|--|-------------------------------------|---------------|
| 70 | 12-Oct-11 | John Wetton | 1) I have had some complaints about the length of time which is being taken to complete the re engineering of the D146 etc. I have been away for a while but certainly today nothing is being worked on. Four weeks was indicated to complete the road and the bridge over the small spruit, I am not sure where we are with the timeline but I am sure we have exceeded the time agreed. There does not seem to be too much left to do so could I ask that the contractor get on and complete the project. 2) The constant dust is awful and we are being enveloped in clouds that sweep over our properties. With 60 big trucks up and down per day plus all the other construction traffic we are getting covered with dust. Please can we have water trucks every hour up and down the road. 3) I have to complain again about the speeding of the white construction bakkies 4x4s. These are black and white drivers who totally disregard the speed limits. I will try and note some registration numbers but this is difficult and time consuming for me. 4) All credit to your large aggregate trucks who obey the limits, please pass on and record our thanks. | 1) The Contractor has committed to finishing the D146 by Friday 04 November. The initial authorisation for us to use the Overdale Road was facilitated by Don Kluckow, and we have communicated to Don the need for this extension. The reason for the go-slow was an internal disagreement between The Contractor and his sub-contractor, to do with skills development. 2) Sandhisha: The project currently has three water trucks onsite. One is currently being repaired and the other two are being used for layer works as well as administering dust suppression onsite and on the D146. Dumisani has communicated that as soon as the third truck is fixed, it will be administering dust suppression on the D146 hourly. He has indicated that he will instruct the truck to water the D146 more regularly until the third truck is available. From Andrew: An important fact to note is that the dust monitoring results confirm that on average the site falls within acceptable dust limits each month. 3) We are aware of the blatant disregard of the no-overtaking signs and speed limits by a number of vehicles. The site-based vehicles are dealt with by The Contractor; they're given warnings and are made to sign code of conduct forms that allow action to be taken against them. Unfortunately the logistics manager and traffic monitor have reported that the majority of the vehicles that ignore the signs are not site-related but private vehicles. We're not sure how to tackle this one, since residents are already inconvenienced and consider the low speed limits the ultimate insult. Any ideas? | YES | 13-Oct-11 |
| 71 | 13-Oct-11 | Peter Greene | 1) Parking across the post office parking. A vehicle was reported to have parked in front of the post office an area used for diagonal parking for the post office. I can get you vehicle details if you require these. The area does not have specific parking bay markings nor no stopping for truck signs. The previous request was for the trucks to park in the area beyond the post office, which most of them are doing – for quite extended time periods in some instances. The first approach is to ask the drivers to comply otherwise we need to get Blake to put signage in place so that this can be enforced. 2) At 16h30 on 12 October 2011 a vehicle with a trailer registration FFS 468 MP (No SGD number could be seen on the back) was followed travelling at an average speed of 70km per hour between Nottingham Road and Rosetta. Must have been one of the last vehicles of the day so should be easy to pick up. It would be great if we could get the data on this trip as would be interesting to see what information is provided by the system. | 1) Nottingham Road post office: The drivers have been informed of the correct places at which to stop; if our heavy vehicles continue to park in light vehicle parking we will contact Blake McKenzie about signage. Thank you for drawing the issue to our attention. 2) Speed limit: The truck was recorded travelling above the 40km/hr speed limit at three intervals during its trip along the R103 between the Mt West/Nottingham Road turn off and Rosetta. Disciplinary procedures are being followed, and the driver will receive a first warning. If you are interested in taking a look at the stats/data, as you expressed in your first e-mail, let's chat tomorrow about making a date and time with the logistics manager, David Hadebe. | YES | 19-Oct-11 |
| 72 | 18-Oct-11 | Glynis and Brandon Karg | Raised by Peter Greene on behalf of the Kargs: Our complaint at this stage is that they (TCTA) have still not told us how much or when they are paying us for our land on the dam. We have 3 houses too, that may or may not fall within the expropriated area and they are not coming forward with their decision. It is very frustrating for us. | Feedback from TCTA re the Kargs: Liza van der Merwe and the legal team will prepare a response for the family by the end of this week. Apologies for the inconvenience to date. | NO (SM to follow-up on 21-10-11) | |

| No | Date | Submitted by | Description of Issue | Response to Issue | Resolved & Communicated | Date Resolved |
|----|-----------|----------------|--|-------------------|-------------------------|---------------|
| 73 | 20-Oct-11 | Christine King | <p>1) Going onto someone's land is the same as entering their home. The dam developer doesn't own my property yet, and has no right of access. Someone has been around painting posts pink. They will not be allowed on the property again. 2) Chris has an electric dog "fence" buried 30cm underground all around the perimeter of her garden; this falls within the expropriated portion. It can be marked out for a decision to be made about what to do about it. 3) Shelduck Dam pump station just below Shelduck dam wall and pipeline to Anniversary Dam: will the pump be on expropriated land? The pipe will be. What will the solution be, to pipe from the main new dam? Move the pipe? 4) Is The Project going to reinforce Anniversary Dam wall? Spring Grove Dam water will lap at Anniversary Dam's wall. 5) When are the new farm boundaries, post expropriation, going to be marked out and registered? These new boundaries will affect rates etc. 6) Loss of the dairy: only acknowledged in initial PAJA notice; Chris's lawyers are dealing with the insufficient offer made. It will cost R3 million to rebuild the dairy. 7) Fencing of the dam? What will happen and when will it happen? 8) The dam almost cuts Inchbrakie into two parts; proposal is to sell-off the big half and keep the smaller bit. The big part is 115ha. According to the Govt Department that the application was sent to this will not be viable, and no approval was given. Is there anything that can be done? 9) Chris has a real concern re loss of privacy and security. Will the fish barrier construction team access the site through the dam basin, or along existing Inchbrakie-Vaalekop road? There will be more people on "Route 13" too, and this will look straight onto the property. Will there be security while this route is being constructed? 10) Route 13, is this final? What is official? Chris' lawyers will look at the new servitude that is drawn up; this must also be passed through her Trustees first. Chris can provide The Project with a copy of the existing servitude. Who will maintain this new Route 13? 11) The Garlick/Pelser existing farm entrance roads off the Loteni Road could be used as the main entrance, which could be re-routed to join Route 13. Then Clive and Chris would use original Inchbrakie road and maintain this themselves. 12) What landscaping/mitigation measures will be put in place for: Route 13, mudflats etc? Will the mudflats be left to be a breeding ground for mosquitoes? The whole project is characterised by a lack of planning. 13) Chris' boma would have gone underwater so she dismantled it, but has not been compensated for it</p> | | NO | |

| | |
|---|-----------|
| * | COMMENTS: |
| | TCTA |

9 PROPOSED AMENDMENTS TO THE ROD AND EMP

9.1 Proposed Amendments to RoD

An application for an amendment to the Environmental Authorisation was submitted by DWA to DEA on 01 August 2011.

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

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

| Condition No. | Description | Comments |
|---------------|---|--|
| 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. |
| 3.2.3.3 | The ECO who will act on behalf of the EMC to undertake daily monitoring compliance with the conditions of the RoD, environmental legislation and EMPs | 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. Application for an amendment to the Environmental Authorisation was submitted by DWA to DEA on 01 August 2011. |

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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 7**.

Table 7: Proposed amendments / matters for clarification related to the EMP

| No. | Description | Comments |
|---|---|--|
| Previously listed Mitigation Measures | | |
| 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 can provide advice in an emergency | Bulk fuel transporters comply with this measure. However, requirements are too onerous for sub-contractors (e.g. mechanics). EMP deviation to be discussed. |
| Mitigation Measures for Monitoring Period | | |
| 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. |

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COMMENTS:

TCTA