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| **Department:** | HEALTH, SAFETY, ENVIRONMENTAL AND QUALITY DEPARTMENT | |
| **Title:** | **Annexure 04: ORGANISATIONAL ANNUAL ENVIRONMENTAL REPORT (FY 2020)** | |
| **Procedure Nr:** | HSEQ-GP-PO-18 | |
| **Distribution:** | Petra Diamonds Ltd | |
| **Originator:** | Group HSEQ Environmental Lead | |
| **Responsible HOD:** | Group HSEQ Environmental Lead | |
| **References:** | HSEQ-GP-PO-40 | |
| **Annexures:** | none | |
|  | |  |

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| --- | --- | --- | --- |
|  | |  | |
| **Original Date:** | 15 August 2014 | **Revision Date:** | 27 August 2019 |
| **Revision number:** | 03 | **Next Revision Date:** | August 2020 |
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| **Approved:** |  | **Authorised:** |  |
| **Name of official:** | JM Reynecke | **Name of official:** | P Nkuna |
| **Designation:** | HSEQ Environmental Lead | **Designation:** | HSEQ Manager |
| **Approval date:** | 30 August 2019 | **Authorisation Date:** | 2 September 2019 |
|  | |  | |

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**EXECUTIVE SUMMARY**

Williamson Diamonds Limited (WDL) mining operation is located within a 30.60 Km² lease area that is occupied under a Special Mining License No SML 216/2005.

WDL is located in Mwadui, 40 kilometres from Shinyanga town that is the regional headquarter of Shinyanga Region. The project is located about one kilometre from the main road that stretches from Mwanza (140 km away) on the shores of Lake Victoria to Dar-es-Salaam.

Mining is conducted according to a defined mine plan, based on geological models and mined grade data. The plan includes mining from the pit (Kimberlite) and surface gravels. The mine plan is updated on continuous bases.

At WDL we acknowledge Petra Diamond’s views on environmental practices and furthermore endeavour to uphold the statutory laws applicable on environmental, health and safety of the United Republic of Tanzania.

We believe that the loss of biodiversity to a country may also mean the loss of its authentic value, productivity and economic benefits. Therefore, at WDL, we insisted to follow a proactive approach towards Environmental management by means of Progressive Rehabilitation Programs.

Petra is committed to undertake cost effective closure of WDL which is in keeping with the statements of commitment in WDL`s Environmental Policy and Environmental Management Plan.

This report details status of Mine Closure Plan, Environmental Policies and procedure, Implementation of Environmental Management Programmes, Monitoring, Environmental incidents and stakeholder engagement during the year

Report Sign-off:

We hereby acknowledge the contents of this report and confirm that it is a true reflection of the current state of the environment at the organisation.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Environmental Specialist

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

HSE Manager

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

General Manager

Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# COMPLIANCE

The compliance of Petra’s operations is measured against the applicable environmental legislation in the respective countries of operation. The section below is dedicated to identify any non-compliances by the organisation.

# Directives and Instructions

The organisation is to note any *Directives or Instructions* received from Environmental authorities during the period under review:

Table 1: Details of Directives / Instructions

|  |  |
| --- | --- |
| **Date of Directive / Instruction:** | 28th October 2019 |
| **Authority:** | Ministry of Water (MOW) |
| **In Terms of Legislation:** | -Water Resources Management Act No 11 of 2009  - Dam Safety Regulation of 2013 |
| **Details of Instruction:** | Construction Permit for WDL Fine Residue Slimes Facility PHASE II was granted along with the following conditions:  -The permit is granted for the starter wall only.  -The raising method proposed should be discussed after the initial operation of the starter wall.  -The available quantity of clay material for FRSF lining of the footprint area should be quantified by the APPs during clearing stage of the project area.  -During construction and operation Approved Professional Person should be engaged.  -To comply with other regulatory authorities such as NEMC, Ministry of minerals and other relevant authorities. |
| **List of Actions to Address:** | Williamson Diamonds Limited will comply. |
| **Due Date of reply:** |  |

|  |  |
| --- | --- |
| **Date of Directive / Instruction:** | 11.12.2019 |
| **Authority:** | National Environmental Management Council (NEMC) |
| **In Terms of Legislation:** | Environmental Management Act of 2004 |
| **Details of Instruction:** | Feedback from the Third part Environmental report FY 2019.   * Inadequate description of the waste stabilization Ponds, detailed design, records of the laboratory analysis result of effluent before and after treatment. Also to apply for a discharge permit from the respective Basin Water Board. * Conduct Geochemistry analysis on Dry Stack Tailings. * Provide elaboration of the mentioned secure area where tailings are disposed. * State how used grease is handled. * Provide geology description to support your statement under waste rock, due to geology of the mine. * To rectify on the term bio remediation facility to Chemical remediation facility, also provide brief description on the efficiency of the facility. |
| **List of Actions to Address:** | The Above instructions to be addressed in the 2019/2020 annual audit report. |
| **Due Date of reply:** | October 2020. |

*The KPI for Petra Diamonds is to have not more than one directive or instruction (≤1) per organisation within the group for FY 2020*.

# External Statutory Audits

All organisations are required to conduct and submit external audits / assessments as part of a self-regulatory approach, to the various environmental authorities. This section seeks to identify the assessments required per organisation, the frequency of assessments, as well as outcomes as communicated to authorities during the year.

Table 2: External Statutory Audits by Third Parties

|  |  |  |  |
| --- | --- | --- | --- |
| **Audit / Assessment** | **Date Conducted** | **Date Submitted** | **Next Audit** |
| WUL² audit |  |  |  |
| GN704 audit |  |  |  |
| EMP PA³ |  |  |  |
| Waste License |  |  |  |
| Closure Liability |  |  |  |
| Other: 3rd Party Environmental Audit- Efficiency Consultant Company limited | 15th -17th  May 2019 | 27th November 2019 | 2022 |

Table 3: Outcome of External Statutory Audits by Third Parties

|  |  |  |
| --- | --- | --- |
| **Audit / Assessment** | **No. of Findings** | **Conclusion of Assessor** |
| WUL audit |  |  |
| GN704 audit |  |  |
| EMP PA |  |  |
| Waste License |  |  |
| Closure Liability |  |  |

|  |  |  |
| --- | --- | --- |
| Other: Third Party Environmental Audit | Demolished site monitoring  boreholes | * Strengthen awareness to surrounding communities (direct beneficiaries). * Alternative materials be used for construction of boreholes such that if vandalized, will have no value in the market. * Increased frequency of surveying of the monitoring facilities (by security guards) |
| Absence of reliable flow meters | Installation of modern and reliable flow meters |
| Anthropogenic activities within Songwa dam | Work close with District Authorities and LGAs to control other human activities that are not friendly to water bodies such as livestock keeping and faming along the shores. |
| BOD exceeding the normal values and WSP Total Suspended Solids and Colour exceeding the standards | Investigations should be undertaken early to determine ways to correct the problems, which would ensure long term stability |
| There was a clear evidence of lack of adequate budget set aside by the Mine Management for HSE Department for fulfilment of the EMP. | Sufficient budget can be availed to enable acquisition of modern and updated equipment such as GPS, water monitoring apparatus, equipment for measuring and monitoring of air quality, noise levels and vibrations among others |
| Some of the development projects does not enable the community to empower themselves and become independent so as not to rely on WDL aids/donations. | **Farmers:**   * Training on livestock keeping, crops cultivation, chicken, cow and goat keeping, vegetable crops, rice cultivation * Establishing Joint venture cooperative groups * Increase the value added of their products i.e. dairy products * Enhancing Marketing networking for their products   **Small entrepreneurs (women and youth):**   * Increase the value added of their products * Strengthen the market access * Capacity building through training on small business management * Establishment of Business facilities for small entrepreneur groups * Enhancing Marketing networking * Introduce a local economy institutions like joint venture group or cooperatives to empower the local people * Training and setting up small business for women groups * Provide funding to obtain business capital   **Disabled/vulnerable groups:**   * Assisting on Scholarship for disabled children * Providing funds to obtain business capital * Establishing small business facilities to disabled * Assisting on medical aid for the disabled   **Children:**   * Assisting on fees for the children who proven parents could not afford sending them to school * Establishing a baby care centre for children (3-6) |
| Workers tends to drink after working hours though some of them exceeds the limits. Regardless having a tendency of testing alcohol levels, but nothing like this was experienced | * Conducting daily alcohol tests on each department (especially mine and plant) * Those found to exceed the limit should not be allowed to work on that particular day. |
| Inadequate firefighting equipment, it was observed at the Mine store building. | Installation of alarms, water sprinklers, smoke detectors, hose reel and trolleys of fire extinguisher (Co2 or foam) |
| High speed limits in the mine camp and mining areas | * Installation of speed humps * Additional of signage’s Strict supervision of irresponsible drivers |
| Poor signage’s on mine site roads experiencing heavy dust plus winds. | * Installation of huge and well visible signage’s. * Utilization of dumper tires as signages (round about and corner posts. |
| As observed on some parts of bridges (extreme rust on some metal parts) at New Alamasi and Dam Retaining Pump. | * Replacement of rusted parts * Use of anti-corrosive materials for sustainability   Caution signs |
| Witnessed insecure edges with no baluster facilities to support against falling. This is especially at the plant view point and at MMP2. | * Installation of balusters * Placement of safety signs (fall hazard, high winds, dusty, etc) |
| Working with wrong gears was evidenced in several departments | * Emphasizing the proper utilization of appropriate PPEs   Punishment for those going against the mine/site rules (intentionally) |
| As observed at the MMP2 plant premises (where by it was reported that, they were insisted several times to maintain it). | * Insist on good housekeeping onsite * Unmixed operations   Plain ground shouldn’t be used as washing bay since it is not connected with OWS |

# Authority Audits and Inspections

Authorities are mandated to do site inspections/audits to check on compliance to permit and license conditions, as well as general compliance to all applicable legislation. This section indicates all authority inspections conducted in this year, as well as the outcomes thereof.

Table 4: Outcome of Authority Audits and Inspections

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Authority** | **Date of Inspection** | **Scope of inspection** | **No. of Findings** | **Actions to address findings and progress on implementation** |
| Ministry of Minerals (Mining commission) | 15th August 2019 | -Permit to construct an extension fine residue slimes (FRS) facility  - Permit to construct coarse Residue conveyor belt facility | 1. Observe all regulations regarding constructions of water impoundments as stipulated in Regulation 177 of the Mining (Safety, Occupational health and Environment protection Regulation 2010.  2. The permit to operate the facility will be granted upon inspection of the same by the mines inspectors; and  3. Justifiable economic feasibility for purchasing of the “off-the-shelf-stacker” facility should be attached with the purchase approval request to the CIM  4. Observe and adhere to Regulations and procedures from other relevant Authorities on water impoundments construction | - All Regulations have been observed.  -Inspection has been conducted by the mining inspector. |
| Government Chemist Laboratory Authority (GCLA) | 21th August 2019 | Chemical management Compliance Inspection at Magazine area | 1.Inadequate fire extinguishers  2. Insufficient (Clean) washing pipe/shower  3. Ammonium nitrates bags stored direct on the floor  4. Insufficient warning signs in all stores | 1.Install more fire extinguishers  2. Install more (Clean) washing pipe/shower  3. Ammonium nitrates to be stored on pallets  4. Place more warning signs in all stores |
| National Environmental Management Council (NEMC) | 17th-18th September 2019 | Review of Environmental Management Plan (EMP) and construction of coarse residue conveyor belt facility | 1. The permit to extend the tailings conveyor will be granted upon submission of the project brief report.  2. Drilling of monitoring boreholes around proposed sites.  3. EMP commitments to be addressed in Annual Monitoring report | 1. Project brief report together with supporting documents have been submitted to NEMC.  2. Survey to identify monitoring boreholes, completed. Six points have been identified, drilling to commence soon. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ministry of Minerals (MOM) | 17th September 2019 | Permit to extend Course Residue Conveyors from the treatment plant. | Drilling of monitoring boreholes around proposed sites. | Survey to identify monitoring boreholes, completed. Six points have been identified, drilling to commence soon. |
| Tanzania Mining Commission. | 30th January 2020 | Compliance Inspection | To apply for the permit of the waste rock dump and to provide the design. | On going |
| Mining Commission | 19 May 2020 | Compliance Inspection | 1. Signs of hydrocarbon spillages in the magazine area. 2. Presence Of bees in the explosive's storage areas. 3. Design of the Waste Rock Dump as advised by the Executive Secretary and NMCC were not completed. 4. Study of the Acidic Rock Drainage (ARD) was not conducted. 5. Recycling of the solid waste was not effective. | 1.Clean up spillage and sent the contaminated soil to chemical remediation area  2. Relocate bees from the area for safety purposes  3. Waste Rock Design and application of permit is on going  4. Commence the placement of the ARD columns to monitor the acidic nature of the rocks in the waste rock dump. |

# Environmental Management Programme Report Commitments

This section focuses on the number of commitments made in the Environmental Management Programme Report that has **not been implemented,** as well as the action plans to address the non-compliances. *Commitments complied with or actions already completed, are not reported on*.

* **Below is the table extracted from revised EMP documents**

Table 5: EMPR Implementation

**Internal Issue**

|  |  |  |  |
| --- | --- | --- | --- |
| **Environmental Aspects** | **Potential Impacts** | **Significance** | **Actions Required** |
| Incorrect management of structures such as dry stack tailings and fine residue slime storage | The company will not be able to illustrate that the structure is stable and sound for the Chief inspector as indicated by legislation | High | * Design of FRS and DST need to be documented and submitted to ministries of Water and Mineral for approval. * Review of water balance to FRS to ensure no water ponding permanently during operations * Permit to operate FRS and DST need to be applied * WDL may ask exemption for DST as it can be re mined. * Development of facilities operational manual to ensure design criteria implemented including facility monitoring. * Employed Approved Profession Person as required by Dam Safety Regulations made and the Water Resources Management Act 2009. |
| Optimal functioning of the sewage treatment facilities | Unable to comply to discharge standards | Medium | * Water sampling of discharge at WSP should be as per standard biological sampling requirements. * Evaluate performance of WSP after obtaining the accurate biological quality of water emanating from WSP. |
| Inadequate ground water samples | Unable to comply with the Environmental Management Act, Part XI (Analytical and Records) | Medium | * Purging of groundwater monitoring, sample collection accordingly to acceptable standard procedure and test samples to the laboratory compliant with EMA. |
| Excess use of the water from shared water dams | Unable to comply with plant water demand and social concerns | High | * Ensure water drawing from the dam monitored to a minimum level. * Maximize use of KASHWASA |
| Improper management of surface runoff from bare ground such as dry stack tailings | Siltation to the New Alamasi dam that can reduce volume of water stored | High | * Design and implement site run off management strategy to minimize erosion from the disturbed areas. * Implement concurrent rehabilitation to the areas no longer needed for mining operations |
| Unreliable lab test results | Unable to comply with the Environmental Management Act, Part XI (Analytical and Records) | Medium | * Improve water sampling procedure to reflect best practices and Lab must be registered under EMA |

**External Issue**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Institutions and individual** | **Aspects** | **Potential Impact** | **Significance** | **Actions Required** |
| Government Officials | Inability to obtain permits and exemptions from government as well as biased inspections | Without permits mining cannot continue. Biased inspections lead to time consuming turnaround time to achieve environmental targets on specific time and date | High | * Apply for permit to Operate for Fine Residual Slimes 3. * Apply for exemption for dry stack tailings from Ministry of Water and Ministry of Mineral. * Submit annual report for FRS. * Ensure construction and water records available for FRS |
| Local community expectations | Unrealistic expectations from community regarding the role of the mine during operations and closure | It is potential for unrest as politicians and opportunists will channel their interests to the community | High | * Investigate the requirements of current mining related laws and its implication to CSR projects. * If possible, to continue with CSR, conduct Community Project Appraisals to determine projects that can benefits communities for a long-term positive impact. * Share with community on annual basis on available budget for expenditure. * Technical inputs need to be invite and play key role in decision-making. |
| Illegal miners/intruders | Illegal miners will destroy the natural vegetation, rehabilitation efforts and monitoring structures | Concurrent Rehabilitation and key closure objectives cannot be met | High | * Control access to possible mine entrances. * Improve visibility and access to potential mines area for Illegal miners and   maintain good relationship with local community and police force for intelligence and security purpose |
| Grazing to the mine area | Cattle overgrazing and destruction of newly rehabilitated areas | Destroying natural vegetation, rehabilitated land and damaging of monitoring structures such as monitoring boreholes | Medium |  |
| Mwadui residence | Vandalising company assets | Mwadui residence | Vandalising company assets |  |

**Environmental Conditions**

|  |  |  |  |
| --- | --- | --- | --- |
| **Environmental Aspects** | **Potential Impacts** | **Significance** | **Actions Required** |
| Droughts, availability and cost of water | Business sustainability | High | * Determine water saving awareness campaigns and alternative sources |
| floods on open pits, water dams and production | Business sustainability | High | * Drought and flooding impacts to dam users and downstream users must be well communicate. * Engage local government on the potential impacts and climate change adaptation initiatives to local community depending on the dams’ resources. * During update/renewal of the water user permit, climate change issue associated with dam need to be included. |
| Long-term impacts of climate change | Rehabilitation effectiveness | Medium | * On annual basis, report ecological changes vs climate changes such as temperature, rainfall and attitudes. |
| Innovation to improve and optimise resource use efficiency | Business sustainability | High | * Raise awareness to associated and stakeholders and investment on engineering innovation |

**Emergency Situations**

|  |  |  |
| --- | --- | --- |
| **Potential emergency situations or abnormal conditions** | **Significance** | **How** |
| Flooding can cause failure of fine residue slimes | High | * Establish water balance for Fine Residue Slimes operations (discharge-storage-return for recycling). * Establish beach requirements and freeboard for excess water from rainfall. * Design install and monitor FRS wall saturation through piezometers installed. * Geotechnical information and conformance to design criteria need to be monitored during construction. * Obtain relevant permit - construction permits and permits to operate from relevant Ministries (Water and Minerals). |
| Pit wall failure | High | * Engineering design of the pit wall based on the geological characteristics of the kimberlite need to be taken into consideration during design and implementation of mine plans. * Investigate groundwater inflow on the eastern wall if not associated with FRS water movement/piping erosion |
| land slide on the dry stack tailings piles | High | * Determine erodibility of the tailings materials. * Determine what are the temporary vegetation can be planted to minimize erosion. * Establish runoff management structures such as water bars, chute etc. * Assess Engineering design of the tailings stockpile based its characteristics of the materials |
| Fire break - electrical, diesel and bush fires | Medium | * Establishment of Emergency Response Team. * Provide required equipment and training to the team. * Ensure fire risk is being minimized and first responses available on the scene |

**Significance Aspects**

|  |  |  |  |
| --- | --- | --- | --- |
| **Environmental Aspects** | **Potential Impact** | **Significance** | **Actions Required** |
| Potential for water quality pollution at discharge points | * Water and land pollution from plant and WSP effluents * Erosion and sedimentation to the water dam structures | High | * Design and implement site runoff management strategy to minimize erosion from the disturbed areas. * Implement concurrent rehabilitation to the areas no longer needed for mining operations. |
| Nuisance from elevated ambient dust emission | Failure to establish vegetation and the drying of the slimes can cause ambient dust to increase causing a nuisance | Medium | * Implement concurrent rehabilitation to the areas no longer needed for mining operations and out walls of RFS and DST |
| Poor vegetation growth | The improvement of the environment will not take place if there is no habitat for animals and humans to live in | High | * Promote indigenous and native trees during rehabilitation * Monitoring the rehabilitation success using acceptable guidance |
| Unfavourable condition for all fauna or specific species | The correct fauna pests such as rodents will be managed | High |  |
| Soil contamination at hydrocarbon storage areas, explosive yard and waste management areas. | Contamination of soils due to hydrocarbon spillage for example | Low | * Establish Chemical Spill Prevention and Management procedure and train workforce. * Provide resources to implement spill control and management such as spill kits, erection of bund walls, etc. * Conduct frequent soil monitoring of the potential areas for soil contamination. * Establish contaminated site register * Design suitable treatment technology to remediate contaminated sites/soil. * Encourage separation at generation point by providing training and provide labelled dustbins. * Maximise recycling and re-use with operation, provide recyclable or re-usable materials to recognised vendor by NEMC. * If food waste cannot be recycled or re-use, it can be composted at the current waste management area. |
| Land and animal health related impact from incorrect disposal of hazardous materials such as radioactive material, asbestos, e-waste, PCBs and Ozone depleting substances. | These are harmful listed materials that needs to be disposed correctly in such a manner that it does not pose a threat to the environment that is left behind | Low | * By engagement with the relevant authorities including NEMC for guidance on disposals. |
| Instability of the pit walls | Failure to comply with pit engineering design will potentially cause pollution, injury to people and animals | High | * Engineering design need to be applied to the pit wall to maximize safety |
| Erosion and Instability of the out walls of RFS and DST | Failure to comply with Dry stack tailings design criteria will potentially cause pollution (sedimentation), injury to people, Equipments and animals as well as being structurally unstable | Medium | * Investigate suitable run off management of the out wall of RFS, suitable vegetation to the outer wall and final pool control and flooding management options for this facility |

**Interested Parties**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Stakeholders and Regulators** | **Requirements and expectations** | **What needs to be done about these interested party needs and expectations?** | **Significance** | **Action Required** |
| National Environment Management Council | Mining operations with eliminated or minimised environmental and social impacts. | Compliance | High | * WDL will do the following to meet NEMC expectations: * Operation has environmental permits * EMP and MP implemented according to the operational and compliance requirements. * Submission of Annual Environmental Report and Self-Audit Report. * Notification to NEMC in case of environmental incident, changes of project management/ownership, project modification and cease of operations. |
| Ministry of Minerals | Safety of the mining facilities, workforce and surrounding communities | Compliance | High | * Safety of the mining facilities, workforce and surrounding communities through acquire appropriate permits: * Permit to construct RFS, DST and Waste Rock Dump * Permit to use RFS, DST and Waste Rock Dump |
| Ministry of Water and Internal Drainage Basin | Operations without pollutions to the water sources (surface and ground water) | Compliance | High | * No water resources pollution as results of mining activities through acquisition of appropriate permits: * Permit to construct RFS and DST * Permit to use RFS and DST * Water use permits for all water dams * Discharge permits to all effluent discharge associated with mining activities |
| Kishapu District Council | Implementation and compliance with EMP and EMA requirements, Community supporting the project operations, WDL support surrounding communities and district at large, payment of district levy on time and role of Council on closure. | Clear communication, consultation and engagement during the project implementation | High | The following can be done by WDL:   * Copy to district all environmental and social compliance reports * Conduct frequent meetings, information sessions with District Officials * Pay levies accordingly and promptly * Involve district management team to all community project supported by WDL |
| KASHWASA | Water supply and revenue collection, what will be post mining activities | All funds will be  Paid. WDL equipment will still be assets of the mine available for sale at closure | Low | * Correspondence between WDL and KASHWASA |
| Employees | Compliance with EMP, EMA, Mining, OSHA and other statutory requirements to ensure mining operations is going on. Camp welfare during mining and post closure | Clear communication, consultation and engagement must be done during EMP and another statutory requirement implementation | High | * Waste management and environmental awareness trainings to all staff: * Communication forums and advertisements * Introduce reward systems on performance to the safety and environmental issues. |
| Contractors | Compliance with EMP, EMA, Mining, OSHA and other statutory requirements to ensure mining operations is going on. Camp welfare during mining and post closure | Clear communication, consultation and engagement must be done during EMP and another statutory requirement implementation | High | * Waste management and environmental awareness trainings to all staff belong to contractors specifically to type of the wastes produced. * Communication forums * Introduce reward systems on performance to the safety and environmental issues in their contracts. |

**General Compliance**

Compliance issues that are material to the organisation for the period under review e.g. revision of permits and licences and communication with authorities on the issuing of authorisations by the authorities are reported on in this section.

|  |
| --- |
| Williamson Diamonds Limited has been granted permits by the Ministry of Minerals, NEMC and Ministry of Water   * To extend Course Residue Conveyors from the treatment plant to previously used course residue dump. * To construct an extension of Fine Residue Slimes (FRS) facility. |

# External Complaints

Please note all external complaints received for the period under review:

* **No any internal or external complaints were received during the reporting period.**

Table 6: Details of External Complaints

|  |  |
| --- | --- |
| **Date of Complaint 1:** |  |
| **Description of Complaint:** |  |
| **Action Taken and Progress:** |  |
| **Date of Complaint 2:** |  |
| **Description of Complaint:** |  |
| **Action Taken and Progress** |  |

# ASSURANCE

This section of the report focuses on the internal processes and systems on mine. Areas such as certification and Group Projects / Initiatives are reported on.

# ISO 14001 Certification

* **WDL has not been certified**

The KPI for Petra Diamonds is that all the South African *organisation*s are to retain their ISO 14001:2015 certification for the current financial year.

Please note the details of the organisation’s certification, as well as active action plans.

Table 7: Details of ISO 14001 Audits

|  |  |
| --- | --- |
| **Certification Body** |  |
| **Date of Most Recent Audit** |  |
| **No. of Findings** |  |
| **No. of Critical Findings** |  |
| **Details of Critical Finding 1** |  |
| **Actions to Address and Progress on Implementation** |  |

# Incident Reporting

Report on all the Environmental incidents for the period under review. *Note that the figures quoted in this section need to correspond with IsoMetrix.*

Table 8: Number of Environmental Incidents per Severity Class

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Minor** | **Low** | **Medium** | **High** | **Major** | **Total** |
| This Period | 157 | 238 | 1 | 0 | 0 | 396 |
| Previous Period | 337 | 165 | 0 | 0 | 0 | 502 |
| PROGRESS ON GROUP IMPROVEMENT STRATEGIES | Unit | This Period | Previous Period | KPI | Reason if KPI has not been met | |
| Significant Environmental Incidents | No. | 0 | 0 |  |  | |
| Major Environmental Incidents | No. | 0 | 0 | **0** |  | |

# Significant Environmental Incidents

Only Environmental Incidents rated as Medium, High or Major, are reported on in this sub-section.

* **One medium Incident was reported.**

Table 9: Significant Environmental Incidents

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **IsoMetrix No.** | **Severity** | **Description and progress on actions to address the incident** | **Investigation Status** |
| 14 July 2019 | N/A | Medium | On 14th July, intruders stole all the braces that holds a penstock structure. Due to the theft of the bracings (which are responsible for stabilization of the structure) and existing pressure from the mud in the slimes dam, the structure shifted and misaligned. | Completed |

# Internal Assessments

Only assessments conducted by either on-site personnel, group personnel or consultants contracted for *assessments to be used internally only*, are noted in this section.

Table 10: Internal Assessments

|  |  |  |  |
| --- | --- | --- | --- |
| **Audit / Assessment** | **Assessor** | **No. of Findings** | **Conclusion of Assessor** |
| IWWMP / GN R704 |  |  |  |
| Legal Compliance |  |  |  |
| CAP |  |  |  |
| Internal EMS |  |  |  |
| Waste |  |  |  |
| Other: |  |  |  |

* HSEQ Group Site visit

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Visit** | **Scope of audit/visit** | **Outcome** |
| 03.03.20 | Group HSEQ | 1. Introduction of the new ISO 45001: Environmental Management System.  2. To have an in-debt site visit focusing on HSE conditions and Performance (HSEQ Team)  3.To discuss Environmental reporting requirements for 2020  4. To get our new HSEQ Manager acquainted to the Operation  5. To address Health and Hygiene matters | * ISO 45001: 2015 was Introduced, * ERAM was reviewed. * Issue Prompters was populated. * Site Visit and WDL operational familiarization to group HSEQ team was conducted * Discussion of Environmental reporting requirements for 2020 was conducted * Implementation of Noise software and linking of HEG with medical reports. |

# Procedure Review

Procedures currently under review, as well as procedures that had been reviewed during the period under review, are recorded here.

* No procedure review during reporting time.

Table 11: Procedure Review

|  |  |  |  |
| --- | --- | --- | --- |
| **Procedure No.** | **Procedure Name** | **Review Date** | **Status** |
|  |  |  |  |
|  |  |  |  |

# Mine closure and Rehabilitation

This section provides detail on progress regarding all legislated required documentation for Mine closure and Rehabilitation for this period.

The KPI for Petra Diamonds is 100% completion of closure and rehabilitation documents.

Table 12: Progress on Legislated Mine Closure and Rehabilitation Documentation

|  |  |
| --- | --- |
| Legislated required documentation for Mine Closure and Rehabilitation for this period | Progress |
| 5.85ha of mined out area levelled | Trees have already planted on levelled area |

# Financial Provision

This section seeks to supply information on the annually required amendment of the Financial Provision calculations and costs

Table 13: Financial Provision

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Financial Provision** | | | | |
| Total Financial Provision for Mine closure (Quantum) | | | |  |
| Has the total Financial Provision for mine closure been amended in FY 2020? | | | | Review of mine closure plan (MCP) is on progress |
| Has the amended total Financial Provision for mine closure been submitted to and approved by the DMR | | | | Awaiting for Updated MCP |
| Percentage change in Total Financial Provision costs as compared to FY 2019 | Unit | This Period | Previous period | Comment |
|  |  |  |  |  |

# Implementation of Group Environmental Strategies

Each organisation must provide details on their progress on the implementation of the Integrated Water Management, Waste Optimisation and Ecological Management Strategies according to schedule for this period.

Table 14: Implementation of Group Environmental Strategies

|  |  |
| --- | --- |
| **Strategy** | **Progress** |
| Integrated Water Management Strategy | Not available |
| Waste Optimisation Strategy |  |
| Ecological Management Strategy |  |

*The KPI for Petra Diamonds is 100% implementation of the strategies according to schedule*

# MONITORING

This section deals with the monitoring done by each operation.

# Surface Water Quality

Standard against which surface water quality is measured, as well as monitoring frequency to be supplied:

**Table 16: Surface Water Quality Non-conformance**

|  |  |
| --- | --- |
| Standard: THE ENVIRONMENTAL MANAGEMENT (WATER QUALITY STANDARDS) REGULATIONS, 2007 | Frequency: Quarterly or when need arises. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sampling Date** | **Monitoring Report Name/ID** | **Location**  **(Coordinates)** | **Non-Conformance** | **Standard[[1]](#footnote-1)** |
| Q1 | | | | |
| 25 September 2019 | Nhumbu Dam | E557011,N9612840 | Iron Total - 1.6 | 1 mg/l |
| 25 September 2019 | Alamas Dam | E572612,N9612279 | pH- 9.3 | 6.5-8.5 |
| 25 September 2019 | Alamas Dam | E572612,N9612279 | Chloride-261 | 200 mg/l |
| 25 September 2019 | Alamas Dam | E572612,N9612279 | BOD-60 | 5 mg/l |
| 25 September 2019 | Alamas Dam | E572612,N9612279 | Iron Total – 17.1 | 1 mg/l |
| 25 September 2019 | Songwa Dam | E559906,N9611039 | BOD-6.0 | 5 mg/l |
| 25 September 2019 | Songwa Dam | E559906,N9611039 | Iron Total – 8.9 | 1 mg/l |
| 25 September 2019 | Kawawa Pond | E566468,N9610186 | TSS-154 | 100 mg/l |
| 25 September 2019 | Kawawa Pond | E566468,N9610186 | BOD-48 | 30 mg/l |
| 25 September 2019 | Kawawa Pond | E566468,N9610186 | COD-102 | 60 mg/l |
| 25 September 2019 | Kawawa Pond | E566468,N9610186 | Colour-1285 | 200 TCU |
| 25 September 2019 | Kawawa Pond | E566468,N9610186 | Total Coliform Organisms-1380000 | 10,000counts/100mL |
| 25 September 2019 | Recovery Dam 02 | E568651,N9609735 | pH- 8.6 | 6.5-8.5 |
| 25 September 2019 | Recovery Dam 02 | E568651,N9609735 | Colour-489 | 300 TCU |
| 25 September 2019 | Recovery Dam 02 | E568651,N9609735 | Chloride-286 | 200 mg/l |
| 25 September 2019 | Recovery Dam 02 | E568651,N9609735 | Nitrate-35.3 | 20 mg/l |
| 25 September 2019 | Mine Cresent Pond | E565038,N9610722 | Colour-528 | 300 TCU |
| 25 September 2019 | Main Gate Pond | E564379,N96110271 | pH- 8.8 | 6.5-8.5 |
| 25 September 2019 | Main Gate Pond | E564379,N96110271 | Phosphorus-10.6 | 6 mg/l |
| 25 September 2019 | Main Gate Pond | E564379,N96110271 | Total Coliform Organisms-1090000 | 10,000counts/100mL |
| 25 September 2019 | Plant RO Water | - | TSS-181 | 100 mg/l |
| 25 September 2019 | Plant RO Water | - | Total Coliform Organisms-94000 | 10,000counts/100mL |
| 25 September 2019 | H 05 | E567585,N9609246 | Colour-64.0 | 1.5-50 TCU |
| 25 September 2019 | W/Mine Camp | E564606,N9610681 | Colour-51.0 | 1.5-50 TCU |
| 25 September 2019 | Biringi Well | - | Colour-765 | 1.5-50 TCU |
| 25 September 2019 | Biringi Well | - | Turbidity-60.8 | 5-25 NTU |
| Q2 | | | | |
| O2 January 2020 | Nhumbu Dam | E557011,N9612840 | Iron Total - 8.1 | 1 mg/l |
| O2 January 2020 | Alamas Dam | E572612,N9612279 | BOD-25.0 | 5 mg/l |
| O2 January 2020 | Alamas Dam | E572612,N9612279 | Iron Total – 19.0 | 1 mg/l |
| O2 January 2020 | Songwa Dam | E559906,N9611039 | BOD-20.0 | 5 mg/l |
| O2 January 2020 | Songwa Dam | E559906,N9611039 | Iron Total – 13.0 | 1 mg/l |
| O2 January 2020 | Kawawa Pond | E566468,N9610186 | TSS-574 | 100 mg/l |
| O2 January 2020 | Kawawa Pond | E566468,N9610186 | BOD-40 | 30 mg/l |
| O2 January 2020 | Kawawa Pond | E566468,N9610186 | COD-87.5 | 60 mg/l |
| O2 January 2020 | Kawawa Pond | E566468,N9610186 | Colour-3500 | 200 TCU |
| O2 January 2020 | Kawawa Pond | E566468,N9610186 | Total Coliform Organisms-480000 | 10,000counts/100mL |
| O2 January 2020 | Recovery Dam 02 | E568651,N9609735 | pH- 8.9 | 6.5-8.5 |
| O2 January 2020 | Recovery Dam 02 | E568651,N9609735 | Nitrate-32.0 | 20 mg/l |
| O2 January 2020 | Recovery Dam 02 | E568651,N9609735 | Total Coliform Organisms-71000 | 10,000counts/100mL |
| O2 January 2020 | Mine Crescent Pond | E565038,N9610722 | BOD- 38.0 | 30 mg/l |
| O2 January 2020 | Mine Crescent Pond | E565038,N9610722 | COD- 79.5 | 60 mg/l |
| O2 January 2020 | Mine Crescent Pond | E565038,N9610722 | Total Coliform Organisms-103000 | 10,000counts/100mL |
| O2 January 2020 | Main Gate Pond | E564379,N96110271 | COD- 60.6 | 60 mg/l |
| O2 January 2020 | Main Gate Pond | E564379,N96110271 | Total Coliform Organisms-1090000 | 10,000counts/100mL |
| O2 January 2020 | Plant RO Water | - | TSS- 103 | 100 mg/l |
| O2 January 2020 | Plant RO Water | - | Colour-3500 | 200 TCU |
| O2 January 2020 | Plant RO Water | - | Total Coliform Organisms-5700000 | 10,000counts/100mL |
| O2 January 2020 | H 05 | E567585,N9609246 | Colour- 88.0 | 1.5-50 TCU |
| O2 January 2020 | H 05 | E567585,N9609246 | BOD- 16.0 | 6.0 – 6.0 |
| O2 January 2020 | Biringi Well | - | Colour-104 | 1.5-50 TCU |
| O2 January 2020 | Biringi Well | - | Barium- 1.2 | 1.0 Mg/l |
| O2 January 2020 | Biringi Well | - | Manganese- 0.85 | 0.1 – 0.5 Mg/l |
| Q3 | | | | |
| 13 May 2020 | Nhumbu Dam | E557011,N9612840 | Iron Total - 4.7 | 1 mg/l |
| 13 May 2020 | Alamas Dam | E572612,N9612279 | pH- 8.6 | 6.5-8.5 |
| 13 May 2020 | Alamas Dam | E572612,N9612279 | Iron Total – 3.2 | 1 mg/l |
| 13 May 2020 | Songwa Dam | E559906,N9611039 | Iron Total – 1.6 | 1 mg/l |
| 13 May 2020 | Kawawa Pond | E566468,N9610186 | Total Coliform Organisms-43000 | 10,000counts/100mL |
| 13 May 2020 | Recovery Dam 02 | E568651,N9609735 | pH- 9.5 | 6.5-8.5 |
| 13 May 2020 | Mine Cresent Pond | E565038,N9610722 | Total Coliform Organisms -30000 | 10,000counts/100mL |
| 13 May 2020 | Main Gate Pond | E564379,N96110271 | Total Coliform Organisms-51000 | 10,000counts/100mL |
| 13 May 2020 | Plant RO Water | - | Colour-1580 | 1.5-50 TCU |
| 13 May 2020 | Plant RO Water | - | Total Coliform Organisms-49000 | 10,000counts/100mL |
| 13 May 2020 | H 05 | E567585,N9609246 | Colour-64.0 | 1.5-50 TCU |
| Q4 | | | | |
| 24th June 2020 | Alamas Dam | E572612,N9612279 | pH- 8.9 | 6.5-8.5 |
| 24th June 2020 | Songwa Dam | E559906,N9611039 | Iron Total – 1.6 | 1 mg/l |
| 24th June 2020 | Kawawa Pond | E566468,N9610186 | Total Coliform Organisms-43000 | 10,000counts/100mL |
| 24th June 2020 | Recovery Dam 02 | E568651,N9609735 | pH- 8.8 | 6.5-8.5 |
| 24th June 2020 | Recovery Dam 02 | E568651,N9609735 | TSS -266 | 100 mg/l |
| 24th June 2020 | Recovery Dam 02 | E568651,N9609735 | Sulphate -683 | 500 mg/l |
| 24th June 2020 | Recovery Dam 02 | E568651,N9609735 | Colour -307 | 300 TCU |
| 24th June 2020 | Recovery Dam 02 | E568651,N9609735 | Total Coliform Organisms-10200 | 10,000counts/100mL |
| 24th June 2020 | Plant RO Water | - | Total Coliform Organisms-18900 | 10,000counts/100mL |

# Groundwater Quality

The standard against which groundwater quality is measured, as well as the monitoring frequency is of concern in this section:

* **Ground water monitoring was not conducted.**

|  |  |
| --- | --- |
| Standard: THE ENVIRONMENTAL MANAGEMENT (WATER QUALITY STANDARDS) REGULATIONS, 2007 | Frequency: Quarterly or when need arises. |

Table 17: Groundwater Quality Non-conformances

# Air Quality

Monitoring details for fall-out dust, PM₁₀ and PM₂,₅ sampling are recorded in this section.

Standard against which each element is measured, as well as the monitoring frequency:

|  |  |  |
| --- | --- | --- |
| **Element:** | **Standard** | **Frequency** |
| **Dust Fall-Out:** | 10mg/m3 | Annually |
| **PM₁₀** | 0.1ppm | Annually |
| **PM₂,₅** | 0.1ppm | Annually |

Table 18: Air Quality Monitoring Non-conformances

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sampling Date | Monitoring Point Name/ID | Dust Fall-Out Rate | **PM₁₀** | **PM₂,₅** |
|  |  |  |  |  |
|  |  |  |  |  |

# Environmental Noise

Standard against which environmental noise is measured, as well as the monitoring frequency:

|  |  |
| --- | --- |
| Standard: 85dB | Frequency: Monthly or when need arises |

* Noise monitoring was conducted for Q1 and Q2 Only.

Table 19: Environmental Noise Monitoring Non-conformances

|  |  |  |  |
| --- | --- | --- | --- |
| Sampling Date | Monitoring Point ID/Name | Noise Level | Details of Non-conformance |
| Q1 | | | |
| 23.08.2019 | NUMBU PUMP STATION | 97.6 dB | Exceeded noise level by 12.6 dB |
| 23.08.2019 | SONGWA PUMP STATION | 90 dB | Exceeded noise level by 5 dB |
| 23.08.2019 | SLIMES DAM PHASE 1 PUMP STATION | 90.2 dB | Exceeded noise level by 5.2dB |
| 23.08.2019 | NEW ALMAS PUMP STATION | 94.8 dB | Exceeded noise level by 9.8 dB |
| 23.08.2019 | WATER DISTRIBUTION CENTRE PUMP STATION | 91.8 dB | Exceeded noise level by 6.8 dB |
| 23.08.2019 | WATER TREATMENT AREA | 91.8 dB | Exceeded noise level by 6.8 dB |
| 25.09.2019 | WORKSHOP(Drilling Machine2 area) | 90.3 dB | Exceeded noise level by 5.3 dB |
| 25.09.2019 | WORKSHOP ( Bench Grinder Machine 2) | 86.4 dB | Exceeded noise level by 1.4 dB |
| Q2 | | | |
| 27.12.2019 | MMP 2 Scrubber | 86.5 | Exceeded standard by 1.5dB |
| 27.12.2019 | MMP 2 Scrubber screen | 90.5 | Exceeded standard by 5.5dB |

# PERFORMANCE

This section seeks to describe the progress made by organisation regarding their physical performance in the implementation of sound environmental management principles. Units specified for each element to be reported on, are crucial for performance monitoring.

# Production

Most consumption figures will be normalised by using the organisation’s official production figures (tonnes treated)

Table 20: Production figures

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Element** | **Unit** | **This Period** | **Previous Period** | **% Deviation** | **Reason**  **If ≥ 20%** |
| **Ore Treated ROM** | Tonnes | 3980438 | 5082319 | 21.6806 | Few tonnes were treated |
| **Ore Treated From Dumps** | Tonnes | 302166.50 | 413151 | 26.863 | Few tonnes were treated |
| **Total Production** | Tonnes | 4282604.50 | 5495470 | 22.0703 | Few tonnes were treated |
| **Overburden Moved** | Tonnes | 134614.94 | 133536 | -0.8079 |  |
| **Waste tonnes hoisted** | Tonnes | 2373731.00 | 2568589 | 7.5862 |  |
| **Carats Recovered** | Carats | 297966.50 | 399615 | 25.4366 | Few tonnes were treated |

# Land Management

This section indicates the progress towards concurrent rehabilitation as implemented via the Mine Rehabilitation and Closure Focus area. The figures provided must correlate with the period being reported on.

Table 21: Concurrent Rehabilitation figures

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Concurrent Rehabilitation Status** | **Unit** | **This Period** | **Previous Period** | **% Deviation** | **Reason**  **If ≥ 20%** |
| **Total Area Disturbed:** | ha | 696.99 | 690.2786 | -0.9723 |  |
| **Total Area Considered Rehabilitated during the Reporting Period:** | ha | 5.85 | 18.46 | 68.3099 | Small area was rehabed |
| **Cumulative Area Considered as Rehabilitated:** | ha | 405.47 | 399.619 | -1.4641 |  |
| **Cumulative Area Undergoing Rehabilitation:** | ha | 0 | 0 | 0 |  |
| **Total Area Still Requiring Rehabilitation:** | ha | 291.52 | 290.6596 | -0.296 |  |

# Water Management

Used to determine legal compliance and environmental performance in terms of water abstraction and consumption

* Permitted (licensed) maximum volumes of water per source are indicated below:

|  |  |
| --- | --- |
| **Water Source** | **Maximum Licensed Volume in m³ per Annum** |
| **Abstraction from Surface Water Bodies** | Nhumbu Dam 16,370 m³/day = 5,975,050 m³/Annum  Songwa Dam 7500 m³/day = 2,737,500m³/Annum  Alamasi Dam 3000 m³/day = 1,095,000m³/Annum |
| **Abstraction from Groundwater (Boreholes)** | N/A |
| **Underground Dewatering** | N/A |
| **Potable Water** | 374,574 |

Table 22: Water Consumption figures

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Water Source** | **Unit** | **This Period** | **Previous Period** | **% Deviation** | **Reason**  **If ≥ 20%** |
| **Off- Mine Potable Water Consumption** | **m³** | 1449634 | 37320 | -3784.3355 |  |
| **On Mine Potable Water Consumption** | **m³** | 1789125 | 4947634 | 63.8388 | Reduction of water usage |
| **Raw Water** | **m³** | 4433648 | 4334680 | -2.2832 |  |
| **New water intake** | **m³** | 6222773 | 9282314 | 32.9609 | Reduction of water usage |
| **Re-Used / Recycled Water** | **m³** | 17583287 | 16897559 | -4.0581 |  |
| **Underground Dewatering water used in mining circuit** | **m³** | 0 | 0 | 0 |  |
| **Underground Dewatering water NOT used in mining circuit** | **m³** | O | 0 | 0 |  |
| **Total Water Use on Mine** | **m³** | 6222773 | 26179873 | 76.2307 | Reduction of water usage |
| **Water use efficiency (Total water use per ton treated)** | **m³/t** | 1.45 | 4.7639 | 69.5627 | Reduction of water usage |
| **Percentage recycled water** | **%** | 73.86 | 64.54 | -14.4406 |  |
| **Rainfall** | **mm** | 808.10 | 485.90 | -66.3099 |  |
| **PROGRESS ON GROUP IMPROVEMENT STRATEGIES** | **Unit** | This Period | KPI | Reason if KPI is not met | |
| **Percentage change in total water use per ton treated (as compared to KPI value)** | **%** | -13% | **1% reduction YOY** |  | |
| **Change in percentage recycled/re-used water (as compared to KPI value)** | **%** | 8.32 | **1% reduction YOY** |  | |

# Effluent Management

Permitted (Licensed) maximum discharge volume per discharge point:

|  |  |
| --- | --- |
| Discharge Point | Maximum Licensed Volume per Annum(m³) |
| **Effluent discharged to surface water bodies** | 0 |
| **Effluent discharged to a purification works** | 7,199,280 annually |

Table 23: Effluent Volumes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Effluent Volumes | Unit | This Period | Previous Period | % Deviation | Reason  If ≥ 20% |
| Effluent Discharged to Surface Water Bodies | m³ | 0 | 0 | 0 |  |
| Effluent Discharged to a Purification Works | m³ | 7199280 | 7199280 | 0 |  |

# Energy Management

Energy use is the most important factor contributing to an organisation’s carbon footprint and must be carefully monitored and managed.

Table 24: Energy Consumption

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Energy Source | Unit | This Period | Previous Period | % Deviation | Reason  If ≥ 20% |
| Diesel for Vehicles | Litre | 4451842 | 5865874 | 24.1061 | Low Diesel consumption due to seizing of Production |
| Diesel for vehicles (TMM) per ton treated | Litre/t | 1.04 |  |  |  |
| Diesel for Generation of Electricity | Litre | 58780.10 | 189338 | 68.9549 | Low consumption due to seizing of Production |
| Total Diesel Consumption | Litre | 4510622.10 | 6055212 | 25.508 | Low fuel consumption due to seizing of Production |
| Electricity Generated | kWh | 181865 | 583613 | 68.8381 | Low energy consumption due to seizing of Production |
| Electricity Purchased | kWh | 44695725.54 | 51050852 | 12.4486 |  |
| Total electricity use | kWh | 44877590.54 | 51634465 | 13.0856 |  |
| Electricity use per tonne treated | kWh/t | 65.23 | 9.40 | -593.936 |  |
| Petrol | Litre | 16063.29 | 16693.14 | 3.7731 |  |
| LPG[[2]](#footnote-2) | kg | 360 | 255 | -41.176 |  |
| PROGRESS ON GROUP IMPROVEMENT STRATEGIES | Unit | This Period | Previous period | KPI | Reason if KPI is not met |
| Percentage change in Electricity use per tonne treated as compared to KPI value | % | 601.40% | 4% | **1% YOY reduction** |  |
| Percentage change in diesel use (TMM) as compared to KPI value | % | -1.56% |  | **1% YOY reduction** |  |

# Materials Consumption

Table 25: Materials Consumption

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Material | Unit | This Period | Previous Period | % Deviation | Reason  If ≥ 20% |
| Calcium Carbonate | kg | 64950 | 95500 | 31.9895 | Low use and purchase of materials |
| Calcium Chloride | kg | 0 | 0 | 0 |  |
| Ferrosilicon | t | 261 | 261.6 | 0.2294 |  |
| Ferrosilicon per tonne treated | t/t | 60.94 | 47.60 | -28.0252 |  |
| Flocculants | kg | 300500 | 395500 | 24.0202 | Low use and purchase of materials |
| Grease | kg | 4340 | 7700 | 43.6363 | Low use and purchase of materials |
| Oils & Hydraulic Fluids | Litre | 20947 | 26977 | 22.3523 | Low use and purchase of materials |
| Oils & Hydraulic Fluids per tonne treated | l/t | 0.00 | 0.00 | 0 |  |
| Paper Bought[[3]](#footnote-3) | kg | 1650 | 2183 | 24.4159 | Low use and purchase of materials |
| Sodium Nitrate | kg | 0 | 0 | 0 |  |
| Sodium Nitrite | kg | 0 | 0 | 0 |  |
| Steel | t | 370 | 348.5 | -6.1693 |  |
| Timber | t | 0 | 0 | 0 |  |
| Oxy-acetylene | kg | 10378.2 | 9054.6 | -14.6179 |  |
| Trichloroethylene[[4]](#footnote-4) (TCE) | Litre | 893.00 | 1474.74 | 39.4469 | Low use and purchase of materials |

# Waste Management

Table 26: Waste Figures

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Waste Generated | Unit | This Period | Previous Period | % Deviation | Reason  If ≥ 20% |
| Mine Waste | | | | | |
| Fine (slimes) | tonnes | 2032073 | 2007139 | -1.2423 |  |
| Coarse (tailings) | tonnes | 1722843 | 1747875 | 1.4321 |  |
| Waste Disposal | | | | | |
| Hazardous Waste Disposed | tonnes | 0 | 0 | 0 |  |
| Domestic Waste Disposed | tonnes | 2279.95 | 2252.523 | -1.2176 |  |
| Total waste to landfill | tonnes | 2279.95 | 2252.523 | -1.2176 |  |
| Recycling | | | | | |
| Cardboard / Paper | tonnes | 0 | 0 | 0 |  |
| Conveyor Belting | tonnes | 0 | 0 | 0 |  |
| E-waste | tonnes | 0 | 0 | 0 |  |
| Lead Acid Batteries | tonnes | 0.14 | 0.312 | 55.1282 | Low use and purchase of materials |
| Plastic | tonnes | 0 | 0 | 0 |  |
| Scrap Metal | tonnes | 113.16 | 178.69 | 36.6724 | Low use and purchase of materials |
| Timber | tonnes | 0 | 9.5 | 100 | Low use and purchase of materials |
| Toner / Ink Cartridges | tonnes | 2.05 | 0.0186 | -10921.505 |  |
| Tyres | tonnes | 6.09 | 3.78 | -61.1111 |  |
| Used Oil | tonnes | 8.53 | 8.15382 | -4.6135 |  |
| Total Waste Recycled | tonnes | 129.97 | 200.45442 | 35.1623 | Low use and purchase of materials |
| Waste Incineration | | | | | |
| Medical Waste | tonnes | 9.30 | 8.74805 | -6.3094 |  |
| Other Waste | tonnes | 0.62 | 0.733 | 15.4161 |  |
| Total Waste Incinerated[[5]](#footnote-5) | tonnes | 9.92 | 9.48105 | -4.6297 |  |
| Total waste generated | tonnes | 2419.84 | 2462.45847 | 1.7307 |  |
| PROGRESS ON GROUP IMPROVEMENT STRATEGIES | Unit | This Period | Previous period | KPI | Reason if KPI is not met |
| Percentage change in total tonnage of waste to landfill (general and hazardous) as compared to KPI value | tonnes | 2.24% | **1% YOY reduction** |  |  |

# Biodiversity Management

Table 27: Biodiversity Figures

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Unit** | **This Period** | **List/Detail** |
| **Total Protected Area[[6]](#footnote-6)** | **ha** | 906 |  |
| **Number of Invasive Plant Species** | **No.** | 34 | Agave sisalana, Albizia lebbeck, Aloe lateritia, Annona muricata, Azidarachta indica, Bambusa vulgaris, Bauhinia monandra, Bougainvillea glabra, Callistemon lanceolatus, Cassuarina litorea, Ceiba petandra, Cenna |
| **Number of Red Data Flora Species[[7]](#footnote-7)** | **No.** |  |  |
| **Number of Red Data Fauna Species[[8]](#footnote-8)** | **No.** |  |  |

Note the dates of most recent surveys as well as responsible specialists:

|  |  |  |
| --- | --- | --- |
| Type of survey/study | Date | Responsible specialists |
| Land Function Analysis | 25 March – 30 March | Petra Rehabilitation and Mine closure specialist. Study cancelled to Covid 19 |

# Ozone Depleting Substance

This data is required for the carbon footprint calculation

Table 28: Ozone Depleting Substances

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Substance** | Unit | **This Period** | **Previous Period** | **% Deviation** | **Reason**  **If ≥ 20%** |
| **1,1,1-trichloroethane (TCA)** | kg | 0 | 0 | 0 |  |
| **Carbon Tetrachloride (CTC)** | kg | 0 | 0 | 0 |  |
| **Halon** | kg | 0 | 0 | 0 |  |
| **Methyl Bromide** | kg | 0 | 0 | 0 |  |
| **R 134a** | kg | 0 | 1.5 | 100 | Low use and purchase of materials |
| **R 410** | kg | 6.00 | 0 | ∞ |  |
| **R 507** | kg | 0 | 0 | 0 |  |
| **Other: (e.g. R404)** | kg | 0 | 0 | 0 |  |
| **Total Ozone depleting substances** | kg | 6.00 | 51.68 | 88.39 | Low use and purchase of materials |
| **R 22** | kg | 18.10 | 50.18 | 63.9299 | Low use and purchase of materials |

# Carbon Emissions

As Petra Diamonds follows a centralised approach based on the GHG Protocol principles for the gathering of information on its GHG emissions, the organisational carbon footprints are calculated at Group level by the Group HSEQ Data Analyst and Reporting Coordinator. Emission calculations are thus standardised across all the organisations, but based on data and information supplied by the organisations. The organisational reporting of verified, accurate and reliable data and information is key in this process. Petra Diamonds have decided on a materiality threshold of 10 %. All GHG emission calculations and reporting are based on the GHG Protocol principles of relevance, completeness, consistency, transparency and accuracy. To ensure compliance to these principles, a third party audit is conducted annually. Petra Diamonds account for and report on the emissions of Carbon dioxide (CO2), Methane (CH4), Nitrous oxide (N2O), Hydrofluorocarbons (HFCs).

The following Scope 1, Scope 2 and Scope 3 GHG emissions are accounted for and reported on:

Scope 1: Direct emissions from

Mobile combustion (Diesel and petrol use for company owned/controlled vehicles; jet fuel use for company owned jet); Stationary combustion (Diesel use for generation of electricity; combustion of LPG in workshops); Fugitive hydrofluorocarbon (HFC) emissions from air conditioning; Process emissions from effluent treatment at treatment plants under direct control of a mine.

Scope 2: Indirect emissions through electricity purchased from

ESKOM in SA, Tanesco in Tanzania.

Scope 3: Indirect emissions from

Business travel (employee commute, car hire, business flights-air lines and chartered aeroplanes); Paper use; Waste disposed to landfill (general, hazardous, non-biomass); Scrap metal for recycling;

Potable water use (pumping)

R-22 is reported on separately as required by the GHG protocol. (Must be phased out by 2020 as per Montreal Protocol requirement).

All GHG emissions related information, as required by the GHG Protocol, will be reported on in the Annual GHG Emissions Report for Petra Diamonds - FY 2020. This report will be published on SharePoint.

The KPI for Petra Diamonds is that all organisations will implement strategies or measures to reduce their annual emissions per carat (tCO₂ e/Ct) by 1% per annum.

# PROJECTS AND ACHIEVEMENTS

This section is used to describe all current projects and findings of completed projects, as well as any achievements or awards relevant to Environmental Management.

# Research Projects

Please note any research that the organisation plans to do or is busy with.

|  |  |
| --- | --- |
| **Project Description** | Plastic waste baling |
| **Service Provider** | WDL |
| **Planned Outcome** | Control of plastic waste at WDL |
| **Inception Date** | 25/09/2017 |
| **Planned Due Date** | On going |
| **Progress** | On going |
| **Actual Outcome** | Easy control of waste’s volume through Plastic waste baling |

# Energy Efficiency Projects

Energy efficiency is a high level priority area within Petra. The organisations are encouraged to implement measures to save energy such as electricity and diesel on a Gross scale or to use these resources more efficiently where gross reductions are not feasible.

|  |  |
| --- | --- |
| **Project Description** | NONE |
| **Service Provider / Project Manager** | N/A |
| **Planned Outcome** | N/A |
| **Inception Date** | N/A |
| **Planned Due Date** | N/A |
| **Progress** | N/A |
| **Actual Outcome** | N/A |

# Consumption Reduction Plans

Please note any other reduction programmes or plans implemented during the reporting period.

|  |  |
| --- | --- |
| **Project Description** | NONE |
| **Service Provider / Project Manager** | N/A |
| **Planned Outcome** | N/A |
| **Inception Date** | N/A |
| **Planned Due Date** | N/A |
| **Progress** | N/A |
| **Actual Outcome** | N/A |

# Achievements

Please specify any achievements or awards received by the organisation during the reporting period.

* No major environmental incident was reported during the reporting period
* Submission of final draft of the Mine Closure Plan to Ministry of Minerals, NEMC and other relevant authorities.
* Donation of about 40,940 seedlings to different institutions both government, non-government and individuals. Also 5,900 Seedlings were planted along side roads and open spaces as part of mine camp rehabilitation plan making total number of seedlings for the whole year 46,840.
* Introduction of ISO 14001: 2015 by HSEQ.
* Lucina seedlings were planted along the toe of the Dry Stack Tailings to stabilize the wall and Seeds of water reeds were planted at the Fine Residue Slimes Dam to stabilize the wall and filter the water.
* A total of 5.85ha of alluvial mined out area was levelled as part of concurrent rehabilitation and 2700 timbers seedlings were planted as a trial project.
* WDL authorized by Ministry of Minerals and NEMC to construct coarse residue conveyor belt from treatment plant to the proposed eastern dumping site.
* WDL authorized by Ministry of Minerals, Ministry of water and NEMC to extend fine residue slimes facility on phase II.
* Completion and Submission of Third Party Environmental report to National Environmental Management Council (NEMC).
* Second vice president of Zanzibar visited Mwadui Tree Nursery.
* Successful completion of rabies vaccination of Dogs nurtured at the mine camp, a total number of 123 Dogs were vaccinated.
* Completion of survey for drilling six (6) monitoring boreholes at Dry Stack Tailing new disposal site as recommended by NEMC
* Successfully completion of Water sampling and analysis for all Q1, Q2, Q3 and Q4.

1. Record value of standard [↑](#footnote-ref-1)
2. Note Only LPG used for energy purposes (e.g. cooking, furnace), not cutting [↑](#footnote-ref-2)
3. Required for Carbon Footprint calculation [↑](#footnote-ref-3)
4. Chemical used for belt splicing or as degreasing agent (neat or as a component of a product), also known as “trichlor”. Carcinogenic [↑](#footnote-ref-4)
5. Include explosive boxes [↑](#footnote-ref-5)
6. e.g. game Farms [↑](#footnote-ref-6)
7. Confirmed species only [↑](#footnote-ref-7)
8. Confirmed species only [↑](#footnote-ref-8)