

# **Karara Mining Limited**

## **Environmental Procedure - Surface Water Management**

CORP-EN-PRO-1011

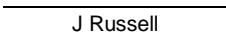
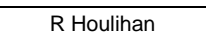
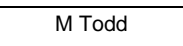
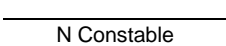
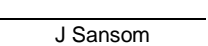
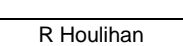



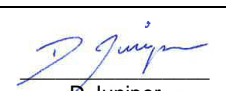
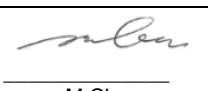
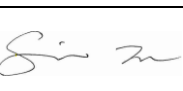
24 February 2023

## SYNOPSIS

*“This Surface Water Management procedure forms part of Karara Mining Limited Corporate Standards and describes the procedures specification that shall be used for all works within Karara Mining Limited.”*

### Disclaimer

*“This document has been prepared by Karara Mining Limited for their exclusive use (“the Purpose”). Use of this document other than for the Purpose is not permitted.”*

CORP-EN-PRO-1011- KARARA ENVIRONMENTAL PROCEDURE					
REV	DESCRIPTION	ORIG	REVIEW	APPROVER	DATE
0	Issued for Use	 J Russell	 R Houlihan	 M Todd	25-May-12
1	Reissued for Use	 N Constable	 J Sansom	 R Houlihan	20-Dec-16
2	Reissued for Use	 A Freeman	 R Houlihan	 C Paton	26-Mar-21
3	Reissued for use	 D Juniper	 M Chen	 G Trench	24-Feb-23

## TABLE OF CONTENTS

1	PURPOSE AND SCOPE .....	1
1.1	Objectives.....	1
2	Definitions .....	2
3	Planning .....	3
3.1	Legal and Other .....	3
3.2	Roles and Responsibilities .....	3
3.3	Competence, Training and Awareness .....	5
4	Implementation and Operation .....	6
4.1	Management of Water Quality .....	6
4.1.1	Sediment and Erosion Management.....	6
4.1.2	Hazardous Materials .....	6
4.1.3	Treatment of Potentially Hydrocarbon Contaminated Water .....	6
4.1.4	Treated Wastewater Discharge.....	7
4.1.5	Turkey’s Nest Water Used for Dust Suppression .....	8
4.1.6	Watercourses and Surface Water Flows .....	8
5	Checking .....	9
5.1	Hazard and Incident Reporting .....	9
5.1.1	Remedial Actions .....	9
5.2	Control of Records .....	9
5.3	Audits and Inspection .....	9
6	Documents List .....	10
7	References.....	11

## LIST OF TABLES

Table 1: Definitions .....	2
Table 2: Roles and Responsibilities .....	3
Table 3: Indicative discharge criteria for water treated to remove hydrocarbons .....	7
Table 4: Documents .....	10

## 1 PURPOSE AND SCOPE

This procedure specifies the requirements for the management of surface water at the Greater Iron Ore Karara Project (the Project). It will apply to the Project, which consists of all mining and processing activities along with associated infrastructure including haul roads, the railway line, the 330kV power line and the below ground raw water pipeline.

Water management controls required to be incorporated during detailed plant design are listed in Greater Karara Project Legal and Other Requirements Register (CORP-EN-REP-1001) and are not covered by this procedure.

### 1.1 Objectives

The objectives of this procedure are to:

- Outline the operational management measures that should be implemented to prevent and minimise surface water contamination;
- Outline the process of selecting and establishing sediment and erosion controls;
- Assess monitoring results to detect trigger and threshold criteria's prior to adverse impacts on ecological receptors; and
- Highlight the environmental response actions to be implemented when trigger or threshold criteria are detected to prevent future water quality decline.

This procedure supports the Environmental Management Plan (CORP-EN-PLN-1020). Compliance with this procedure and supporting documentation is mandatory and is applicable to all KML's employees and Contractors.

## 2 DEFINITIONS

*Table 1: Definitions*

Term	Definition
AER	Annual Environmental Report
ARI	Average Recurrence Interval
BTEX	Benzene, toluene, ethyl benzene, xylene
HST	Health, Safety and Training
KML	Karara Mining Limited
PER	Public Environmental Review
Shall	Indicates a mandatory requirement that must be complied with
The Project	Greater Karara Iron Ore Project
TDS	Total Dissolved Solids
TN	Turkey's Nest
WA	Western Australia
WQPN	Water Quality Protection Note
WWTP	Wastewater Treatment Plant

### 3 PLANNING

#### 3.1 Legal and Other

This Surface Water Management procedure ensures that control measures are implemented in accordance to legally binding commitments made in the Greater Karara Iron Ore Project Public Environmental Review (PER) in support of Ministerial Statements 805, 806, 968 and the following legislation:

- *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)*
- *Environmental Protection Act 1986 (WA)*
- *Conservation and Land Management Act 1984 (WA)*
- *Rights in Water and Irrigation Act 1914 (WA)*
- *Biodiversity Conservation Act 2016 (WA)*
- *Mining Act 1978 (WA).*

#### 3.2 Roles and Responsibilities

All KML employees and Contractors shall ensure compliance by implementing this procedure. The main body of this procedure should be referred to where clarification is required. Table 2 highlights roles and responsibilities.

**Table 2: Roles and Responsibilities**

Role	Responsibility
<i>KML Environment Department</i>	<ul style="list-style-type: none"> <li>• Provide environmental advice and assistance to personnel as required.</li> <li>• Coordinate the delivery of environmental training to key personnel.</li> <li>• Liaise with supervisors and managers to identify and rectify environmental issues associated with day-to-day operations and commissioning activities.</li> <li>• Implement environmental inspection and audit schedule onsite and oversee closeout of associated corrective actions.</li> <li>• Facilitate site based environmental monitoring.</li> <li>• Investigate environmental incidents and co-ordination of completing corrective actions, as required.</li> </ul>

Role	Responsibility
	<ul style="list-style-type: none"> <li>• Facilitate environmental data provision by line managers / supervisors for environmental compliance reporting.</li> <li>• Maintain all monitoring equipment and documentation (hard copy files and/or electronic files) for auditing purposes.</li> <li>• Monitor compliance with this procedure through its environmental audit and inspection program.</li> <li>• Conduct additional testing if needed following visual inspections.</li> </ul>
<p><i>KML General Manager – Health, Safety, Environment and Community</i></p>	<ul style="list-style-type: none"> <li>• Overall responsibility for development, implementation, maintenance and compliance with this procedure</li> <li>• Report to Senior Management on matters of environmental compliance.</li> <li>• Overall responsibility to ensure that KML can meet its environmental objectives and targets in relation to Surface water management</li> <li>• Provide advice and support to the Area Managers to ensure compliance with legal requirements, achievement of environmental objectives and improving environmental performance.</li> </ul>
<p><i>All KML Employees and Contractors</i></p>	<ul style="list-style-type: none"> <li>• Chemicals, fuel and other hydrocarbons shall be stored in accordance with the Safety Standard - Storage and Use of Hazardous Substances Standard (CORP-HS-STD-1042).</li> <li>• Equipment servicing shall take place in designated sheltered areas where possible. Field servicing shall be undertaken in a manner that facilitates containment of all hydrocarbons and chemicals.</li> <li>• All wash down facilities shall comply with the requirements of the Water Quality Protection Note (WQPN) 68 Mechanical Equipment Wash-down (Department of Water, 2013).</li> <li>• Any water that is potentially contaminated with hydrocarbons shall be passed through a suitable device to remove the hydrocarbons.</li> <li>• Treated water shall be transferred to an evaporation pond or used for dust suppression purposes.</li> </ul>

Role	Responsibility
	<ul style="list-style-type: none"> <li>• Treated water used for dust suppression shall be tested, prior to the first use and monthly thereafter, to ensure it is within the limits outlined in Table 3 prior to discharge.</li> <li>• Watercourses shall not be crossed unless specific authorisation is provided via an authorised Ground Disturbance Permit.</li> <li>• Relevant personnel shall ensure an adequate inspection/audit program is in place to manage compliance with this procedure. Evidence is to be submitted to the KML Environment Department.</li> <li>• Non-compliance with this procedure shall be reported as an incident in accordance the Safety Procedure - Incident Management Procedure (CORP-HS-PRO-1046).</li> </ul>

**3.3 Competence, Training and Awareness**

In accordance with the KML HSE Training and Induction CORP-HS-PRO-1001 all KML Personnel, Contractors and Sub-Contractors must undertake the mandatory inductions prior to commencing work on site. Information on the management of surface water and on site reporting requirements are detailed in KML’s online and site specific inductions.

The following requirements shall be met for all personnel working on the Project:

- All personnel shall undergo awareness training for water management;
- All personnel involved in soil stripping and stockpiling shall undergo Ground Disturbance (GD) training prior to the commencement of ground disturbing works in accordance with Environmental Procedure – Approvals Request and Ground Disturbance (CORP-EN-PRO-1004) and GD permit requirements;
- Surface water management awareness programs shall be displayed in key viewing areas at site (e.g. kitchen mess areas and workshops); and
- Toolbox meetings will provide a forum at which site personnel can raise environmental queries or concerns including issues relating to water quality and discharges.

The KML HST Department maintains KML’s training management system which ensures KML employee and Contractor induction and training requirements.

## 4 IMPLEMENTATION AND OPERATION

This section outlines the minimum requirements for all relevant KML personnel and Contractors to manage surface water within the Project. The objectives are to ensure mining related activities do not impede the natural flow of surface water (where practicable), does not contaminate surface water quality and that compliance with regulatory requirements is maintained.

### 4.1 Management of Water Quality

#### 4.1.1 Sediment and Erosion Management

KML personnel and Contractors shall ensure the following requirements are met:

- Water released from active mining and operations areas, including borrow pits, shall be discharged via sediment reduction controls such as sedimentation ponds;
- Post heavy rainfall events that generate major surface runoff (i.e. a storm event with rainfall totals of a 1 in 20 year average recurrence interval (ARI)) a site inspection will be conducted to identify any erosion and ensure all erosion and sediment control structures are intact; and
- During clearing of undulating areas, windrows will be placed along contours to reduce the velocity of water flows and minimise the potential risk of erosion.

#### 4.1.2 Hazardous Materials

KML personnel and Contractors shall ensure the following requirements are met:

- Hazardous chemicals, fuel and other hydrocarbons shall be stored in accordance with the Standard - Storage and Use of Hazardous Substances Standard (CORP-HS-STD-1042); and
- Equipment servicing shall take place in designated sheltered areas where possible. Field servicing shall be undertaken in a manner that facilitates containment of all hydrocarbons and chemicals.

#### 4.1.3 Treatment of Potentially Hydrocarbon Contaminated Water

KML personnel and Contractors shall meet the following requirements:

- All wash down facilities shall comply with the requirements of the Water Quality Protection Note (WQPN) 68 Mechanical Equipment Wash-down (Department of Water, 2013);

- Any water that is potentially contaminated with hydrocarbons shall be passed through a suitable device to remove the hydrocarbons. Treated water shall be transferred to an evaporation pond or used for dust suppression purposes upon approval from KML Environment Department; and
- Treated water used for dust suppression shall be sampled and analysed in accordance with the Environmental Procedure - Surface Water Sampling (CORP-EN-SWP-017) to ensure discharges comply with the relevant set of discharge limits, prior to the first use and monthly thereafter, to ensure it meets the discharge criteria outlined in Table 3 below prior to discharge. Additional sampling and analysis shall be conducted following visual inspections or on request by the KML Environment Department.

**Table 3: Indicative discharge criteria for water treated to remove hydrocarbons**

Measured Component	Discharge Limits
pH	Between 5.5 to 8.5
TDS	<15,000 mg/l
Surfactants (detergents)	5 mg/L (maximum)
Petroleum hydrocarbons	15 mg/L (maximum)
Benzene, toluene, ethyl benzene, xylene (BTEX)	10 ug/L (cumulative maximum)
Other toxic soluble contaminants	Ten times the guideline criteria or investigation trigger for local values as published in the <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000</i>

Sourced from WQPN 68 Mechanical Equipment Wash-down (Department of Water, 2013)

#### 4.1.4 Treated Wastewater Discharge

Treated wastewater from the Project’s Wastewater Treatment Plants (WWTP’s) shall be disposed through discharge on designated spray fields or by alternative means approved by the Department of Health. Regular sampling and monitoring of treated wastewater shall be undertaken in accordance with the Environmental Procedure - Waste Water Treatment Plant Discharge Sampling and Monitoring (CORP-EN-PRO-1019) to ensure discharges comply with the relevant set of discharge limits for the WWTP.

#### **4.1.5 Turkey's Nest Water Used for Dust Suppression**

Water used on site for dust control is taken from designated turkey's nests, standpipes depending on the location of use as shown in Figure 7 of the KML Dust Management Plan (CORP-EN-PLN-1010). The areas around site where water from the different sources can be used is based on Total Dissolved Solids (TDS) quality, only water of less than 15,000 TDS can be used near vegetation or topsoil stockpiles.

#### **4.1.6 Watercourses and Surface Water Flows**

KML personnel and Contractors shall ensure the following requirements are met:

- No new watercourse crossings shall be constructed unless specific authorisation is provided via an authorised Ground Disturbance Permit, issued by the KML Environment Department;
- Culverts shall be placed under roads, embankments and formations to permit free flow of drainage water and to assist in water shedding;
- Cleared vegetation and topsoil shall be stockpiled away from watercourses and in discrete stockpiles to minimise interference to surface flows; and
- Any temporary watercourse crossings created by relevant personnel and/or Contractors shall be rehabilitated by those parties.

## 5 CHECKING

### 5.1 Hazard and Incident Reporting

Any non-compliance, exceedance of the discharge limits criteria, and/or failure to follow this procedure, shall be reported as an internal incident report to the KML Environment Department. All incidents are documented and investigated in accordance with the Safety Procedure - Incident Management Procedure (CORP-HS-PRO-1046) and documented in INX for tracking and completion of remedial actions.

#### 5.1.1 Remedial Actions

Where an incident report is required for non-compliances, it should at a minimum detail corrective actions and preventative actions, not limited to the following:

- Cease work during adverse weather conditions (that is moderate to heavy rain);
- Pump out and remove from site all and any contaminated water that is not directly linked to a treatment facility;
- Assess level of contamination or erosion, if any, and need for remedial work; and
- Identifying alternative sources of dust suppression water.

### 5.2 Control of Records

All surface water monitoring data is to be stored on the KML Environment Department EMS File site storage system for reporting and auditing purposes (Folder 07).

Monthly internal data reviews are completed by the KML Environment Department which are externally reported within Annual Environmental Reports (AERs) as required.

### 5.3 Audits and Inspection

Contractors shall ensure an adequate inspection/audit program is in place to manage compliance with this procedure. Evidence of compliance shall be provided to the KML Environment Department.

The KML Environment Department shall monitor compliance with this procedure through its environmental audit and inspection program. The findings and actions of internal and external audits and inspections shall be recorded in INX.

## 6 DOCUMENTS LIST

*Table 4: Documents*

Document Title	Document Number
Environmental Management Plan	CORP-EN-PLN-1020
Environmental Waste Management Plan	CORP-EN-PLN-1013
Environmental Plan - Dust Management Plan	CORP-EN-PLN-1010
Environmental Plan – Water Conservation and Efficiency Plan	CORP-EN-PLN-1018
Environmental Procedure - Waste Water Treatment Plant Discharge Sampling and Monitoring	CORP-EN-PRO-1019
Environmental Procedure - Approvals Request and Ground Disturbance	CORP-EN-PRO-1004
Training Procedure – HSE Training and Induction	CORP-HS-PRO-1001
Hazardous Substances Standard	CORP-HS-STD-1042
Incident Management Procedure	CORP-HS-PRO-1046
Environmental Legal and Other Requirements Register	CORP-EN-REP-1001

## 7 REFERENCES

Department of Water (2013), *Water Quality Protection Note 68 Mechanical Equipment Wash-down*. Western Australian Government.