



Government of Western Australia
Department of Environment Regulation

Your ref L5939/1988/11
Our ref DEC67
Enquiries Luke Claessen
Phone 08 9333 7487
Fax 08 9333 7550
Email luke.claessen@der.wa.gov.au

Mr Nick Sibbel
Environmental Approvals Manager
Tronox Management Pty Ltd
PO Box 22
Muchea WA 6501

Dear Mr Sibbel

ENVIRONMENTAL PROTECTION ACT 1986: LICENCE GRANTED

Premises

Tronox Chandala Processing Plant
Lot M1261 on Diagram 5326
Brand Highway, Muchea, WA, 6501
Licence Number: L5939/1988/11

A licence under the *Environmental Protection Act 1986* (the Act) has been granted for the above premises. The Department of Environment Regulation will advertise the issuing of this licence in the public notices section of *The West Australian* newspaper.

The licence includes attached conditions. Under section 58(1) of the Act, it is an offence to contravene a condition of a licence. This offence carries a penalty of up to \$125,000 and a daily penalty of up to \$25,000.

In accordance with section 102(1)(c) of the Act, you have 21 days to appeal the conditions of the licence. Under section 102(3)(a) of the Act, any other person may also appeal the conditions of the licence. To lodge an appeal, contact the Office of the Appeals Convenor on 6467 5190 or by email at admin@appealsconvenor.wa.gov.au.

Where a licence is issued for more than one year it requires payment of an annual fee and will cease to have effect if the fee is unpaid. It is the occupier's responsibility to lodge a fee application and pay the annual fee in sufficient time to avoid incurring a late payment fee and for processing to be completed before the licence anniversary date.

If you have any queries regarding the above information, please contact Luke Claessen on 08 9333 7487.

Yours sincerely

Peter Skitmore
Officer delegated under section 20
of the *Environmental Protection Act 1986*

3 October 2013

cc: Shire of Chittering

WESTERN AUSTRALIA

DEPARTMENT OF ENVIRONMENT REGULATION

Environmental Protection Act 1986

LICENCE

LICENCE NUMBER: L5939/1988/11

FILE NUMBER: DEC67

LICENSEE AND OCCUPIER:

Tronox Management Pty Ltd
1 Brodie-Hall Drive
Bentley WA 6102

NAME AND LOCATION OF PREMISES:

Tronox Chandala Processing Plant
Lot M1261 on Diagram 5326, Brand Highway
Muchea WA 6501

Environmental Protection Regulations 1987

CLASSIFICATION(S) OF PREMISES:

Category: 8 Mineral sands mining or processing

COMMENCEMENT DATE OF LICENCE: Saturday, 05 October 2013

EXPIRY DATE OF LICENCE: Thursday, 04 October 2018

CONDITIONS OF LICENCE:

As described and attached:

DEFINITION(S)

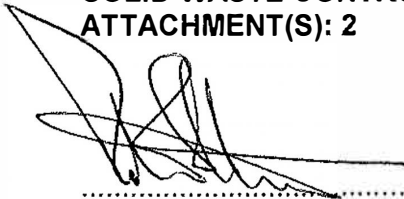
GENERAL CONDITION(S): 4

AIR CONTROL CONDITION(S): 9

WATER CONTROL CONDITION(S): 8

SOLID WASTE CONTROL CONDITION(S): 1

ATTACHMENT(S): 2



Officer delegated under Section 20
of the *Environmental Protection Act 1986*

Date of Issue: Thursday, 03 October 2013

WESTERN AUSTRALIA

DEPARTMENT OF ENVIRONMENT REGULATION

Environmental Protection Act 1986

LICENCE NUMBER: L5939/1988/11

FILE NUMBER: DEC67

PREAMBLE

The following statements in this Preamble either paraphrase Sections of the Environmental Protection Act 1986 or provide relevant background information for the Licensee. They should not be regarded as conditions of licence.

Applicability

This licence is issued to Tronox Management Pty Ltd (ACN 009 343 364) located at Lot M1261 on Diagram 5326, Brand Highway Muchea, Western Australia (Attachment 1) for the operation of synthetic rutile and mineral sands separation plants. This is a prescribed premises within Schedule 1 of the *Environmental Protection Regulations 1987* as outlined in Table 1;

Table 1: Category under which Tronox Management Proprietary Limited – Mineral Sand Project is prescribed.

<i>Category number</i>	<i>Description of category name</i>
8	Mineral sands mining or processing: premises on which mineral sands ore is mined, screened, separated or otherwise processed

Nominal rated throughput

The nominal rated throughput of the premises covered by this licence is as follows:

- Total quantity of mineral processed: 775 000 tonnes per annum
- Total quantity of synthetic rutile produced: 250 000 tonnes per annum

Any increase greater than 10 per cent above the nominal rated throughput shall not occur unless the Licensee has been granted prior approval in writing from the Director.

Emergency, Accident or Malfunction

The Licensee should inform the Director within 24 hours of identifying any unplanned emission which has occurred as a result of an emergency, accident, plant malfunction or extreme weather condition, otherwise than in accordance with any condition of this licence that has caused or is likely to cause pollution.

Alteration to Premises

Prior to making any significant alterations to the premises which may affect the air, water or noise emissions from the premises, the Licensee must submit a proposal to the Director accompanied by supporting information and plans which allow the environmental impact of that change to be assessed.

General Requirements

The following statements reflect important sections of the *Environmental Protection Act 1986* and are included for the information of the Licensee:

- The Licensee should take all reasonable and practicable measures to prevent pollution of the environment.
- Noise emissions from operations on site are required to comply with the *Environmental Protection (Noise) Regulations 1997*.

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- The Licensee should take all reasonable and practicable measures to prevent or minimise the discharge of waste and the emission of noise, odours or electromagnetic radiation from the premises.
- The Licensee should inform the Director at least 24 hours prior to the commencement of any planned non-standard operations, which may have the potential to cause pollution.

CONDITIONS OF LICENCE

DEFINITIONS

In these Conditions of Licence, unless inconsistent with the text or subject matter:

"advise" means advise in writing from time to time by the Director;

"approved" or "approval" means approved or approval in writing from time to time by the Director;

"Director" means Director, Environmental Regulation Division of the Department of Environment Regulation for and on behalf of the Chief Executive Officer as delegated under section 20 of the *Environmental Protection Act 1986*;

"Director" for the purpose of correspondence means-

Regional Leader, Industry Regulation, Swan Region

Department of Environment Regulation

Locked Bag 33

CLOISTERS SQUARE WA 6850

Telephone:

(08) 9333 7510

Facsimile:

(08) 9333 7550

"Inspector" means a person appointed as an Inspector under Section 88 of the *Environmental Protection Act 1986*;

"Licensee" means Tronox Management Pty Ltd;

"premises" means synthetic rutile and mineral sands separation plants located at Lot M1261 on Diagram 5326 Brand Highway Muchea as shown in **Attachment 1**; and

"APHA-AWWA-WEF" means American Public Health Association; American Water Works Association; Water Environment Federation.

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GENERAL CONDITIONS

ANNUAL AUDIT COMPLIANCE REPORT

- G1 The Licensee shall by 15 April each year, provide to the Director an Annual Audit Compliance Report in the form of Attachment 2 to this licence, signed and certified in the manner required by Section C of the form indicating the extent to which the licensee has complied with the conditions of this licence and any previous licence issued under part V of the Act for the premises during the period beginning January 1 the previous year and ending on December 31.

DISCHARGE POINTS

- G2 The Licensee shall ensure that during normal operation, process wastes from the premises, which cause or are likely to cause pollution, are discharged to the environment in the following ways:
- (i) major gaseous emissions through the:
 - kiln exhaust stack (S1);
 - inhouse dedusting plant stack (S2); and
 - dryer stack (S3);
 - (ii) solid wastes generated by the process, in accordance with condition S1 of this licence; and
 - (iii) gases which arise from emergency venting operations shall be discharged through the kiln standby stack (E1).

REPORTING REQUIREMENTS

- G3(a) The Licensee shall provide to the Director a report containing monitoring data as required by any condition of this licence.
- G3(b) The Licensee shall ensure the Annual Environmental Report required by condition G3(a) contains all the monitoring data and other collected data required by any condition of this licence. This report shall cover the previous 12 month period from January 1 to December 31. The report shall be forwarded to the Director no later than 15 April each year.

REPORTING OF EXCEEDED LICENCE LIMITS

- G4(a) The Licensee shall ensure that the Director is notified of any measurement which indicates that any discharge limit specified in these conditions has been exceeded.
- G4(b) The notification shall include:
- (i) the date, time and duration over which the limit was exceeded;
 - (ii) where appropriate, the extent of the discharge over that duration;
 - (iii) reasons for the limit being exceeded;
 - (iv) corrective action taken or planned to mitigate adverse environmental consequences of the discharge; and
 - (v) corrective action taken or planned to prevent a recurrence of the event which led to the limit being exceeded.

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- G4(c) The Licensee shall forward notification, together with any other relevant supporting information to the Director within 2 days of the Licensee becoming aware of the exceedence.

AIR POLLUTION CONTROL CONDITIONS

KILN EXHAUST GAS SCRUBBER - OPERATION REQUIREMENT

- A1(a) The Licensee shall ensure that exhaust gases from the kiln are treated through a thermal oxidiser (afterburner) and a venturi scrubber prior to release to the environment through the chimney stack (S1).
- A1(b) The Licensee shall ensure the concentration of sulphur dioxide in the exit gases from the stack (S1) is not greater than 85 grams per second, expressed dry at 273 K and 101.325 kilopascals.
- A1(c) The Licensee shall ensure the concentration of particulate matter in the exit gases from the stack (S1) is not greater than 250 milligrams per cubic metre, expressed dry at 273 K and 101.325 kilopascals.
- A1(d) The Licensee shall monitor and record the pH of the discharge waters from the venturi scrubber. Records of the pH are not required to be reported under condition G3(a) but shall be kept for at least 12 months and shall be made available to an Inspector at all times.
- A1(e) The Licensee is exempt from compliance with the condition A1(d) during calibration of the on-line particulate monitor, on the provision that such calibration does not occur for more than a two hour period.

INHOUSE DEDUSTING PLANT - OPERATION REQUIREMENT

- A2(a) The Licensee shall ensure that exhaust and ventilation gases from the inhouse dedusting plant are treated through a baghouse dust collector and released to the environment through the chimney stack (S2).
- A2(b) The Licensee shall ensure the concentration of particulate matter in the exit gases from the stack (S2) is not greater than 120 milligrams per cubic metre, expressed dry at 273 K and 101.325 kilopascals.
- A2(c) The Licensee shall monitor and record the pressure drop across the baghouse unit continuously. Records of the pressure drop are not required to be reported under condition G3(a) but shall be kept for at least 12 months and shall be made available to an Inspector at all times.

DRYER SCRUBBER - OPERATION REQUIREMENT

- A3(a) The Licensee shall ensure that exhaust gases from the dryer are treated through a wet scrubber prior to release to the environment through the chimney stack (S3).
- A3(b) The Licensee shall ensure the concentration of particulate matter in the exit gases from the wet scrubber servicing the dryer (S3) is not greater than 150 milligrams per cubic metre, expressed dry at 273 K and 101.325 kilopascals.

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THERMAL OXIDISER (AFTERBURNER) - OPERATION REQUIREMENT

- A4(a) The Licensee shall ensure that gases from the settling chamber and gases from the leaching plant are treated during normal operation in a thermal oxidiser (afterburner).
- A4(b) The Licensee shall continuously monitor and record the temperature in the afterburner combustion chamber. Records of the afterburner temperature are not required to be reported under condition G3(a) but shall be kept for at least 12 months and shall be made available to an Inspector at all times.

GROUND LEVEL CONCENTRATION

- A5 The Licensee shall ensure that stack emissions of sulphur dioxide, dust and hydrogen sulphide are managed such that:
- (i) The ground level concentration of sulphur dioxide never exceeds 450 micrograms per cubic metre (1 hour averaging period) at any location and never exceeds 350 micrograms per cubic metre (1 hour averaging period) at any residence or other odour sensitive premises; and
 - (ii) The ground level concentration of hydrogen sulphide and other reduced sulphur compounds is such that there is no detectable odour of reduced sulphur compounds outside the boundary of the licensed premises at any time, when expressed in dry air of 273K and 101.325 kilopascals pressure.

STACK MONITORING

- A6(a) The Licensee shall monitor, at the frequencies stated, the concentrations of the listed parameters at the following stacks:

Stack	Frequency	Parameters
Kiln stack (S1)	Monthly	Sulphur dioxide (SO ₂), total suspended particulates, hydrogen sulphide (H ₂ S)
Dedust stack (S2) Dryer stack (S3)	Quarterly	Total suspended particulates

- A6(b) The Licensee shall ensure the results of each set of source tests include the following information:
- (i) associated plant production rate, coal feed rate and sulphur feed rate relevant to the emissions at the time of the test,
 - (ii) in stack moisture content,
 - (iii) in stack volume flow rate,
 - (iv) in stack temperature,
 - (v) parameters monitored in the venturi scrubber system, scrubbing liquor flow rate, pressure drop across the scrubber system,
 - (vi) pressure drop across the baghouse unit connected to stack (S2),
 - (vii) sulphur dioxide, hydrogen sulphide and particulates concentrations, as defined in condition A5(a), and any other information relevant to the test results.

DUST - GENERAL REQUIREMENT

- A7(a) The Licensee shall take all reasonable and practicable measures to prevent the generation of visible dust across the boundary of the premises from all materials handling operations, stockpiles, open areas and transport activities.

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- A7(b) The Licensee shall employ routine maintenance and housekeeping practices to ensure that there is no accumulation of waste materials in or around the premises which may lead to the generation of visible dust.

DUST MONITORING

- A8 The Licensee shall monitor the level of dust at the plant site on at least a quarterly basis.

OPENING OF STANDBY (EMERGENCY/MAINTENANCE) STACK

- A9(a) The Licensee shall ensure that the kiln standby stack remains closed and sealed at all times during normal processing operations.

- A9(b) The Licensee shall keep a log of scheduled and unscheduled kiln emergency/maintenance stack cap openings. The log shall include the following information:

- (i) time and date the stack was opened;
- (ii) the reasons for opening the stack cap;
- (iii) the duration of stack cap opening; and
- (iv) action taken to avoid a repetition of any malfunction that may have been the reason for opening the stack cap.

WATER POLLUTION CONTROL CONDITIONS

PROCESS LIQUOR PONDS

- W1 The Licensee shall ensure that excess process liquors generated due to a failure of the process liquor treatment system is contained within the process liquor ponds. The Licensee shall ensure that the ponds are lined with a high density polyethylene membrane or polypropylene membrane.

STORMWATER

- W2 The Licensee shall ensure the premises is drained such that uncontaminated stormwater is diverted away from all process areas.

VEHICLE WASHDOWN AREAS

- W3 The Licensee shall ensure that vehicle wash down areas are equipped with fuel/oil traps and provisions to ensure detergent or solvent contaminated waters are not discharged to the environment.

FUEL/OIL AND SILT TRAPS

- W4 The Licensee shall ensure that any discharge of water from the premises, other than directly to sewer or septic systems, shall pass through silt traps and, where contaminated with fuel/oil, waters shall pass through fuel/oil traps also.

WATER DISCHARGES - DISCOLOURATION/FLOATING MATTER

- W5 The Licensee shall ensure that water discharged from the premises demonstrates no discolouration nor contains any floating matter attributable to operations on the premises.

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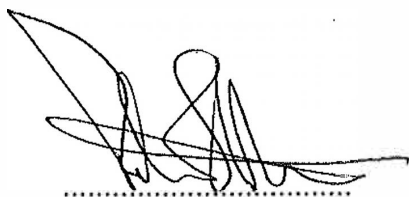
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- PROTECTION OF WATER POLLUTION CONTROL SYSTEMS**
- W6 The Licensee shall ensure that all settlement ponds, bunded areas and silt traps, subject to cleaning or solids removal, are protected from machinery damage.
- MAINTENANCE OF WATER POLLUTION CONTROL SYSTEMS**
- W7 The Licensee shall ensure all fuel/oil traps, silt traps and settlement ponds have an adequate schedule of inspection and maintenance so as to ensure their efficient operation. A maintenance logbook shall be maintained and made available to an inspector on request.
- LIQUID CHEMICAL STORAGE**
- W8(a) The Licensee shall store environmentally hazardous chemicals including fuel, oil or other hydrocarbons (where the total volume of each substance stored on the premises exceeds 250 litres) within low permeability (10^{-9} metres per second or less) compound(s) designed to contain not less than 110% of the volume of the largest storage vessel or inter-connected system, and at least 25% of the total volume of substances stored in the compound.
- W8(b) The Licensee shall immediately recover, or remove and dispose of, any liquid resulting from spills or leaks of chemicals including fuel, oil or other hydrocarbons, whether inside or outside the low permeability compound(s).
- SOLID WASTE DISPOSAL CONDITION**
- S1 The Licensee shall ensure that solid wastes generated in the mineral sands separation, synthetic rutile and iron oxide pugging processes are disposed of by burial at the Cooljarloo mine site operated by the Licensee located at M268SA unless specific approval for other arrangements have been obtained from the Director. Waste shall only be transported in vehicles properly equipped for waste haulage.



Officer delegated under Section 20
Of the *Environmental Protection Act 1986*

Date of Issue: Thursday, 03 October 2013

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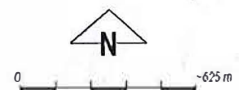
ATTACHMENT 1

Tronox Chandala



LEGEND

 Road Centrelines
Perth Metropolitan Area
North 15cm Orthomosaic -
Landgate 2012



Scale 1:24252

(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

Prepared by: Iukel

Prepared for:

Date: 11/07/2013 3:54:36 PM

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



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Department of Environment Regulation

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ATTACHMENT 2

**SECTION A
LICENCE DETAILS**

Licence Number:	Licence File Number:
Company Name:	ACN:
Trading as:	
Reporting period: _____ to _____	

STATEMENT OF COMPLIANCE WITH LICENCE CONDITIONS

1. Were all conditions of licence complied with within the reporting period? (please tick the appropriate box)

Yes ☐ Please proceed to Section C

No ☐ Please proceed to Section B

Each page must be initialed by the person(s) who signs Section C of this annual audit compliance report

INITIAL: _____

Date of Issue: Thursday, 03 October 2013

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ATTACHMENT 2

SECTION B

DETAILS OF NON-COMPLIANCE WITH LICENCE CONDITION.

Please use a separate page for each licence condition that was not complied with.

a) Licence condition not complied with?	
b) Date(s) when the non compliance occurred, if applicable?	
c) Was this non compliance reported to DER?	
<input type="checkbox"/> Yes <input type="checkbox"/> Reported to DER verbally Date _____ <input type="checkbox"/> Reported to DER in writing Date _____	<input type="checkbox"/> No
d) Has DER taken, or finalised any action in relation to the non compliance?	
e) Summary of particulars of non compliance, and what was the environmental impact?	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram)	
g) Cause of non compliance	
h) Action taken or that will be taken to mitigate any adverse effects of the non compliance	
i) Action taken or that will be taken to prevent recurrence of the non compliance	

Each page must be initialed by the person(s) who signs Section C of this annual audit compliance report

INITIAL: _____

WESTERN AUSTRALIA

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ATTACHMENT 2

SECTION C

SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report may only be signed by a person(s) with legal authority to sign it. The ways in which the Annual Audit Compliance Report must be signed and certified, and the people who may sign the statement, are set out below.

Please tick the box next to the category that describes how this Annual Audit Compliance Report is being signed. If you are uncertain about who is entitled to sign or which category to tick, please contact the licensing officer for your premises.

If the licence holder is		The Annual Audit Compliance Report must be signed and certified:
an individual	<input type="checkbox"/> <input type="checkbox"/>	by the individual licence holder, or by a person approved in writing by the Chief Executive Officer (CEO) of the Department of Environment Regulation to sign on the licensee's behalf.
A firm or other unincorporated company	<input type="checkbox"/> <input type="checkbox"/>	by the principal executive officer of the licensee; or by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A corporation	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	by affixing the common seal of the licensee in accordance with the Corporations Act 2001; or by two directors of the licensee; or by a director and a company secretary of the licensee, or if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or by the principal executive officer of the licensee; or by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A public authority (other than a local government)	<input type="checkbox"/> <input type="checkbox"/>	by the principal executive officer of the licensee; or by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
a local government	<input type="checkbox"/> <input type="checkbox"/>	by the chief executive officer of the licensee; or by affixing the seal of the local government.

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ATTACHMENT 2

It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular. There is a maximum penalty of \$50,000 for an individual or body corporate.

I/We declare that the information in this annual audit compliance report is correct and not false or misleading in a material particular

SIGNATURE: _____

SIGNATURE: _____

NAME:
(printed) _____

NAME:
(printed) _____

POSITION: _____

POSITION: _____

DATE: ____/____/____

DATE: ____/____/____

SEAL (if signing under seal)