DRAFT - End of Waste Code
Ferronickel Slag (ENEW07576219)

Waste Reduction and Recycling Act 2011
Version history

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Description of changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft</td>
<td>16 December 2019</td>
<td>Consultation draft</td>
</tr>
</tbody>
</table>

Prepared by: Waste and Contaminated Land Assessment, Department of Environment and Science

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December 2019
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1. Explanatory Statement

This End of Waste (EOW) code ferronickel slag has been issued by the chief executive in accordance with section 159 of the Waste Reduction and Recycling Act 2011 (WRR Act).

This EOW code states when the ferronickel slag becomes a resource and any relevant requirements and/or conditions for its use. If the resource is not being used in accordance with the relevant requirements and/or conditions of this EOW code, or another type of permit that allows for its use, it is considered a waste under section 13 of the Environmental Protection Act 1994 (EP Act) and must be disposed of appropriately at a facility that is lawfully able to receive the waste.

2. Guidance

2.1 Resource use versus activity

An EOW code states when a waste stops being a waste following any necessary processing or treatment. A waste becomes a resource when it has been determined to meet the requirements of an EOW code. It may be necessary to treat or process the waste prior to meeting those requirements. An Environmental Authority (EA) under the EP Act is required where an activity being undertaken triggers the threshold for any environmentally relevant activity (ERA). This means that treating or processing the waste to meet the resource quality criteria under the EOW code may require an EA under the EP Act if the activity meets the threshold for an ERA.

2.2 Resource versus waste

A waste that is a resource under an EOW code is considered a resource only for the use(s) approved in an EOW code. If a resource does not meet the requirements of the EOW code and/or is not used in accordance with the EOW code, it is not deemed a resource. It remains a waste and must be managed in accordance with waste management requirements under the EP Act and the WRR Act and their subordinate legislation.

A resource approved under an EOW code, is deemed to be a waste again, if it is disposed of at a waste disposal facility, or if it is deposited at a place in a way that would, apart from its use approved under an EOW code, constitute a contravention of the general littering provision or the illegal dumping of waste provision under the WRR Act.

2.3 Failure to comply

It is an offence under section 158(1) of the WRR Act for a registered resource producer to produce the resource, or use, sell or give away the resource if they do not comply with the requirements under an EOW code. Further, it is an offence under section 158(2) of the WRR Act for a person to use the resource in a way, or for a purpose, that does not comply with an EOW code. These offences carry a maximum penalty of 1,665 penalty units for an individual and 8,325 penalty units for a corporation.

Please refer to Appendix A of this EOW code for general obligations for all persons operating under this EOW code, which includes the resource users.

2.4 Lawfulness of the activity

The issuing of this EOW code for the use of a resource does not warrant or imply the lawfulness of the activity under all legislation, or that approvals necessary under other legislation have or will be approved. It is the

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1 The value of a penalty unit is stated in the Penalties and Sentences Regulation 2015 (Qld).
responsibility of the registered resource producer and resource user to identify and obtain all other approvals necessary for the relevant activities.

3. Period of this EOW code
This EOW code takes effect from DD MM YYYY and remains in force until it is cancelled, amended or suspended by the chief executive².

4. Waste to which this EOW code applies
This EOW code is limited to ferronickel slag generated during the lawful smelting of nickel ore to produce ferronickel at an electric arc furnace. The ferronickel slag becomes a resource when the requirements and conditions under this EOW code are met.

5. Person to whom this EOW code applies

5.1 Registered resource producers of the resource
5.1.1 A registered resource producer for this EOW code must comply with the stated registered resource producer requirements in Section 6 – Registered Resource Producer Requirements.

5.2 Resource users
5.2.1 The resource user must only use the resource in a way, and for a purpose allowed under this EOW code.

5.2.2 The resource user must comply with the stated conditions of use in Section 7 – Conditions of Use.

² If an EOW code is to be amended, cancelled or suspended, the chief executive will provide an opportunity to make written submissions by providing a proposed action notice to the registered resource producers; and publishing the proposed action notice on chief executive’s website.
6. Registered Resource Producer Requirements

Registration under this EOW code

(6.1) Prior to operating under this EOW code, the producer of the resource must register with the chief executive by giving a notice in the approved form\(^3\) to become a registered resource producer for this EOW code.

Approved resource

(6.2) The approved resource is ferronickel slag which complies with Requirement (6.3) of this EOW code.

(6.3) The registered resource producer must not use, sell or give away the resource unless it complies with all of the following criteria and quality characteristics:

a) is generated from the smelting of nickel ore to produce ferronickel at an electric arc furnace;

b) has a pH range of 5-10; and

c) does not exceed the quality criteria stated in Table 1: Resource quality criteria.

Table 1: Resource quality criteria

<table>
<thead>
<tr>
<th>Quality characteristics</th>
<th>TCLP leachable concentration (mg/L)(^4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antimony</td>
<td>0.1</td>
</tr>
<tr>
<td>Arsenic</td>
<td>0.2</td>
</tr>
<tr>
<td>Barium</td>
<td>0.3</td>
</tr>
<tr>
<td>Cadmium</td>
<td>0.05</td>
</tr>
<tr>
<td>Chromium (total)</td>
<td>0.5</td>
</tr>
<tr>
<td>Copper</td>
<td>0.2</td>
</tr>
<tr>
<td>Lead</td>
<td>0.2</td>
</tr>
<tr>
<td>Mercury</td>
<td>0.01</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>0.2</td>
</tr>
<tr>
<td>Nickel</td>
<td>6</td>
</tr>
<tr>
<td>Selenium</td>
<td>0.1</td>
</tr>
<tr>
<td>Zinc</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Resource monitoring

(6.5) The registered resource producer must sample, measure and record the composition of the resource for at least the quality characteristics in Table 1: Resource quality criteria, on an annual basis as a minimum.

(6.6) All analysis required under this EOW code must be carried out by a laboratory that has NATA certification, or an equivalent certification, for such analyses.

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\(^3\) The approved form, Registered Resource Producer for an EOW code, is available on the Queensland Government website at [www.qld.gov.au](http://www.qld.gov.au), using the publication number (ESR/2018/4082) as a search term.

\(^4\) US EPA Test Method 1311: Toxicity Characteristic Leaching Procedure using Extraction Fluid #2: Dilute 5.7ml glacial \(\text{CH}_3\text{CH}_2\text{OOH}\) with reagent water to a volume of 1 litre. When correctly prepared, the pH of this fluid will be 2.88 ± 0.05.
Information to be provided

(6.7) **The registered resource producer** must provide the following to the **resource user** upon establishment of an arrangement to sell or give away the **resource**, and annually thereafter:

a) a copy of the EOW code for Ferronickel Slag (ENEW07576219)\(^5\);

b) the **registered resource producer's** business name, **ABN** and address;

c) confirmation in writing that the **resource** being supplied is compliant with the requirements of this EOW code;

d) a most recent certificate of analysis for the quality characteristics listed in *Table 1: Resource quality criteria*;

e) **safety data sheet** for the resource.

Records

(6.8) The **registered resource producer** must keep the following **records** for the **resource** supplied to a **resource user**:

a) origin of the **resource** (e.g. address, lot on plan or GPS coordinates);

b) quantity (in tonnes) of the **resource** supplied;

c) quality criteria of the **resource** (including but not limited to the quality characteristics listed in *Table 1: Resource quality criteria*);

d) date of dispatch of the **resource**;

e) business name, **ABN** and address of the **person** receiving the **resource**.

(6.9) All **records** required to be kept by the **registered resource producer** under this EOW code must be:

a) kept by the **registered resource producer** for a period of not less than five (5) years; and

b) provided to the **chief executive** upon request and in the format requested and time period specified.

Notification of emergencies, incidents and breaches

(6.10) Any breach of a requirement of this EOW code must be reported to the **chief executive** as soon as practicable and within 24 hours of becoming aware of the breach.

(6.11) **Records** of any breach of a requirement of this EOW code, including full details of the breach and any subsequent actions taken, must be kept and provided to the **chief executive** upon request and in the format requested and time period specified.

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5 This can be a physical copy, an electronic copy or a link to the chief executive’s [website](#) where this EOW code is available.
7. Conditions of Use

### Notification under this EOW code

(7.1) Prior to operating under this EOW code, a person who intends to use the approved resource must notify the chief executive by giving a notice in the approved form at least 10 days prior to the commencement of using the resource.

### Approved uses

(7.2) The approved resource is **ferronickel slag** which complies with Requirement (6.3) of this EOW code and is used for the following purposes:

- a) bound applications where the resource is encapsulated or chemically transformed and incorporated into a final product which complies with relevant Australian Standards for that product; and
- a) unbound applications where the resource application is limited to the uses stated in Condition (7.3) on standard areas.

### Resource use in unbound applications

(7.3) Use of the resource in unbound applications is limited to the below applications:

- a) in abrasive blasting;
- b) in road construction;
- c) in *engineered construction works*;
- d) as base course, sub-base and subgrade;
- e) as filter aggregate;
- f) as pipe bedding material;
- g) as sealing aggregate; and/or
- h) as subsoil and/or subsurface drainage.

(7.4) Use of the resource in unbound applications must not be carried out on land which:

- a) contains **potential acid sulfate soils**;
- b) **actual acid sulfate soils**; and/or
- c) has a soil pH of less than 5.5.

### Notification of emergencies, incidents and breaches

(7.5) Any breach of a condition of this EOW code must be reported to the chief executive as soon as practicable and within 24 hours of becoming aware of the breach.

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7 Use of the resource at a facility as fill material must be carried out in accordance with the requirements of an environmental authority that authorises Environmentally Relevant Activity (ERA) 60 as prescribed under Schedule 2 of the Environmental Protection Regulation 2019.
8. Definitions

Words and phrases used throughout this EOW code in bold are defined below. Where a definition for a term used in this EOW code is sought and the term is not defined within this EOW code the definitions provided in the relevant legislation shall be used.

‘ABN’ means Australian Business Number which is a unique 11 digit number issued by the Australian Business Register and identifies a business in Australia.

‘actual acid sulfate soils’ as defined in the most recent version of the Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines means soils containing highly acidic soil horizons resulting from the aeration of soil materials that are rich in iron sulfides, primarily pyrite. This oxidation produces hydrogen ions in excess of the sediment’s capacity to neutralise the acidity, resulting in soils of pH 4 or less. These soils can usually be identified by the presence of jarosite.

‘appropriately qualified person’ means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relating to the subject matter using the relevant protocols, standards, methods or literature.

‘chief executive’ means the Department of Environment and Science or its successor.

‘emergency(ies)’ means a situation where either human health or safety is threatened, or serious or material environmental harm has been or is likely to be caused; and urgent action is necessary to protect the health or safety of persons, or prevent or minimise the harm, or rehabilitate or restore the environment because of the harm.

‘engineered construction works’ means engineer designed civil applications that have been certified by a Registered Professional Engineer of Queensland (RPEQ) as suitable for its intended purpose.

‘facility’ means a naturally occurring or constructed hollow, pit or void (e.g. a gully, mining shaft or quarry).

‘ferronickel’ means an alloy of iron (Fe) and nickel (Ni).

‘ferronickel slag’ is the by-product generated during the lawful smelting of nickel ore to produce ferronickel.

‘lawful(ly)’ means allowed or permitted by law and not contrary to law.

‘NATA’ is the National Association of Testing Authorities.

‘nickel ore’ means a naturally occurring material that can be smelted to extract ferronickel.

‘person’ means an individual or a corporation.

‘potential acid sulfate soils’ as defined in the most recent version of the Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines means soils that contain iron sulfides or sulfidic material, which have not been exposed to air and so have not oxidised. The field pH of these soils in their undisturbed state is pH 4 or more, and may be neutral or slightly alkaline. Potential acid sulphate soils pose a considerable environmental risk if disturbed, as they will generate iron and sulfuric acid when exposed to air.

‘records’ include breach notifications, written procedures, analysis results, monitoring reports and monitoring programs required under a condition or requirement of this EOW code.
‘registered resource producer(s)’ means a person who produces the resource and has registered with the chief executive (in accordance with Requirement (6.1)) to use, sell or give away the resource to be used under this EOW code.

‘resource’ means ferronickel slag that meets the criteria and quality characteristics in Requirement (6.3) of this EOW code.

‘resource user(s)’ means a person who has notified the chief executive (in accordance with Condition (7.1)) to receive the resource from a registered resource producer and uses the resource for a use approved under this EOW code and does so in such a manner which does not cause any environmental harm.

‘safety data sheet’ means a document containing data regarding the properties of the resource which provides information on handling or working with that substance in a safe manner; and includes information such as physical data toxicity, environmental characteristics, health effects, first aid, reactivity; and storage, disposal, protective equipment and spill handling procedures. The safety data sheet must be compliant with Safe Work Australia’s Model Code of Practice: Preparation of safety data sheets for hazardous chemicals.

‘standard areas’ mean land use including residential, parks, recreational play fields, open spaces and commercial and industrial sites; excluding waters and/or the bed and banks of waters.

‘TCLP’ means toxicity characteristics leaching procedure.

‘waters’ includes river, stream, lake, lagoon, pond, swamp, wetland, surface water, natural or artificial watercourse, bed and bank of any watercourse, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part-thereof.

-END-
Appendix A — General obligation for all persons

This appendix is not intended to provide a comprehensive assessment of all obligations under Queensland law. It provides some general information and persons are encouraged to familiarise themselves with all requirements related to their specific operation.

Responsibilities under the Environmental Protection Act 1994

All persons within the State of Queensland must also meet their obligations under the Environmental Protection Act 1994, and the regulations made under that Act.

General environmental duty

Section 319 of the Environmental Protection Act 1994 states that we all have a general environmental duty. This means that we are all responsible for the actions we take that affect the environment. We must not carry out any activity that causes or is likely to cause environmental harm unless we take all reasonable and practicable measures to prevent or minimise the harm. To decide what meets your general environmental duty, you need to consider:

- the nature of the harm or potential harm
- the sensitivity of the receiving environment
- the current state of technical knowledge for the activity
- the likelihood of successful application of the different measures to prevent or minimise environmental harm that might be taken
- the financial implications of the different measures as they would relate to the type of activity.

It is not an offence not to comply with the general environmental duty. However, maintaining your general environmental duty is a defence against the following acts:

(a) an act that causes serious or material environmental harm or an environmental nuisance
(b) an act that contravenes a noise standard
(c) a deposit of a contaminant, or release of stormwater run-off, mentioned in section 440ZG.


Some relevant offences under the Environmental Protection Act 1994

Causing serious or material environmental harm (sections 437–39)

Material environmental harm is when the harm is not trivial or negligible in nature. Serious environmental harm is harm that is irreversible, of a high impact or widespread, or that is caused to an area of high conservation value or special significance. Damages, or costs required to rehabilitate the environment, of over $5000 constitutes material environmental harm and damages, or costs required to rehabilitate the environment, of over $50,000 constitutes serious environmental harm.

Serious or material environmental harm excludes environmental nuisance.

Causing environmental nuisance (section 440)

Environmental nuisance is unreasonable interference with an environmental value caused by aerosols, fumes, light, noise, odour, particles or smoke. It may also include an unhealthy, offensive or unsightly condition because of contamination.
Depositing a prescribed water contaminant in waters (section 440ZG)

Prescribed contaminants include a wide variety of contaminants listed in Schedule 10 of the Environmental Protection Regulation 2019.

It is your responsibility to ensure that prescribed contaminants are not left in a place where they may or do enter a waterway, the ocean or a stormwater drain. This includes making sure that stormwater falling on or running across your site does not leave the site contaminated. Where stormwater contamination occurs you must ensure that it is treated to remove contaminants. You should also consider where and how you store material used in your processes onsite to reduce the chance of water contamination.

Placing a contaminant where environmental harm or nuisance may be caused (section 443)

A person must not cause or allow a contaminant to be placed in a position where it could reasonably be expected to cause serious or material environmental harm or environmental nuisance.

Some relevant offences under the Waste Reduction and Recycling Act 2011

Littering (section 103)

Litter is any domestic or commercial waste and any material a person might reasonably believe is refuse, debris or rubbish. Litter can be almost any material that is disposed of incorrectly. Litter includes cigarette butts and drink bottles dropped on the ground, fast food wrappers thrown out of the car window, poorly secured material from a trailer. However, litter does not include any gas, dust, smoke or material emitted or produced during, or because of, the normal operations of a building, manufacturing, mining or primary industry.

Illegal dumping of waste (section 104)

Illegal dumping is the dumping of large volumes of litter (200 litres or more) at a place.

Failure to comply with EOW code (section 158)

A registered resource producer for an EOW code must not use, sell or give away the resource unless the registered resource producer complies with the requirements of the EOW code relating to the resource.

A person, other than a registered resource producer, must not use a resource in a way, or for a purpose, that does not comply with an EOW code for the resource.

Approved:

16 December 2019

Enquiries:

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Email: palm@des.qld.gov.au