Department of Water and Environmental Regulation (DWER)

Review of the Wagerup Refinery
Regulatory Framework

- Period of significant environmental regulatory reform including migration to a risk-based assessment and determination process

- Regulatory Framework supported by the ongoing development of policies, guidance statements, guidelines and internal process improvements

- Established one-stop-shop for regulatory services, developed integrated online system, finalising a licence review framework
Review objectives

- Initiated by ex-DER and has objectives to:
  - Prepare whole of site assessment, transparency in decision making
  - Assess emissions under DWER’s risk-based Regulatory Framework
  - Address Minister’s 20 February 2018 appeal decision outcomes to:
    - Investigate VOC air emissions (focus on low-level sources);
    - Investigate particulate emissions (focus on PM$_{2.5}$);
    - Investigate increases in mercury evident in NPI data;
    - Amend condition W2 (contaminated water discharges)
  - Meet contemporary standards and community expectations
  - Ensure licence is not contrary to decisions under Part IV of the EP Act decisions (e.g. MS 728 for Wagerup 3)
    - Review will be informed by any outcomes of Alcoa’s s46 EP Act application process
Section 46 application

- Alcoa has requested a change to proposal to optimise the existing two production units at the Wagerup Refinery (2.85 Mtpa to 3.3 Mtpa).
- **Section 46 initiation was published on the EPA website on 15 October 2018.**
- The inquiry will look at whether or not the conditions should be changed and the EPA will make its independent recommendation to the Minister.
- The Minister will make the final determination.
- The inquiry will focus on the Key Environmental Factors of Air Quality, Social Surroundings (noise) and Inland Waters.
- **The EPA expects Alcoa to consult with the community.**
- The inquiry is at a very early stage.
What is the review?

Preparation of a Decision Report

- Documents the assessment according to the Regulatory Framework
- Provide transparency in decision-making and the justification for licence condition outcomes
- Decision Report preparation informed by published guidance statements, particularly:
  - *Guidance Statement: Risk Assessment*
  - *Guidance Statement: Decision Making*
• Establish the risk context
  – Prescribed activities
  – Regulatory context – other approvals, contaminated sites etc
  – Site and occupier history
  – Ambient and point source monitoring data, studies, reports, inspections, complaints records
  – Public and stakeholder submissions
  – Location and siting
• Initial screening of emission risks to identify:
  – Emission sources: stacks, vents, ponds, mud lakes
  – Emission types: dust, odour, combustion gases, VOCs, metals, residue
  – Pathways: wind/air, infiltration, direct discharge
  – Receptors: human, environmental (terrestrial, surface water, groundwater)
  – Impacts: Public health, environment, amenity
• A potential emission source, pathway and receptor are all present:
  - **Potential for adverse receptor impacts**
  - **Undertake detailed assessment (unless other statutory requirements already exist e.g. Ministerial Statement conditions)**

• A potential emission source, pathway or receptor is absent:
  - No potential for adverse receptor impacts expected
  - Screened out (no further assessment)
<table>
<thead>
<tr>
<th>Sources/Activities</th>
<th>Potential emissions</th>
<th>Potential receptors</th>
<th>Potential pathway</th>
<th>Potential adverse impacts</th>
<th>Continue to detailed risk assessment</th>
<th>Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxalate bioremoval facility</td>
<td>Point source air emissions (including odour) via 47K1 or 47K2 vents</td>
<td></td>
<td>Air/wind dispersion</td>
<td>Health and amenity impacts</td>
<td>Yes</td>
<td>Refer to Section 9.4 The Delegated Officer considered advice in the Application that the concentration of mercury in the oxalate feed is low / negligible. The Delegated Officer had regard to mercury balance work conducted by Alcoa in 2011 for the Pinjarra Refinery OBF, which concluded there would be no measureable effect on the level of mercury emissions to air due to the insignificant amount of mercury returned to the refinery circuit prior to the evaporation stage. The Delegated Officer determined that changes to the risk profile of mercury emissions to air risk were not expected.</td>
</tr>
<tr>
<td></td>
<td>Point source emissions of mercury to air</td>
<td>Closest dwelling approximately 1.6 km north west of the OBF.</td>
<td></td>
<td>Health impacts</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Noise</td>
<td>Seven dwellings between 1.6 km and 4 km.</td>
<td></td>
<td>Amenity impacts</td>
<td>Yes</td>
<td>Refer to Section 9.5 The Delegated Officer does not expect that there will be sources of fugitive dust from the operational OBF taking into consideration that oxalate is fed into the system as a slurry and is treated using a wet process. Minor incidental dust may be generated from surrounding hardstand surfaces; however, this is not expected to result in health or amenity impacts at receptors given the distance to receptors (from the OBF) and the quantity of incidental dust likely to be generated from hardstand surfaces.</td>
</tr>
<tr>
<td></td>
<td>Fugitive dust</td>
<td></td>
<td></td>
<td>Health and amenity impacts</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spills, ruptures and loss of containment resulting in discharges to land</td>
<td>Superficial aquifer</td>
<td>Direct discharge</td>
<td>Impacts on the beneficial use of groundwater</td>
<td>Yes</td>
<td>Refer to Section 9.6 The Delegated Officer had regard to the size, scale and location of the OBF. Loss of containment events would be expected to be low volume and short-term duration events confined to the immediate area around the OBF. Loss of containment events are not expected to access surface water.</td>
</tr>
</tbody>
</table>
• Detailed risk assessment:
  – Define a foreseeable ‘Risk event’ based on source, pathway, receptor and potential adverse impact
  – Characterise emission
  – Identify potential adverse impacts
  – Compare to criteria (e.g. location, national, international standards)
  – Consider Alcoa’s existing controls

• Risk rating outcomes
### Likelihood vs. Consequence Table

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Slight</th>
<th>Minor</th>
<th>Moderate</th>
<th>Major</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost certain</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>Extreme</td>
<td>Extreme</td>
</tr>
<tr>
<td>Likely</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>Extreme</td>
</tr>
<tr>
<td>Possible</td>
<td>Low</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>Extreme</td>
</tr>
<tr>
<td>Unlikely</td>
<td>Low</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Rare</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
</tr>
</tbody>
</table>

### Rating of Risk Event Table

<table>
<thead>
<tr>
<th>Risk Event</th>
<th>Acceptability</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme</td>
<td>Unacceptable</td>
<td>Risk event will not be tolerated. DER may refuse application.</td>
</tr>
<tr>
<td>High</td>
<td>May be acceptable. Subject to multiple regulatory controls</td>
<td>Risk event may be tolerated and may be subject to multiple regulatory controls. This may include both outcome-based and management conditions.</td>
</tr>
<tr>
<td>Medium</td>
<td>Acceptable, generally subject to regulatory controls</td>
<td>Risk event is tolerable and is likely to be subject to some regulatory controls. A preference for outcome-based conditions where practical and appropriate will be applied.</td>
</tr>
<tr>
<td>Low</td>
<td>Acceptable, generally not controlled</td>
<td>Risk event is acceptable and will generally not be subject to regulatory controls.</td>
</tr>
</tbody>
</table>
• Determined controls

  – Will be based on Alcoa’s existing controls, additional controls imposed by DWER or a combination or both

  – Condition setting principles:
    o valid, enforceable, risk-based, outcome-based, site-specific, documented and justified
<table>
<thead>
<tr>
<th>Control</th>
<th>Description of regulatory control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitting of Infrastructure</td>
<td>Where the location of infrastructure is specified to avoid or minimise the impact of emissions on receptors.</td>
</tr>
<tr>
<td>Infrastructure Design or Construction Requirements</td>
<td>Where the design and construction of infrastructure or equipment to an engineering or construction standard is specified to prevent, control, abate or mitigate pollution or environmental harm.</td>
</tr>
<tr>
<td>Emissions Limits</td>
<td>Where specified limits cannot be exceeded for specified emissions to air, land, surface and groundwater.</td>
</tr>
<tr>
<td>Monitoring</td>
<td>Where monitoring is required to validate performance within limits, to ensure or validate effectiveness of other controls (e.g. Infrastructure Requirements), to obtain baseline data to inform DER's ongoing assessment of the risk.</td>
</tr>
<tr>
<td>Requirements regarding Operation of Infrastructure</td>
<td>Where the operation and/or maintenance of infrastructure is specified (e.g. freeboard, storage volumes, physical or chemical parameters of abatement equipment) for control of emissions.</td>
</tr>
<tr>
<td>Specified Actions</td>
<td>Where specific, short term, or one-off actions are required (e.g. collection of data, installation of additional controls).</td>
</tr>
<tr>
<td>Volume/Scale Limits</td>
<td>Where production, throughput or acceptance is constrained.</td>
</tr>
<tr>
<td>Restriction on Input</td>
<td>Where the inputs (e.g. feedstock) in relation to the activity are specified (type or limit) for the premises or for a specified process.</td>
</tr>
<tr>
<td>Specifications on Product or Materials</td>
<td>Where pathogen or contamination limits are specified in products, or specifications are required for materials (e.g. dust extinguishment moisture levels for bulk commodities).</td>
</tr>
</tbody>
</table>
Risk based approach to regulation

Knowledge/evidence base | Level of uncertainty | Regulatory controls
--- | --- | ---
High | Low | 1. Outcome-based
Moderate | Moderate | 2. Management-based
Low | High | 3. Prescriptive

Level of confidence

Preferred control
Exclusions – noise emissions

- Existing Ministerial approval under regulation 17 of the *Environmental Protection (Noise) Regulations 1998*

- Alcoa has applied to the Minister to continue the existing noise approval – DWER finalising is assessment to report back to the Minister

- Minister will determine whether grant or refuse to grant a further noise approval

- **Wagerup Refinery noise excluded from licence review**
Consultation

• Consultation period commenced in late 2017 and extended until 31 January 2018

• Several submissions received from CAPS and individual members of CAPS

• Community updates page on DWER’s website will be updated from time to time
What to expect from the review

- **Decision Report**
  - Consolidated whole of site assessment
  - Large document - complex operation, lots of emission types/sources, extensive history
  - Items in Minster’s 20 February 2019 appeal decision will be addressed

- **New licence**
  - Very different style and format compared to the existing licence
• **Conditions**
  - Changes will be guided by risk assessment outcomes
  - Reword some conditions – preference for outcome-based
  - Include new conditions
  - Delete redundant conditions
  - Revise the scope of existing conditions (e.g. monitoring, limits, reporting)

• **Point in time assessment**
  - Periodic review of risks and adequacy of controls based on site changes, identified risk etc
Further Information

  - Risk assessment examples from early in the reform process
  - Guidance Statements
  - Works Approval and Decision Report for the oxalate bioremoval facility (W6104)

  - Public information on the licence review and noise application

- [info@dwer.wa.gov.au](mailto:info@dwer.wa.gov.au) – general inquiries and submissions

- [pollutionwatch@dwer.wa.gov.au](mailto:pollutionwatch@dwer.wa.gov.au) (or 1300 784 782) – only for complaints or reporting incidents

- 6364 7120 – Wagerup Refinery licensing queries

- Wagerup Refinery Fact Sheet – Stakeholder contact matrix still relevant
Thank you and questions
Thank you and questions