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Ms Leanne Grove
Department Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Dear Ms Grove

FORMER HYDRO ALUMINIUM SMELTER - DEMOLITION AND REMEDIATION - SSD 6666

I am writing in reply to the exhibited Project Application and associated Environmental Impact Statement (EIS) for the proposed demolition and remediation of the former Hydro Aluminium Smelter at Kurri Kurri, received by the Environment Protection Authority (EPA) on 8 August 2016. The EPA provided its draft submission in response to the EIS on 28 October 2016. Please consider this submission as the EPA's final submission.

The EPA understands that a key components of the project include:

- the demolition of smelter buildings and structures;
- the remediation of contaminated soils, including materials within the capped waste stockpile (containing mixed smelter wastes) and contaminated soils around and below smelter structures;
- the design, construction and operation of a waste containment cell that would encapsulate contaminated materials from the demolition and remediation activities; and
- the treatment of leachate and leachate impacted groundwater from the capped waste stockpile.

A significant component of the project is the construction of the on-site containment cell to receive wastes generated by the remediation project. The EIS lists the following wastes which will be disposed of in the containment cell:

- legacy mixed aluminium smelter wastes currently stored in a capped waste stockpile (320,000 tonnes);
- contaminated soils (137,000 tonnes);
- non-recyclable and potentially hazardous demolition materials (20,000 tonnes).

The 'Chemical Control Order in relation to aluminium smelter wastes containing fluoride and/or cyanide' (1986) (CCO) issued under the *Environmentally Hazardous Chemicals Act 1985* (EHC Act) prohibits the onsite disposal of aluminium smelter wastes containing leachable fluoride and/or leachable cyanide above threshold levels described in the CCO.

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The Department of Planning and Environment should be aware that the proposed disposal of the untreated smelter wastes currently kept in the capped waste stockpile to the containment cell would not be lawful if the wastes in the stockpile contain levels of leachable fluoride and/or cyanide in excess of the CCO thresholds.

If the waste in the capped waste stockpile does contain levels of leachable fluoride and/or cyanide above the CCO thresholds, the waste will need to be treated (for example with calcium carbonate and cement) to ensure it had leachable cyanide and fluoride levels below the CCO threshold, prior to disposal to the containment cell.

The EPA has responded to those sections of the EIS, and to various options put forward by the proponent, which look at possible pathways to allow the stockpiled waste to be disposed of to the containment cell. This advice is provided at **Attachment 1** and represents the EPA's interpretation of the legislative requirements relating to the disposal of aluminium smelter waste.

The EPA has reviewed the sections of the EIS relevant to the matters for which it has regulatory responsibility. EPA's comments on the EIS are provided at **Attachment 2**.

While the EPA is able to provide recommended conditions of consent for this project – these conditions would be contingent on the lawful treatment and disposal of waste in the capped waste stockpile. The project as currently described in the EIS cannot proceed in its entirety until a lawful disposal option for the capped waste stockpile waste is identified. Hydro is currently preparing additional information regarding treatment options and the EPA will consider this information before finalising its recommended conditions of consent.

The proponent currently holds Environment Protection Licence 1548 under the *Protection of the Environment Operations Act 1997* (POEO Act) and Environmentally Hazardous Chemicals Act Licence Number 05 issued under the *Environmentally Hazardous Chemical Act 1985* (EHC Act) in respect of activities carried on at the site. Should DPE grant development consent for the proposal, the proponent will be required to apply for and obtain a variation to these licenses prior to commencing the demolition and remediation activities.

The proponent should also be made aware that the EPA will require the provision of a financial assurance for the project. The amount and form of the assurance would be determined by the EPA and required as a condition of the POEO Act licence.

Yours sincerely

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Karen Marler
Director Hunter
ENVIRONMENT PROTECTION AUTHORITY

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CHMENT 1

ATTACHMENT 1

HYDRO ALUMINIUM PROPOSED REGULATORY APPROACH – INCLUDING EXTRACT FROM EIS FOR HYDRO REMEDIATION PROJECT AND EPA RESPONSES IN RED

1. EMAIL FROM RAMBOLL (CONSULTANTS) FOR HYDRO (25/8/16)

EIS – EHC Act Compliance

Hydro acknowledges that the '*Chemical Control Order in relation to aluminium smelter wastes containing fluoride and/or cyanide*' issued under the EHC Act (CCO) prohibits the disposal of aluminium smelter wastes containing leachable fluoride and/or cyanide.

In addition, Licence Number 05 (EHC Licence) issued to Hydro under the EHC Act also prohibits the disposal of aluminium smelter waste unless it is 'approved aluminium smelter waste' (being aluminium smelter waste that does not contain leachable fluoride or cyanide), and disposed of in accordance with the *Protection of the Environment Operations Act 1997* (NSW) (POEO Act).

Hydro proposes to achieve compliance with the EHC Licence and CCO by obtaining a specific immobilisation approval to immobilise the fluoride and cyanide contained in the aluminium smelter waste. That is, the EPA will not grant the specific immobilisation approval pursuant to the *Protection of the Environment Operations (Waste) Regulation 2014* (POEO Waste Regulation) unless it is satisfied that the aluminium smelter waste does not contain fluoride and cyanide that is leachable into the surrounding environment.

EPA Response: There is no provision for an immobilisation approval issued under the POEO Waste Regulation to allow disposal of aluminium smelter waste which has leachable fluoride and cyanide above the levels prescribed in the CCO.

It is Hydro's position, as set out above and in the EIS, that:

- The specific immobilisation approval would amount to the aluminium smelter waste being 'approved aluminium smelter waste' for the purposes of the CCO and EHC Licence because it would not contain fluoride or cyanide that is leachable into the surrounding environment; and **EPA Response:** The project relies on the use of a containment cell to form a physical barrier between the waste and the environment. Placing aluminium smelter waste into a containment cell is not altering the leachable fluoride and/or cyanide content in the waste and will not cause the aluminium smelter waste to become 'approved aluminium smelter waste' . An acceptable immobilisation proposal would need to result in a change to the chemical characteristics of the waste such that the leachable concentrations of fluoride and cyanide in the waste are below the levels specified in the CCO.
- There is nothing in the EHC Act that would prohibit the EPA from validly granting a specific immobilisation approval to Hydro under the POEO Waste Regulation. **EPA response:** This is correct, the EPA can issue a specific contaminants immobilisation approval under the POEO Waste Reg. In fact, section 5(3) of the EHC Act expressly provides that nothing in the EHC Act affects the operation of the POEO Act or any regulations made under that Act. This provision would exclude the operation of the CCO and EHC Licence from affecting the EPA's powers under Part 10 of the POEO Waste Regulation to assess and determine Hydro's application for a specific immobilisation approval.

The position set out above is consistent with advice received from the EPA in its letter dated 24 July 2015 (copy attached). **EPA response:** The EPA's letter stated that the proposal would need to demonstrate compliance with all legislative requirements.

An immobilisation approval under the POEO Act cannot authorise disposal of the waste in breach of the requirements of the CCO.

Alternative Options
While Hydro remains of the view that the project complies with the EHC Act, it has been examining alternative options with Ramboll Environ and Hydro's legal team that may assist the EPA to resolve its concerns in relation to this issue.
Amend EHC Licence
This alternative option would comprise minor amendments to the EHC Licence as set out below:

- Amend the definition of 'approved aluminium smelter waste' in the EHC Licence as follows (with changes underlined):

  '*approved aluminium smelter waste means aluminium smelter wastes containing fluoride and/or cyanide, that contains neither leachable fluoride nor leachable cyanide and for the purposes of this definition aluminium smelter wastes will be deemed to contain neither leachable fluoride nor leachable cyanide in circumstances including (but not limited to) where that waste has been immobilised in accordance with a specific immobilisation approval granted under Part 10 of the Protection of the Environment Operations (Waste) Regulation 2014 (or similar approval).*'

- Amend condition 6.2 of the EHC Licence as follows (with changes underlined):

  '*Where aluminium smelter waste is to be certified as being approved aluminium smelter waste:*

  (a) the Licensee must be the holder of a valid specific immobilisation approval granted under Part 10 of the Protection of the Environment Operations (Waste) Regulation 2014 (or similar approval) which authorises immobilisation of that waste; or

  (b) *a written report must be kept for at least five years by the Licensee that contains:*

  …' **EPA response:** The EPA cannot amend the EHC Act licence to authorise the disposal of Aluminium smelter waste in the containment cell as this activity is prohibited by the CCO. The definition of aluminium smelter waste is provided by the CCO and the EHC Act licence must be consistent with the definition in the EHC Act.

The EPA would have the power under section 32(1) of the EHC Act to amend the EHC Licence to give effect to the above change at any time during the term of the EHC Licence by service of a notice to Hydro. The benefit of this option is that it would not require the concurrence of the Hazardous Chemicals Advisory Committee, or any amendments to the CCO or EHC Act. **EPA response:** The EPA does have the power to amend the EHC Act licence, but any amendment cannot allow an activity which is prohibited by the CCO.

We also consider that given the site/project specific nature of the amendment to the EHC Licence it is not dependant on the outcomes of the review that the EPA is currently carrying out in respect of the EHC Act and Chemical Control Orders. **EPA response:** Under the current CCO, the EPA cannot authorise the disposal of aluminium smelter waste that has levels of leachable fluoride and/or cyanide above the thresholds described in the CCO.

2. EXTRACT FROM HYDRO EIS WITH EPA RESPONSE IN RED

2.5.1 Key Legislation

2.5.1.1 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) requires any person carrying out scheduled activities to obtain an Environment Protection Licence (EPL) that authorises work to be carried out at the premises. Scheduled activities are defined in Schedule 1 to the POEO Act. As discussed in **Section 3.3** Hydro has an existing EPL (EPL 1548) which applies to the premises, permitting the storage of hazardous, restricted solid, liquid, clinical and related waste, asbestos, and other wastes.

A review of Schedule 1 of the POEO Act concluded that in addition to the existing scheduled activity, the Project would also include the "contaminated soil treatment" scheduled activity. Clause 15 of Schedule 1 defines "contaminated soil treatment" as:
"(1) This clause applies to contaminated soil treatment, meaning the on-site or off-site treatment of contaminated soil (including, in either case, incineration or storage of contaminated soil but excluding excavation for treatment at another site).
(2) The activity to which this clause applies is declared to be a scheduled activity if:
(b) where it treats contaminated soil originating exclusively on-site, it has a capacity:
(ii) to treat (otherwise than by incineration) and store more than 30,000 cubic metres of contaminated soil". **EPA response:** The EPA agrees with this interpretation and contaminated soil which is not aluminium smelter waste can be placed in the containment cell.

The Project involves the treatment and storage of more than 30,000 cubic metres of contaminated soil. As such, an EPL is required to undertake the removal of the Capped Waste Stockpile and the remediation of residual soils, including placement in the Containment Cell. **EPA response:** If the material in the capped waste stockpile contains levels of leachable fluoride and cyanide above the thresholds detailed in the CCO it is prohibited from being placed in the containment cell.
It is proposed to amend the existing EPL covering the Project Site to reflect the new scheduled activity.

2.5.1.2 Protection of the Environment Operations (Waste) Regulation 2014
The Protection of the Environment Operations (Waste) Regulation 2014 (POEO Regulation) describes the regulatory processes for waste management in accordance with the POEO Act.

Under Clause 98 of the POEO Regulation, the EPA can grant an immobilised contaminants approval. An immobilised contaminants approval permits reassessment and reclassification of a waste to enable its placement in a Containment Cell or landfill appropriate to its reclassification. In granting an immobilised contaminants approval for a given waste, the EPA may attach special conditions and/or disposal restrictions to the Approval in accordance with the hazardous and/or toxic properties of the waste.

Hydro has presented information regarding the Capped Waste Stockpile and the issues associated with its ongoing management (refer to **Section 5.3.3.2**) and the conclusion that encapsulation of the Capped Waste Stockpile in the Containment Cell is the preferred option. To allow the placement of the Capped Waste Stockpile material in the Containment Cell, an immobilised contaminants approval is required. **EPA response:** As the capped waste stockpile material is proposed to be disposed of on site, no immobilisation approval under the POEO Regulation is required. The capped waste stockpile material may need to be treated to reduce its leachable fluoride and/or cyanide levels to allow disposal under the EHC Act and CCO.

A general immobilised contaminants approval does not currently apply to the Capped Waste Stockpile material; as such a specific immobilised contaminants approval would be required. **EPA response:** As above – a specific contaminant immobilisation approval is not required.

Hydro has consulted with the EPA on the immobilised contaminants approval process. An application for an immobilised contaminants approval is currently under preparation for submission to the EPA.

The immobilised contaminants approval application is required to include the following:
- Details of the proposed immobilisation methodology.
- Evidence that it is not possible to reprocess the waste in order to reuse or recycle it.
- Details on quantity, form, background information and chemical composition of the waste.
- The equipment to be used and evidence of quality assurance/quality control.
- A description of the nature of the physical barrier to be established between the waste and the surrounding environment.
- Demonstration that the means by which the contaminants are immobilised will be

maintained over time.

The immobilised contaminants approval application would be assessed in parallel with the assessment and determination of Hydro's Development Application, including this EIS. The immobilised contaminants approval would only be granted following granting of Development Consent.

Material from the Capped Waste Stockpile would not be placed within the Containment Cell until the specific immobilised contaminants approval has been granted by the EPA. **EPA response:** Material in the capped waste stockpile cannot be placed within the containment cell until the leachable fluoride and/or cyanide levels are below the threshold levels in the CCO.

2.5.1.3 Environmentally Hazardous Chemical Act 1985

The *Environmentally Hazardous Chemicals Act 1985* (EHC Act) establishes the procedure for the declaration and management of environmentally hazardous chemicals and chemical wastes. The EPA can make and implement a Chemical Control Order for such declared chemicals or wastes. A Chemical Control Order has been issued under the EHC Act that is applicable to aluminium smelter waste containing fluoride and/ or cyanide. The Order requires a licence for the processing of aluminium smelter wastes containing fluoride and/or cyanide, and the disposal of aluminium smelter wastes (not containing leachable fluoride and/or leachable cyanide).

The key requirements of the Chemical Control Order are:

- Materials kept on-site must be: secured so that no waste and/ or leachate can escape from the site; in a facility that is maintained in good condition; and in a secure manner that prevents unauthorized access.
- Materials can be processed: to research environmentally acceptable methods that reduce levels of leachable fluoride and/or cyanide; at the Smelter for the recovery of components, the making of other products, or to reduce levels of leachable fluoride and/or cyanide; at the Smelter with waste, water or other materials (except those with leachable fluoride and/or cyanide) to facilitate disposal.
- Materials can be conveyed (following EPA approval) to another location for treatment to reduce levels of leachable fluoride and/or cyanide.
- Materials can be disposed: if certified as approved aluminium smelter waste (which is smelter waste that does not contain leachable fluoride or leachable cyanide); and in accordance with the POEO Act.

Hydro manages the applicable aluminium smelter waste at the Smelter (including that within the Capped Waste Stockpile) in accordance with a Licence (Licence Number 05) issued under the EHC Act. **EPA response:** The current EHC Act licence approves the keeping (not disposal) of aluminium smelter waste in the capped waste stockpile.

As discussed in **Section 3.4.2.2** the spent pot lining stored in buildings at the Smelter would be transported to a licensed recycling facility (as a separate activity to the Project). This complies with the conditions of Licence Number 05.

Spent pot lining contained within the Capped Waste Stockpile would be disposed to the Containment Cell as approved aluminium smelter waste (immobilisation within the Containment Cell addresses the leachable fluoride and leachable cyanide). As discussed in **Section 2.5.1.2** an application for a specific immobilised contaminants approval has been prepared for submission to the EPA. Spent pot lining within the Capped Waste Stockpile would not be placed within the Containment Cell until the specific immobilised contaminants approval has been granted by the EPA. It is noted that the spent pot lining capped within the Capped Waste Stockpile is not separable from other wastes contained therein. **EPA response:** The proposed method of placing the waste in a containment cell does not reduce the leachability of the contaminants in the waste below thresholds in the CCO, which would allow the lawful disposal of the waste. A process for assessment of the waste in the capped waste stockpile is needed to determine which waste materials:

- Can be recycled (eg SPL, steel)
- Can be directly disposed of either off site or in the proposed containment cell;
- Require treating to reduce leachability of the waste below the levels in the CCO, for subsequent disposal either off site or in the proposed containment cell.

3.3.3 Chemical Control Order Licence

As discussed in **Section 2.5.1.3** Hydro manages the spent pot lining in accordance with a Licence (Licence Number 05) issued under the EHC Act. The licence was issued for the appropriate management of the aluminium smelter wastes.

The key requirements of the Chemical Control Order are:

- Materials kept on-site must be: secured so that no waste and/ or leachate can escape from the site; in a facility that is maintained in good condition; and in a secure manner that prevents unauthorized access.
- Materials can be processed: to research environmentally acceptable methods that reduce levels of leachable fluoride and/or cyanide; at the Smelter for the recovery of components, the making of other products, or to reduce levels of leachable fluoride and/or cyanide; at the Smelter with waste, water or other materials (except those with leachable fluoride and/or cyanide) to facilitate disposal.
- Materials can be conveyed (following EPA approval) to another location for treatment to reduce levels of leachable fluoride and/or cyanide.
- Materials can be disposed: if certified as approved aluminium smelter waste (which is smelter waste that does not contain leachable fluoride or leachable cyanide); and in accordance with POEO Act. **EPA response:** Leachate results from the capped waste stockpile are high in leached fluoride. Further testing of the waste in the capped waste stockpile could be carried out to determine if the waste contains levels of leachable fluoride and/or cyanide that would prohibit its disposal under the CCO. The fluoride levels in the leachate indicate that some waste within the capped waste stockpile is leaching fluoride at levels which would prohibit its disposal.

9.4 Regulatory Framework - Funding, Liability and Financial Security

9.4.1 Regulatory Framework

The key potential regulatory mechanisms available to ensure the long term environmental management of the Containment Cell are the:

- Development Consent – EMP, Restrictive Covenant, Positive Covenant and Planning Agreement;
- EPL; and
- Specific immobilised contaminants approval (SIC Approval). **EPA response:** As noted above – a specific immobilised contaminants approval is not required. The CCO prevents disposal of the capped waste stockpile waste if it has levels of leachable fluoride and/or cyanide above the CCO threshold criteria.

Which of these mechanisms would be used, when their implementation would commence and cease, and the specific conditions of these mechanisms would be determined in consultation with the Department of Planning and Environment and the EPA.

The regulatory mechanisms to apply to the construction of, and material placement within, the Containment Cell would be determined prior to commencement of construction of the Containment Cell. As described for the EMP in **Section 9.1**

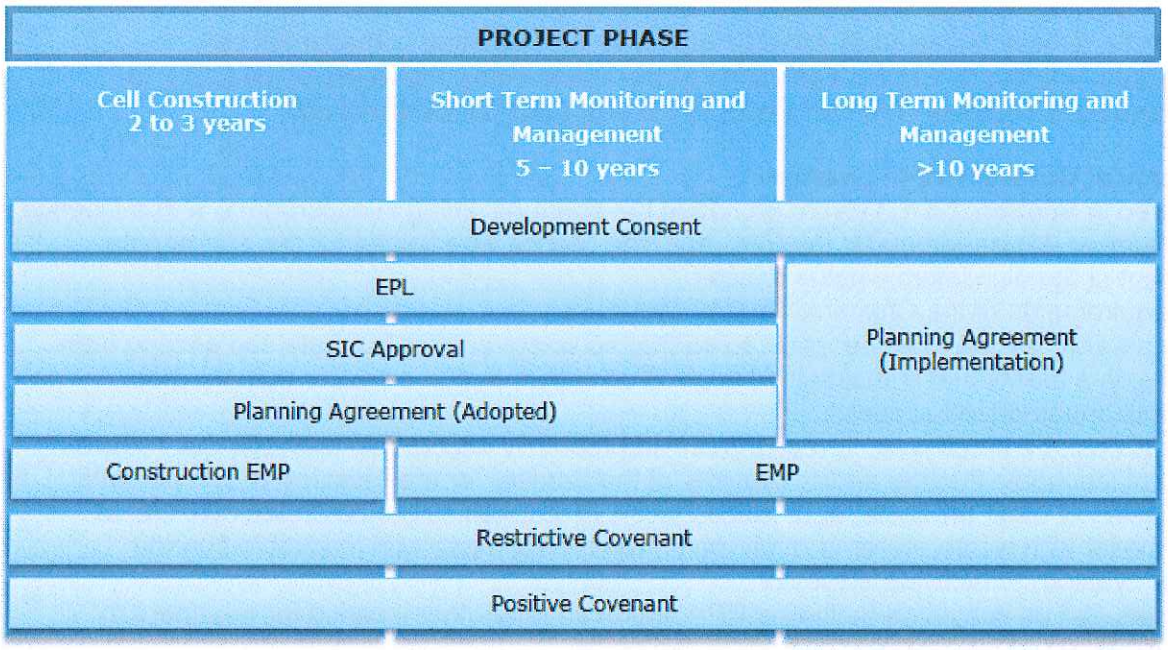

Figure 9-1: Potential Containment Cell Regulatory Options

An example of when these potential regulatory mechanisms could apply during the life span of the Containment Cell is illustrated.

The following sections describe how the potential regulatory mechanisms could be implemented to ensure the environmental performance of the Containment Cell. **Table 9.9.1** summarises the key funding, liability and financial security elements of the potential regulatory mechanisms.

Table 9.9.1: Regulatory Mechanism Elements

Regulatory Mechanism Element	Description
Funding	The owner of the Containment Cell land will be responsible for funding compliance with the regulatory framework. The Containment Cell land cannot be divested to a third party, unless the applicable regulatory agency is satisfied that the incoming owner has financial capacity to fund compliance with the regulatory framework.
Liability	The regulatory framework is binding on, and enforceable against, the owner/occupier of the Containment Cell land.
Financial Security	The EPL and Planning Agreement would ensure that there is adequate financial security throughout the life span of the Containment Cell for the total likely costs of complying with the long term environmental management obligations.

9.4.1.3 Restrictive Covenant

Limits on Use of Containment Cell Land

As discussed in **Section 2.4.2.2** the Containment Cell is located within an area that a Local Environmental Plan Amendment proposes to rezone to zone IN3 Heavy Industrial. Preliminary layouts propose that the Containment Cell would be centrally located in the land zoned IN3 Heavy Industrial.

Hydro has identified a restrictive covenant (pursuant to section 88E of the *Conveyancing Act 1919*) as a potential regulatory mechanism. The restrictive covenant would constrain any development from being carried out on the Containment Cell land that presents a risk of adverse impacts on the cap structure of the Containment Cell.

Limits on Divestment of Containment Cell Land

The restrictive covenant could contain a mechanism which restricts the land owner from transferring the Containment Cell land to a third party unless the third party satisfies the applicable regulatory agency that it has the financial capacity to comply with all the long term environmental management obligations for the Containment Cell. The financial capacity requirements are developed in consultation with the EPA prior to surrender of the EPL, as outlined in **Section 9.4.1.5.** **EPA response:** It is possible that the EPL may need to remain in perpetuity. This is because Clause 15 of Schedule 1 states that the scheduled activity of 'contaminated soil treatment' includes the storage of contaminated soil. As the project includes the placement of more than 30,000 cubic metres of contaminated soil into the containment cell for storage and treatment, the EPA would need to make a technical determination of when the storage of the soils ceases to be a scheduled activity.

The restrictive covenant would be registered against the title to the land and bind, and be enforceable by the applicable regulatory agency against the owner of the Containment Cell land.

9.4.1.4 Planning Agreement

Hydro has identified a planning agreement (pursuant to section 93F of the EP&A Act) as a potential regulatory mechanism. A planning agreement could operate from the date of surrender of the EPL and SIC Approval (if surrendered) to regulate the long term environmental management of the Containment Cell.

However, terms of agreement of the planning agreement would need to be approved prior to determination of the Development Application for the Project.

Environmental protection measures (including financial assurance obligations) that could be included in the planning agreement would be:

- Generally consistent with the conditions of the EPL (and Specific Immobilised Contaminants Approval where relevant), as amended to address the findings of an environmental performance review report; and
- Agreed by the parties to the planning agreement prior to Development Consent being granted for the Project and enacted prior to the surrender of the EPL and SIC Approval under the POEO Act.

A planning agreement could:

- Specify the procedures to ensure that a suitably qualified consultant has been engaged to undertake the long term environmental management of the Containment Cell (the Containment Cell Manager). This would include how the ongoing performance of the Containment Cell Manager would be assessed; and
- Restrict the developer from transferring the Containment Cell land to a third party unless:

(i) The third party first enters into a deed agreeing to comply with all the developer's
(ii) obligations in relation to long term environmental management of the Containment Cell as
(iii) if it were the land owner; and
(iv) The developer satisfies the applicable regulatory agency that the proposed transferee
(v) has the financial capacity to comply with the obligations in relation to long term
(vi) environmental management of the Containment Cell.

A planning agreement would be registered against the title to the land and be binding on, and enforceable against, the owner of the Containment Cell land.

9.4.1.5 Positive Covenant

A positive covenant (pursuant to Section 88E of the *Conveyancing Act 1919*) can be imposed on a property by an appropriate regulatory agency, placing restrictions on the use of that property. In addition (pursuant to Section 88BA of the *Conveyancing Act 1919*) a positive covenant can include

a requirement for maintenance and repair (if required) of the property. The applicable regulatory authority is responsible for enforcement of a positive covenant.

9.4.1.6 Environment Protection Licence

The occupier of the Containment Cell land would be required to hold an EPL under the POEO Act to authorise the proposed scheduled activities associated with construction, placement of material within, and capping of the Containment Cell.

The holder of the EPL would be required to satisfy the fit and proper person test prescribed in the POEO Act. This test includes, among other matters, satisfying the EPA that they are technically competent and have the financial capacity to undertake the long term environmental management of the Containment Cell.

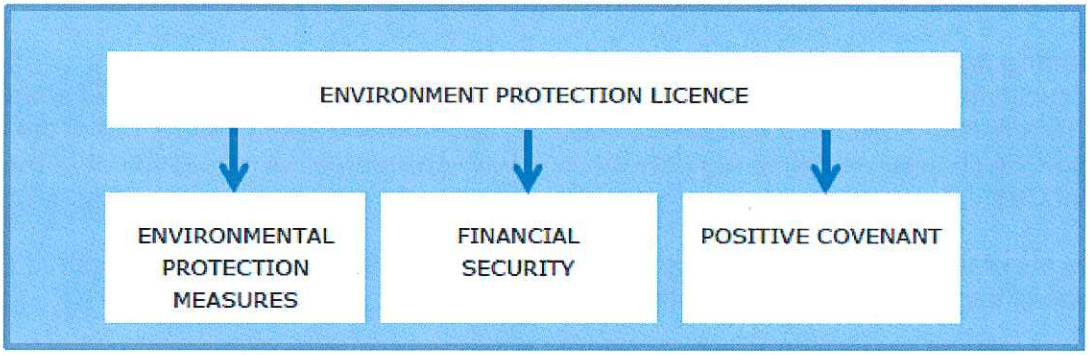

Figure 9-3: Environment Protection Licence Potential Key Elements

As illustrated in **Figure 9-3**, Hydro proposes that the EPL could contain:

- A standard suite of conditions to prevent, minimise and mitigate the environmental impacts of the Containment Cell.
- A condition/s requiring the licence holder to provide one or more of the following:
- Financial assurance to secure the performance of the environmental obligations set out in the EPL (in accordance with section 70 of the POEO Act).
- A policy of insurance for the payment of costs for clean-up action, and for claims for compensation or damages, resulting from pollution caused by the scheduled activity (in accordance with section 72 of the POEO Act).
- Arrangement of a positive covenant under section 88E of the *Conveyancing Act 1919* (in accordance with section 74 of the POEO Act).

The amount and form of the financial assurance is proposed to be agreed with the EPA following Development Consent and once the detailed design and location plans for the Containment Cell are approved by the Department of Planning and Environment and the EPA (pursuant to the conditions of the Development Consent). This approach would enable the amount and form of financial assurance to properly reflect the EPA's consideration of the following prescribed matters in the POEO Act:

(i) The degree of risk of environmental harm associated with the Containment Cell;
(ii) The remediation work that may be required because of activities under the licence;
(iii) The environmental record of the holder or former holder of the licence or proposed holder of the licence; and
(iv) Other matters prescribed in the regulations.

The EPL could not be surrendered, or transferred to another person, except with the consent of the EPA in accordance with the POEO Act (which would include the transferee satisfying the EPA of its financial capacity to comply with the environmental protection measures in the EPL). The conditions of the EPL (including maintaining the financial assurance) would remain binding and enforceable against the holder of the EPL.

There is potential that the EPL would not apply to the Containment Cell in perpetuity, and could remain in place until monitoring demonstrates to the satisfaction of the EPA that the Containment Cell complies with specified environmental performance criteria. The environmental performance criteria, time period for monitoring and mechanism for the engagement of a suitably qualified expert to prepare an environmental performance review report that assesses the Containment Cell's compliance with such criteria would be agreed with the EPA and inserted as conditions into the EPL. EPL **EPA response:** (As above – the EPL could potentially be in place in perpetuity. The EPA would need to make a technical decision as to when the scheduled activity of 'contaminated soil treatment' ceased to apply.

Alternatively, the EPL could apply to the completed Containment Cell in perpetuity in place of, or in parallel with, the planning agreement (as described in **Section 9.4.1.4**). If such an approach was implemented, it is expected that the conditions of the EPL would be reviewed: following completion of the Containment Cell; and following an assessment of its operational environmental performance.

The EPL could address (among other potential matters):

- The specified environmental performance criteria for the Containment Cell which may include the Containment Cell's compliance with the Development Consent, EPL and the POEO Act, whether there will be an ongoing environmental impact arising from the activity authorised by the EPA after the activity ceases to be carried on, and whether it is appropriate to manage that impact through conditions of the EPL.
- The minimum time period for monitoring compliance with the environmental performance criteria.
- An obligation to engage a suitably qualified expert to prepare an environmental performance review report which assesses the Containment Cell's compliance with the environmental performance criteria and makes findings in respect of an appropriate ongoing management, monitoring, maintenance and financial assurance regulatory framework for the Containment Cell following surrender of the EPL.

9.4.1.7 Specific Immobilised Contaminants Approval

As discussed in **Section 2.5.1.1**, the specific immobilised contaminants approval application is required to include the following:

- Details of the proposed immobilisation methodology.
- Evidence that it is not possible to reprocess the waste in order to reuse or recycle it.
- Details on quantity, form, background information and chemical composition of the waste.
- The equipment to be used and evidence of quality assurance/quality control.
- A description of the nature of the physical barrier to be established between the waste and the surrounding environment.
- Demonstration that the means by which the contaminants are immobilised will be maintained over time.

The specific immobilised contaminants approval would include conditions relating to operation, including:

- The period for which the approval is valid.
- The treatment required to immobilise the waste, for waste that is not naturally immobilised.
- Testing and record keeping requirements.
- Any other conditions which are required.

There is the potential that the specific immobilised contaminants approval (as with the EPL) would not apply to the Containment Cell in perpetuity, and that it would be revoked on the date the EPL is surrendered. Alternatively it could apply to the completed Containment Cell in perpetuity with the EPL in place of, or in parallel with, a planning agreement. **EPA response:** As above, a specific immobilised contaminants approval is not required.

3. EMAIL FROM RAMBOLL (CONSULTANTS) FOR HYDRO (16/9/16)

Primary Position – Project Complies with CCO Framework

It is Hydro's primary position that the containment cell would comply with the current regime because:

- the Containment Cell is properly characterised as the 'keeping' of aluminium smelter waste which would be a permitted activity under the CCO provided it is carried out in accordance with Hydro's EHC Licence (see attached email dated 14 September 2016) **EPA response:** Placing the waste in the containment cell is 'disposal' and not 'storage' or 'keeping'. The waste is not intended to ever be removed from the containment cell.; and/or
- the specific immobilisation approval would amount to the aluminium smelter waste being 'approved aluminium smelter waste' for the purposes of the CCO and EHC Licence because it would not contain fluoride or cyanide that is leachable into the surrounding environment (see attached email dated 25 August 2016). **EPA response:** An immobilisation approval for macroencapsulation would have no effect in overriding the CCO as the definition of aluminium smelter waste applied to the leachability of the waste, not the leachability of the cell it is contained within.

I will not go over the details again, but Hydro reiterates its position that the placement of the Capped Waste Stockpile in the Containment Cell can be regulated within the current legislative and regulatory regime (without changes to legislation, regulations or the Chemical Control Order).

Alternative Options

In the event that the EPA does not accept Hydro's primary position set out above, and based on discussions with the EPA to date, Hydro considers the following alternative options would facilitate the carrying out of the Project (in order of Hydro's preference):

- Exemption Regulation - A regulation could be made under Section 58(d) of the *Environmentally Hazardous Chemicals Act 1985* (EHC Act) that has the effect of exempting the Project from the application of the CCO. Hydro considers that this option could be lawfully implemented, justified on merit grounds, and is likely to allow the material social, economic and environmental benefits of the Project to be achieved within a shorter timeframe than the other alternative options set out below;
- Amendments to the Chemical Control Order - I have attached the submission that we made to the EPA Manager Hazardous Materials Chemicals and Radiation regarding the Chemical Control Order (CCO) Review. In section 3 of this letter we identify a number of potential changes to the CCO, such as the inclusion of "treating" as a prescribed activity (along with a definition of treating) as we discussed in our meeting on 8 September 2016.
  From our previous discussions, you did note that this option could be difficult and lengthy, as the Hazardous Chemicals Advisory Committee as discussed in Part 2 of the EHC Act has been disbanded. While Schedule 1 of the EHC Act includes provisions relating to the Committee (including the required make-up of the Committee, and the process for filling a vacancy), it is understood such a process for filling all 17 vacancies may be a long process.
- Revocation of the Chemical Control Order - Our submission on the CCO Review also notes that revocation of the CCO should be a primary consideration of the EPA's review, with the *Protection of the Environment Operations Act 1997* and its regulations already providing the EPA with the required regulatory tools. While this is Hydro's overall preference, we acknowledge that revocation of the CCO is unlikely to occur within a reasonable timeframe for the purpose of the Project approval.

EPA response: It is possible to pursue each of these three options however appropriate processes need to be followed and final decision is at the discretion of the. The EPA would need to consider whether any of these options is desirable from a policy perspective.

We greatly appreciate the efforts that you and the EPA have been making in resolving the regulatory issues. We also appreciate your willingness to consider Hydro's position on the regulatory regime. We hope this final submission by Hydro on this issue may assist you in finalising your response/ submission, and we look forward to discussing that with you when completed.

FORMER HYDRO ALUMINIUM SMELTER - DEMOLITION AND REMEDIATION - SSD 6666

EPA'S COMMENTS FOR CONSIDERATION

Air Quality and Odour

The EPA has reviewed the air quality impact assessment (AQIA) supporting Hydro Aluminium Kurri Kurri Pty Ltd's application for approval for stage two of the remediation of the former aluminium smelter. This includes demolition of existing buildings and treatment of the materials generated.

Dispersion modelling was used to estimate ground-level concentrations of a range of pollutants – TSP, PM_{10}, $PM_{2.5}$, dust deposition, NO_2, SO_2, CO, benzene, ethylbenzene, toluene, xylene, PAHs, arsenic, cadmium, chromium, nickel.

Emission estimation used NPI and US EPA emission factors. Compositional analysis of the buildings was used to derive concentrations of trace metals and toxics in the emitted PM_{10}. Emissions from detonation of the stacks was omitted from the emissions estimation.

The approach to assessment is generally consistent with advice in *'Approved Methods for the Modelling and Assessment of Air Pollutants in NSW'*, however there are a number of deficiencies in its application. It is recommended that DPE seek additional information from the proponent to assist in developing conditions of approval, in particular:

- explicit assessment of potential impacts from stack demolition (in particular toxic pollutants and asbestos);
- details of management and monitoring measures proposed for the stack demolition;
- estimation of maximum concentration of toxic pollutants at the boundary of the premises;
- justification for the assumption that trace metals occur in the PM_{10} fraction only; and
- justification for the choice of the year 2014 as representative of meteorology at the site.

Potential for emission of odorous compounds, volatile compounds, and semi-volatile compounds

Section 4.2.3 of the AQIA states that odorous emissions are not expected to be significant as onsite surveys found few volatile contaminants and odorous compounds.

Estimates are made of volatile and semi-volatile compounds, but this is limited to use of diesel.

The opening of the capped waste stockpile, sorting and processing of this waste to allow for lawful disposal has the potential to release odorous, volatile, and semi-volatile compounds. These potential emissions needs to be evaluated and management measures discussed as necessary to mitigate any impacts.

Estimation of impacts from toxic pollutants not presented as required by the Approved Methods

Concentration of toxic pollutants is tabulated for sensitive receptors in table 18 of the AQIA.

Section 7.2 of the Approved Methods requires evaluation of toxic air pollutants "at and beyond the boundary of the premises". The tabulated results do not meet this requirement.

It is recommended that information be provided presenting concentration of toxic air pollutants as required by the Approved Methods.

Estimated emission of trace metals

Trace metal emissions have been estimated using the results of compositional analysis of the buildings to be demolished. The metal content was then applied to the calculated emission of PM_{10}. There is no explanation for assuming that all trace metals will be in the PM_{10} fraction of particulate matter and this assumption needs to be justified.

Meteorological data used in the assessment

Calendar year 2014 was used for the dispersion modelling. There is no evidence presented to indicate that 2014 is suitably representative of the meteorology of the site.

It is recommended that information be provided justifying the choice of calendar year 2014 to represent meteorology.

Noise

Blast demolition

The proponent has provided limited information on the management of vibration and blasting associated with using detonation for the demolition of the three concrete stacks on the site.

The proponent should ensure that blast demolition methodologies and designs are fully considered and documented to minimise blast overpressure and ground vibration on the community from the explosive detonations. This should include, but not be necessarily limited to defining meteorological conditions under which blast impacts may be reduced at sensitive receiver locations through alternative blast designs.

Water

The EPA considers that many surface water issues can be addressed through appropriate consent conditions, however, the following issues should also be addressed though the response to submissions process:

1. The beneficial use of aquatic ecosystem protection and beneficial uses (environmental values) of surface waters that may receive groundwater flows from the site must be appropriately addressed in the remediation criteria and ongoing monitoring (see Remediation validation criteria below).

2. The basis for designing a suitable treatment system should be clear by stating the analytes and expected discharge quality to North Dam for the full list of relevant site contaminants, e.g. metals, fluoride, cyanide, polycyclic aromatic hydrocarbons and the range of contaminants detected in any leachate to be treated (e.g. Table 5.6 of the Remedial Action Plan). Potential pollutants associated with ancillary activities at the project site should also be accounted for in the treatment plant design, e.g. petroleum hydrocarbons, solvents, heavy metals from building materials and paints, transformer oils containing polychlorinated biphenyls (PCBs).

   The current EIS does not include water quality criteria for the water treatment plant (WTP) for all relevant pollutants. The EIS states that: "The water would be treated to a standard to allow for discharge to the North Dam." There is potential for a wider range of pollutants in wastewater and at higher concentrations due to the remediation works compared to previous operation of the smelter.

   Considering there are no proposed discharges to surface waters, the target criteria should be based on allowing short term irrigation to the existing reuse area.

   Detailed design of any new WTP may not be available prior to approval, however, intended design performance for pollutants to be treated and final effluent quality should be clarified before the application is determined. Detailed design of any new WTP should be provided as part of a licence variation application.

3. Appendix 4, Figure 1, "Site Layout" indicates a WTP discharge that appears to discharge treated leachate to an unnamed ephemeral watercourse that flows to Black Waterholes Creek, a tributary of Wentworth Swamp. It should be clarified that all WTP discharges are directed to North Dam as stated elsewhere in the EIS.

Remediation Validation Criteria for Groundwater

It is noted that the EIS provides groundwater remediation validation criteria to assess the success of the proposed remediation. Contaminants of concern have been determined as those detected in groundwater in the vicinity of the capped waste stockpile, specifically cyanide, fluoride, sodium and elevated pH. The remediation criteria for groundwater includes all of these contaminants except sodium. The criteria does not include some of the contaminants identified in leachate produced from the capped waste stockpile (Table 5.6 of Remedial Action Plan (RAP)) or metals and organic contaminants present in groundwater at concentrations exceeding ANZECC (2000) Guidelines (Table LR4). For example, aluminium in groundwater beneath the project site has been detected at a concentration of 13.6 mg/L, almost 250 times the adopted 95% protection trigger value for slightly to moderately disturbed freshwater ecosystems. Similarly, benzo(a)pyrene is present at more than 30 times the adopted 95% trigger value.

Section 9.3.2.2 of the RAP, "Appropriate Criteria for Groundwater", states that:

> "The review of potential beneficial uses of the shallow estuarine groundwater aquifer did not identify any potential beneficial uses. As such, validation criteria for demonstrating successful source removal (excavation of stockpiled wastes and contaminated soil) and secondary removal (extraction and treatment of leachate within the footprint of the Capped Waste Stockpile) will be as follows:
>
> - Trend analysis following a minimum of 2 years of quarterly monitoring of those wells required to be monitored under the EPL. Wells to show stable or reducing trends in the concentrations of fluoride, cyanide and pH."

Aquatic ecosystem protection is a beneficial use that is required to be considered under:

- the NSW Water Quality Objectives Framework; and
- is a required consideration in EPA licensing functions under Section 45 of the *Protection of the Environment Operation Act*.

The remediation criteria and monitoring must account for the groundwater ecosystems and the potential for groundwater to discharge to the Wentworth Swamp surface water system or other surface water systems where a wider range of environmental values (aquatic ecosystems, irrigation, stock watering and recreational use) are relevant.

The EPA does not consider the proposed groundwater remediation criteria to be adequate. It is recommend that the Proponent refine the groundwater remediation validation criteria to include other key analytes with high exceedance of the aquatic ecosystem protection criteria. The groundwater monitoring program should be expanded to measure the remediation outcomes include those analytes identified to exceed the 95% trigger value for slightly to moderately disturbed freshwater ecosystems.

Waste Management – Containment Cell

The proposed cell design is generally consistent with restricted solid waste landfill requirements outlined in the EPA's Solid Waste landfill Guidelines 2017 and therefore can receive waste which classifies as general solid waste and restricted waste. The placement of aluminium smelter waste in the capped waste stockpile into the containment cell can only occur if that waste has levels of leachable fluoride and cyanide below the leachability thresholds detailed in the 'Chemical control order in relation to aluminium smelter wastes containing fluoride and/or cyanide' (1986) (the CCO). The proposed

landfill cannot receive any spent pot liner or other aluminium smelter wastes which have leachable levels of fluoride and /or cyanide above the CCO thresholds.

Leachate management

Irrigation of generated leachate

The proponent should provide information on the historical use of the irrigation area and its suitability to continue to receive potentially contaminated water, including leachate, and whether the irrigation area will be suitable for future land use.

Environmental Liabilities

Financial Assurance may be required

The proponent should be made aware that the EPA may require the provision of a financial assurance for the site. The amount and form of the assurance would be determined by the EPA and required as a condition of the licence.

The financial assurance may be linked to licence conditions requiring works or programs related to the environmental performance of the site.

Insurance may be required

The proponent should be made aware that, consistent with section 72 of the POEO Act, the EPA may require the proponent to take out and maintain a policy of insurance.

Positive covenant may be required

The proponent should be made aware that, consistent with section 74 of the POEO Act, the EPA may require the proponent to enter into or arrange for a positive covenant under section 88E of the *Conveyancing Act 1919.*