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## **Public Consultation Response Document**

**Amendment to the Public  
Environmental Report for the  
Nyrstar Port Pirie Smelter  
Transformation Proposal – Pre-  
Treatment Plant, May 2022**

**16/08/2022**

Nyrstar Port Pirie Smelter  
Ellen Street, Port Pirie, SA

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## **1 Introduction**

Nyrstar Port Pirie Pty Ltd (Nyrstar) is applying to vary the development approval granted for the Port Pirie Smelter Transformation pursuant to s.115(8) of Planning, Development and Infrastructure Act 2016 (SA) (PDI Act). The application is supported by the document titled “Amendment to the Public Environmental Report for the Nyrstar Port Pirie Smelter Transformation Proposal - Pre-Treatment Plant” (PER Amendment). The PER Amendment was provided for public consultation in May 2022.

Two public submissions were received on the Amendment to the PER, from the Environment Protection Authority and SA Health. The following sections detail Nyrstar’s response to the submissions received.

## 2 Environment Protection Authority

The following table details Nyrstar’s response to the questions raised by the Environment protection Authority, letter dated 26 July 2022.

Topic	Section	Page #	Segment	EPA Comment/Question	Nyrstar Response
Proposed Variation	2.2	14 – para 3	“The Pre-Treatment Plant will only be operated to accelerate the processing of accumulated secondary feed stockpiles. The Pre-Treatment Plant will not operate when stockpile backlogs have been consumed <b>and the TSL Furnace can process leach products at a rate that provides sufficient feed to supply the Blast Furnace.</b> ”	<p>The EPA notes that the Blast Furnace operation has not reached the stability anticipated by the PER. This is because the TSL Furnace is still apparently ramping up to its full production capacity and has not yet provided consistent slag block quality.</p> <p><i>Q: How will Nyrstar demonstrate Blast Furnace performance efficiency and TSL Furnace efficiency such that the primary objective of this variation is met (ie what modifications/changes would be made to the TSL furnace to ensure it can provide sufficient feed to the blast furnace?).</i></p> <p><i>Q: How does Nyrstar define ‘sufficient feed’ - what are the key performance indicators?</i></p> <p><i>Q: Within what timeframe is the TSL expected to be able to meet the demands of the blast furnace?</i></p>	<p>A: The commissioning of the TSL Furnace will operate in parallel while the Pre-treatment Plant is utilised to supplement the feed to the Blast Furnace. The feed rate to the Blast Furnace will measure the TSL Furnace slag block production and the secondary feed consumption by the Pre-Treatment Plant. The planned maintenance shutdown in October 2022 will support the TSL Furnace’s ability to operate at its design production rate more consistently. Further operational and maintenance improvements will be implemented as they are identified.</p> <p>A: A Blast Furnace minimum feed rate of 1,700 dry metric tonnes per day will enable the Blast Furnace to operate efficiently.</p> <p>A: The TSL Furnace has achieved the design feed rate. Nyrstar will continue to optimise the operating time efficiency of the TSL Furnace. A step improvement is expected following works to be undertaken during the October shutdown, however it is anticipated that ongoing improvements will occur subsequent to that project.</p>
Proposed Variation	2.2	14 – para 4	When the Pre-Treatment Plant ceases operation, it would be decommissioned and any redundant infrastructure demolished. The <b>size of the stockpile storage areas</b> would be reduced to the area required for processing current arisings of secondary feed materials.	<p>It is the EPA’s understanding that the proposed Product Recycling Facility is planned to store future feed materials.</p> <p><i>Q: What volume of outdoor stockpiles is envisaged if not all stored within the Recycling Facility? Has this been accounted for in the modelling?</i></p>	<p>A: The proposed Product Recycling Facility (PRF) is intended to store and prepare intermediate materials (internal recycles) and secondary feed materials (other than the accumulated stockpiles of zinc plant leaching products). Both of these activities are currently undertaken in the area known as ‘the Pit’. The proposed Pre-Treatment Plant seeks to accelerate consumption of the accumulated stockpiles of zinc plant leaching products stored adjacent to the Pit.</p>

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				Clarification should be provided as to whether or not stockpiles would be completely depleted or reduced, and specifically which material(s) would be depleted vs reduced. Wording throughout the document is contradictory in relation to its messaging.	The air emissions modelling scenario 1B, described in the PER, assumed no secondary feed material stockpiles in the Pit and no zinc plant leaching residue stockpiles. The 1B modelling scenario does include the black sand emplacement area (5.8Ha).
Proposed Variation	2.2	14 – para 5	“A process flow diagram is provided in Figure 1 and a process flow diagram from the Pre-Treatment Plant is provided in Figure 2. The current layout is shown in Figure 3 and the final feed system arrangement is shown in Figure 4. The proposed implementation strategy is for the Pre-treatment Plant to begin operation in the current layout set up for the plant trials, allowing it to continue to operate while incremental modifications are made until the final layout is achieved. <b>The number and configuration of the Feed Hoppers within the shed shown in the final layout (Figure 4) is indicative and may change, based on operational requirements.</b> ”	<p><i>Q: Noting that the layout provided is indicative, the EPA wishes to ensure that it has the opportunity to review the final configuration.</i></p> <p><b>It is recommended that a reserve matter is included on any approval which requires Nyrstar to submit the final configuration of the Feed Hoppers within the shed (once determined) to the satisfaction of the EPA.</b></p>	A: The final configuration layout will be provided to the EPA, when available.
Timeline of Operations	2.2	14 – para 5	“The proposed implementation strategy is for the Pre-treatment Plant to begin operation in the current layout set up for the plant trials, allowing it to continue to operate while incremental	<p><i>Q: What is the estimated timeframe for achievement of a fully reconfigured plant (Final Layout – Figure 4) to be operational?</i></p> <p><b>It is recommended that a reserve matter is included on any approval which requires</b></p>	A: The fully reconfigured plant would commence operating 18 months after commencement of works. Following full commissioning, Nyrstar will seek to continuously improve operational performance of the facility.

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			modifications are made until the final layout is achieved.”	<b>Nyrstar to submit the final plant configuration (once determined) to the satisfaction of the EPA.</b>	
Air Emissions	Figure 4	21	Uncovered Conveyor - CV-19 (near the words ‘STEP 2’)	<p><i>Q: Why has the eastern end of CV-19 remained uncovered in the final configuration?</i></p> <p><i>Q: What are the dust controls proposed on this section of the conveyor?</i></p>	<p>A: This section of the conveyor is not considered to be an emissions hazard because it is protected from wind by the adjacent building.</p> <p>A: Water sprays are used to control dust in the section by adjusting the moisture content of the material.</p>
Wastewater Emissions	Table 3, row titled ‘Wastewater Volumes & Heavy metal concentration	34	<p><b>Col 1:</b> Wet scrubber effluent, product bunker water sprays and washdown water from the proposed Pre-Treatment Plant (approximately 28 m<sup>3</sup> per hour from the Blast Furnace, Cadmium Plant, Pre-Treatment Plant, Wharf sump and Briquetting Plant).</p> <p><b>Col 2:</b> Water would be directed to the Process Effluent Treatment System (PETS) via the 16m thickener. The PETS Plant adjusts wastewater pH and removes heavy metals. The PETS Plant has sufficient capacity to treat this wastewater flowrate.</p>	<p>There is a general lack of detail relating to wastewater emissions (nature, frequency, volumes, etc) and the proposed management of wastewater from the Pre-treatment Plant specifically. The EPA notes that Nyrstar has confirmed that the PETS Plant has capacity to accommodate wastewater volumes from the proposed Pre-treatment Plant.</p> <p><b>Col 1:</b> The wastewater flow rate provided includes of multiple sources.</p> <p><i>Q: Can details of the contribution of the proposed Pre-treatment Plant alone be provided?</i></p> <p><b>Col 2:</b> The EPA has remaining concerns that the PETS may not have sufficient capacity to manage long-term contributions from this plant. Nyrstar has not clarified the ability of the PETS to cope with the additional throughput.</p> <p><i>Q: What is the current capacity of the PETS in comparison with the capacity once the Pre-</i></p>	<p>A: The Pre-Treatment Plant contributes up to 10 m<sup>3</sup> per hour of the wastewater directed to the PETS Plant. The Pre-treatment Plant contribution is expected to be similar once the plant is commissioned and operating at maximum throughput.</p> <p>A: The PETS Plant has a capacity of up to 175 m<sup>3</sup> per hour. The current rate of wastewater generation by the smelter (including the Pre-Treatment Plant) is approximately 140 m<sup>3</sup> per hour, thus, there is sufficient capacity to treat expected flows.</p> <p>It is also worthy of note that the upgrades being made via the Pre-Treatment Plant Project will improve materials handling, which in turn minimises loss of process material that may be entrained by stormwater or dust suppression water flows. This reduces the overall contaminant load in wastewaters, which improves the operating efficiency of the PETS plant.</p>

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				<i>treatment Plant is commissioned and operating at maximum throughput?</i>	
Timeframes	Table 5	40	<p><u>Moisture and Windbox Control</u> - Additional moisture control improvements in <b>three to six months</b>.</p> <p><u>Product Bunker Upgrade and Optimisation of Hygiene System</u> - Redesign of product transfer to a new large product bunker. Expected completion in <b>12 to 18 months</b>.</p> <p><u>New Feed System</u> - The proposed new feed system is expected to be installed in <b>12 to 18 months</b>.</p>	<p><i>Q: These timeframes are measured as months from when? Would this be from the date of the major development (impact assessed development) variation approval decision (if granted) or from the commissioning of the final plant configuration)?</i></p> <p><i>Q: Noting the timeframes, when would the Pre-treatment Plant be considered to be 'commissioned'?</i></p>	<p>A: The timeframes are expressed as months from the date of approval of the PER Amendment.</p> <p>A: The air emissions modelling assumed that the fully reconfigured plant would commence operating after 18 months.</p>
Undefined acronym	Attachment B	68	Acronym EER	EER is undefined in Attachment B.	Electrical Equipment Room
Dust Management Plan	Attachment C	70	Dust Management Plan	<p>This requires updating in the PER to reflect the most recent, approved version.</p> <p><b>Suggested condition: The DMP and TARP detailed in Attachment C must be updated and submitted to the satisfaction of the EPA to reflect controls and measures take into control dust emissions from equipment reconfiguration, demolition and construction activity.</b></p>	The Dust Management Plan and Pre-Treatment Trigger Action Response Plan will be reviewed, updated and re-submitted to EPA as required.
<b>General Comments</b>					
Timeframes			The PER includes a prediction that that proposed Pre-treatment Plant would take three to six years to deplete the stockpiles.	<i>Q: When is the three to six year period proposed to start operations? Would this be from the date of the major development variation approval decision (if granted) or from the commissioning of the final plant configuration)?</i>	A: The three to six year period would commence when the Pre-Treatment Plant reconfiguration is completed.

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				<p>If the Pre-treatment Plant reconfiguration is completed within 18 months of approval (approximately March 2024), this would mean the stockpiles are predicted for depletion around March 2027 to 2029.</p> <p>Nyrstar must provide notification to the EPA at the commencement of full-scale operations, at the point where 90% of stockpiles have been depleted, and at the cessation of the plant operation following stockpile depletion. This would be managed via the EPA licence.</p>	
Dust Management			Demolition of the old plant and equipment for the reconfiguration of the proposed Pre-treatment Plant and installation of the Recycling Facility.	<p><b>Suggested condition: DMP and Trigger Action Response Plan (TARP) detailed in Attachment C must be updated and submitted to the satisfaction of the EPA to reflect controls and measures take into control dust emissions from equipment reconfiguration, demolition, and construction activity.</b></p> <p><i>Q: Has the generation of fugitive dust from equipment movement, and construction/demolition activities been accounted for in the Air Quality modelling?</i></p>	<p>A: The Dust Management Plan and Pre-Treatment Trigger Action Response Plan would be updated, as required.</p> <p>The Air Quality modelling has not accounted for equipment movement and construction/demolition activities related to final configuration of the plant. Dust control measures, such as dust suppression and of cleaning equipment, will be applied to minimise the potential for emissions during construction and demolition activities.</p>

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SO <sub>2</sub>			<p>There are numerous locations in the PER where Nyrstar state there is no emission of SO<sub>2</sub>. However, there is no use of operational data to support this statement.</p>	<p>Nyrstar should update or provide data (as part of the PER) which defends the statement that no sulphur dioxide emissions are expected to be liberated from this process.</p> <p>(For example, correct the statement for that it will be 'statistically insignificant' or that a minor contribution of X% increase is possible for the duration of the plants operation.)</p> <p>Nyrstar must review and if necessary, update the Tall Stack Protocol to capture any changes to SO<sub>2</sub> emissions. This would be managed via the EPA licence.</p>	<p>The goal of the Pre-Treatment Plant process is to remove chemically bound water while retaining sulphur in the dried material. The chemistry supporting this approach is commercially sensitive. Nyrstar briefed the EPA on 4 May 2022 and provided copies of publicly available technical papers on 5 May 2022.</p> <p>In Table 3, Sulphur Dioxide emissions from Pre-Treatment operation were identified as a potential environmental impact. This would be controlled by implementing the existing Tall Stack Sulphur Protocol. If changes to this protocol are required, Nyrstar will amend accordingly, in consultation with EPA.</p>



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## 3 SA Health

SA Health provided a submission regarding the PER Amendment document on 15 July 2022.

Nyrstar are committed to continued collaboration with SA Health and the Environment Protection Authority regarding:

1. Support and adapt existing monitoring programs conducted by Nyrstar and SA Health to enable detection of a potential change in bioavailability of lead depositing in the community to be accessed by children;
2. Further investigate sulphur dioxide emissions to determine the nature if any, of the contribution of pre-treatment processing to tall-stack emissions that ground in the community and impact on respiratory health due to irritant properties; and
3. Identify a process-specific environmental measure that will enable blast furnace performance to be routinely monitored to assess if the proposed benefits of this new process outlined in this amendment are realised in the trial period and then in the short- and long-term.

In the PER Amendment document, Nyrstar has estimated and modelled the anticipated Lead emissions from operation of the Pre-Treatment Plant, including reclaiming materials from the Leach product stockpiles. The additional control measures implemented by Nyrstar, including the Product Recycling Facility, are expected to result in a net reduction of Lead emissions. Removal of the Leach Product stockpiles and relocation of some Pit activities to the Product Recycling Facility will minimise outside handling of Lead bearing materials.