

APAC Position Paper

SafeWork NSW – Solid AN

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1 Introduction

- 1-1 This document is in response to the recently released SafeWork NSW discussion paper “Separation Distances for Solid Ammonium Nitrate in NSW.” This forms part of our contribution to the community and industry consultation process.
- 1-2 This document summarises IPL’s, incorporating Incitec Pivot Fertilisers (IPF) and Dyno Nobel Asia Pacific (DNAP) response to the SafeWork NSW discussion paper.
- 1-3 Historically, NSW have used a series of different reference documents to legislate solid AN, such as SAFEX and reference documents borrowed from other state regulators.
- 1-4 The discussion paper indicates that NSW want to pursue a consequence-based (Quantity-Distance) approach to separations of AN to other infrastructure. While this approach is somewhat consistent with the approach taken in other jurisdictions and is also consistent with the approach to explosive products and precursors, however, is not consistent with current practices for Major Hazard Facilities.
- 1-5 Explosives and ANEs have prescribed distances in NSW. AN prill currently does not. NSW are looking to “fill this gap” by prescribing separation distance for AN Prill.

2 Executive Summary

- 2-1 IPL, incorporating Incitec Pivot Fertilisers (IPF) and Dyno Nobel Asia Pacific (DNAP) take our corporate citizenship seriously and we wish to be part of the consultation process.
- 2-2 We want to ensure we understand legislative changes that may affect our operations.
- 2-3 As an industry member want to appropriately influence the process and outcome.
- 2-4 We are part of the industry voice. We want to hear what the rest of our industry has to say and in doing that, share learnings.
- 2-5 We want to support SafeWork NSW in continuing to safely manage the storage and handling of Ammonium Nitrate prill.
- 2-6 The proposed change to legislation, if adopted as drafted, will impact IPF and DNAP operations in NSW to the extent that storages of solid ammonium nitrate may need to be reduced or reconfigured.
- 2-7 IPL welcome the opportunity to be part of the industry & community consultation process and representatives of IPL will continue to participate in all forums associated with the consultation process.
 - a) Direct correspondence with the NSW regulator stating our position.
 - b) Attendance of consultation meetings.
 - c) Correspondence with NSW via Australasian Explosives Industry Safety Group (AEISG.)
 - d) Correspondence with NSW via Chemistry Australia.

3 Recommendations to SafeWork NSW

- 3-1 IPL & DNAP support the NSW initiative of developing a code of practice or legislation for the continued safe storage of solid ammonium nitrate.
 - a) We would recommend that MHFs be excluded from this document and that they remain to be managed under the existing MHF regulations.
 - b) We would recommend that mine-site based depots and facilities be included in this document to gain a higher level of standardisation of approach across industries.

- c) We would recommend that the NSW Government adopt a greater level of commonality of factors with the other state regulators and bodies (summarised in section 6 of this report) in order to create increased harmonisation across states.
- d) We would recommend that NSW adopt an approach similar to Queensland, whereby Quantitative risk assessments are allowed where prescribed distances cannot be met.
- e) We would recommend that the NSW government carry out an impact study covering cost and risk to industry and the community of the proposed changes to legislation. Changes to this type of standard are likely to have knock on effects into other areas such as:
 - i. Ports
 - ii. Road Safety

We would recommend that any impact study looks to achieve the lowest risk across the total supply chain.

- f) The summary of the various factors noted within the proposed document work within a complex set of interactions with other preventative and mitigative factors that have yet to be developed. We look forward to commenting on these as they become available.

4 Scope

- 4-1 This document, and the NSW document to which it refers, apply to solid ammonium nitrate, a class 5.1 oxidiser, of UN 1942 and UN 2067.
- 4-2 This report summarises IPL & DNAP's response to the NSW consultation process.
- 4-3 This report includes references to standards & codes from other jurisdictions, such as Queensland and WA.

5 Exclusions

- 5-1 This document does not cover:
 - a) Chemicals other than solid ammonium nitrate.
 - b) The NSW document will not apply to ports.
 - c) The NSW document will not apply to mine-site based facilities, at least initially, although it is our view that it should.

6 Comment on MHFs

IPL have made the comment that we recommend that MHFs should fall outside the scope of the proposed document. This statement is made on the basis that:

- MHFs run under a mature set of regulations.
- NSW already has a group of well qualified, competent professionals who inspect and audit MHFs.
- MHFs, because of their size and access to well qualified personnel, are more able to cover off quantitative risk assessments and other more onerous engineering and HSE tasks to prove safety and are generally funded, supported and skilled in developing and maintaining suites of preventative controls.

7 Comparison to Available Standards

In order to understand the proposed SafeWork NSW document and its potential impact, an analysis of the assumptions contained within the document has been carried out.

7-1 Terminology/Definitions used in standards.

Conclusion: NSW propose the use of terminology similar to QLD EIB53.

WA and AEISG, meanwhile use terminology consistent with HIPAP 4.

7-2 Stack size. The proposed document uses 500 tonnes as the largest stack size. This is consistent with WA and QLD.

7-3 Stack Segregation

a) Proposed stack segregations are consistent with the WA CoP, Qld EIB53 and SAFEX.

b) Concrete Segregation. For bulk storage, a wall of 200mm thick meets the intent of segregation for stacks of 500 tonnes or less. This is similar to Queensland's EIB53.

Conclusion: Proposed stack segregation is similar to other jurisdictions.

7-4 AN Densities

Conclusion: Proposed AN Densities are consistent with the WA CoP and SAFEX.

7-5 TNT Equivalency

The proposed TNT equivalency is in the same order of magnitude as Qld's EIB53, WA's Code of Practice.

*SAFEX, which has historically been called up by NSW allows for another factor "TGAN explosive yield" of anywhere between 10% and 100%. This, with other factors, leads to a range of:

- 5% - Initiated by fire only.
- 10% - Initiated by chemical contamination.
- 32% - Initiated by high velocity shock.

Conclusion: Proposed TNT Equivalencies are not consistent across jurisdictions. We proposed that NSW work with other jurisdictions and bodies to resolve.

7-6 Scale Factors

Scale-factors are a mathematical representation of the over-pressure allowed at a particular type of structure. A comparison of scale factors for different categories of structure is shown below.

These factors are proportional (not linear) to blast over-pressure.

SAFEX provides additional linkages from the above data to consequence and risk statements. The new proposed document does not incorporate these.

The proposed scale factors are more stringent than Queensland, WA and SAFEX.

**AEISG's recently released Code of Practice uses a risk-based approach to separations, using IMESA FR as a mechanism for calculating quantitative risk and comparing these to HIPAP 4 levels of acceptable societal risk. Application of his code generally results in lower distances than those prescribed by the various regulators, although in some instances (below 60 tonnes) it results in distances greater than those prescribed.

7-7 Other Information

The summary of the various factors noted above covers only those factors noted in the discussion paper. These factors work within a complex set of interactions with other preventative and mitigative factors that

have yet to be developed within the proposed document. We look forward to commenting on these as they are developed.

8 Change Information

8-1 **Table 8-1** provides a summary of the current change details. The document history is recorded in the document archive by each version.

Version	Date	Change Summary
1.0	18 November 2022	New document

Table 8-1 – Change information