

## **File Note**

То:	Mr. Geoff Hynes, Inspector, Health & Safety Authority	From:	BÓC
Ref:	578-23P1222 R1	WBS:	578: 07.02.02
Subject:	Response to HSA comments on LUP assessment	Date:	27 <sup>th</sup> February 2024

This note sets out the updated response to the Health & Safety Authority's request for further clarification (as set out in An Bord Pleanála's letter of 16<sup>th</sup> January 2024) on the COMAH land use planning assessment for Tynagh North OCGT. This assessment forms part of the submission to An Bord Pleanála for the proposed strategic infrastructure development by EP Energy Development Ltd. Park North of Tynagh power station, Derryfrench, Tynagh, Loughrea, Co. Galway (ref: ABP-317810-23).

The main changes from the original response (issued on 7<sup>th</sup> November 2023) are shown in **blue**.

No.	HSA comment	BÓC response
1	The report should include a drawing showing the site boundaries and the location/routes of all major hazards for all three COMAH installations — the current Tynagh Energy site, along with the Tynagh South and North sites. The drawing should show over ground and underground gas pipelines, AGIs, fuel storage bunds, CCGT and OCGT gas turbine enclosure locations, power station turbine hall, hydrogen operations etc. The report does not make clear the location of the Tynagh North OCGT turbine enclosures (only the AGI, fuel bund and underground gas pipelines are shown).	Drawings showing the layout of each site are provided in Appendix 1 of the revised report which show the major hazard installations for the existing, proposed Tynagh North OCGT and proposed Tynagh South OCGT site. The original drawing has been updated (refer to Appendix 2) to show the existing AGI, as well as the main population receptors such as the security building, control room and workshop. EP Energy Developments Ltd. is progressing the development of the Tynagh North OCGT on the basis that all three stations will form a single COMAH establishment. As such the proposed development is a modification to the existing COMAH establishment rather than it being new establishment. A single COMAH boundary is shown on the map in Appendix 2.

**Byrne Ó Cléirigh**, 30a Westland Square, Pearse Street, Dublin 2, D02 PN76, Ireland. Telephone: + 353 – 1 – **6770733**. Facsimile: + 353 – 1 – **6770729**. Email: **Admin@boc.ie**. Web: **www.boc.ie** 



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2	Section 7.2 indicates that these are 3 separate sites within a domino group. But Section 7.3 states that they "all share administration and workshop space. In addition, the three sites will have a single security gatehouse". In terms of the COMAH Regulations, each COMAH establishment shall have a clear boundary, it is not permissible to traverse one establishment to access another. Further details required on shared facilities to determine compliance with COMAH Regulations.	EP Energy Developments Ltd. is progressing the development of the Tynagh North OCGT on the basis that all three stations will form a single COMAH establishment. As such the proposed development is a modification to the existing COMAH establishment rather than it being new establishment. A single COMAH establishment boundary is shown on the map in Appendix 2. In that context, we have also included a discussion on onsite risk in Section 8.2.3 of the updated report.
3	Clarification is required on the inventory of dangerous substances to be stored/used on the proposed site.	Refer to Section 2 of updated report.
4	Section 5.1 — the report does not seem to consider the risks associated with a VCE in a gas turbine enclosure for the OCGT. This should be justified or included in the assessment.	Sections 6.3.1.2 and 6.3.3.3 of the report have been updated to include for a VCE event at the gas turbine enclosure. This event was not included in the original assessment because it is not included in the HSA's <i>Guidance on Technical Land Use</i> <i>Planning</i> (February 2023).
5	Section 5.1 — the report does not seem to consider the risks associated with the AGI. This should be justified or included in the assessment.	Events involving releases from above-ground natural gas pipelines at the AGI have been considered in the assessment. The pipelines at the site comprise underground sections and above ground sections at the AGI. Both are considered and included in the risk assessment. Text updated in Section 6.3.1.1 to reflect this.
6	Also, to note in section 5.1, and 5.2.1 — rupture of a natural gas pipeline and a pipeline rupture can lead to a fireball. This should be considered as it is often the dominant risk.	<ul> <li>Section 3.5.1 of the HSA's Guidance on Technical Land Use Planning states that:</li> <li>NG pipeline ruptures and leaks are assumed to be continuous rather than instantaneous. The consequences associated with the LOCs are jet fires, flash fires, and VCEs.</li> <li>A continuous release of natural gas from a pipeline, with direct ignition, is taken in the model to result in a jet fire, not a fireball. The consequences and associated risks from jet fires are included in the assessment.</li> </ul>
7	Section 5.2.1 Table 4 — the HSA refs should be to HSE Events #087 and #088 in the current TLUP (February 2023)	Corrected.
8	Section 5.2.1 - actual diameter and routes of the 75 bar and 30 bar gas pipelines to be set out. (250mm seems to be an 'example').	The diameter of the proposed natural gas pipelines is 250 mm. The routes of the above- and below- ground sections of natural gas pipeline are shown in the map in Appendix 2 of the report.



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9	Section 5.22.1 — vertical jet fires have been modelled as per the current advice in TLUP Section 2.9. This may be reasonable in some cases, but it is now more standard/conservative to consider a horizontal jet fire. This may be particularly important when considering the risk of escalation/domino events. Horizontal jet fire to be modelled.	Section 6.3.3.1 of the report has been updated to include for modelling jet fires as horizontal releases. This event was not included in the original assessment because it is not included in the HSA's <i>Guidance on Technical Land</i>
10	Section 5.2.2.1 — details on which model was used to generate the jet fire hazard ranges? It would help to quote all the key modelling inputs.	Refer to Sections 6.2, 6.3.2 and 6.3.3.1 of updated report.
11	Section 5.2.2.2 — no information is provided on flash fire hazard ranges. How have flash fires been modelled?	Refer to Section 6.3.2.2 of updated report.
12	Section 5.2.2.2 — provide detail on meteorological data probabilities (i.e. 80/20 for D5/F2) or wind rose, which are relevant for flash fires for gas releases.	Refer to Section 5.1 of updated report.
13	Section 5.2.2.3 — provide detail on the direction used for the release for pipeline VCE hazards?	The influence of wind on the dispersal of vapour has been assessed. The meteorological data used in this assessment is set out in Section 5.1.
14	Section 5.2.3 — what approach has been taken to ignition location for gas pipeline VCE events?	The VCE consequences were estimated from the centre of the cloud using the EFFECTS model. Using the flammable cloud dimensions (from the EFFECTS model), the blast centre was placed at a variety of locations using the wind probability distribution from the wind rose model described in Section 5.1 of the updated report.
15	Section 5.3.1 Table 7 — HSA refs should be Events #123, #125, #127.	Corrected.
16	Section 5.3.1 Table 7 — what model has been used to calculate these pool fire hazard ranges? And what material was used to represent distillate? It would help to quote all the key modelling inputs.	Refer to Sections 6.2 and 6.4.3 of updated report.
17	Section 5.3.2 — what frequency has been used for an overtop pool fire? TLUP Section 3.6.3 indicates 5 x 10-8/yr per tank, provide further detail.	A probability of 5 x $10^{-8}$ per year was applied for the unbunded pool fire scenario. A statement to this effect has been added to Section 6.4.1.
18	Section 6.3 — provide detail on how the risks to people indoors from overpressure have been evaluated?	Refer to Section 7.4 of updated report.



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19	In terms of the domino risk set out in Section 7.1, you are required to complete an assessment of the domino risk from the proposed North OCGT to the other two sites i.e. the operational Tynagh Energy along with the Tynagh South OCGT site. It is expected the most significant events would be a major release/rupture at the AGI leading to a fireball and a VCE in a turbine enclosure or turbine hall.	At the request of the HSA, we have included additional modelling for a VCE event following a release of natural gas into the gas turbine enclosure. The consequences of this event are less significant than some of the other scenarios, e.g. a full rupture of the 75 bar natural gas pipeline. The escalation risk between the three developments is discussed in Sections 8.1.1, 8.1.2 and 8.1.3.
20	Section 7.2 Figure 3 — it is unclear whether the risk contours relate to a hypothetical residential population (outdoors 10% of time, indoors 90% of time, always present) as required for TLUP LUP zones.	Refer to Section 7.4 of updated report.
21	Section 7.3 Table 13 —row 3 IR - query should this be 0.3 not 0.2?	Corrected. This was a typographical error.
22	Section 7.3 Table 13 — the location of all these areas should be shown on a site drawing.	The security building, control room and workshop have been added to the drawing in Appendix 2.
23	Section 7.3 Table 13 — have the 'Risk' values quoted for different locations considered the design of each building (in terms of indoor overpressure vulnerability) and indoor/outdoor probability? The approach used for calculating risks should be made clear.	Refer to Section 7.4 of updated report.
24	Section 7.3 — below Table 13 it is stated that 'The level of risk to an individual security guard is calculated to be 4.2 cpm" which does not seem to be consistent with Table 13 which indicates 1.57 x 10-7 as the risk level at this location.	Corrected. This was a typographical error in the text below Table 13 in the original report.