Letter from Health and Safety Executive for Northern Ireland

Re: Planning application LA11/2022/0536/F

HSENI Ref: CN202205-0006

LPA: Derry City and Strabane District Council

Date: 22 September 2022

[redacted]

22 September 2022

Dear Sir/Madam

PLANNING APPLICATION: LA11/2022/0536/F
HSENI REF: CN202205-0006
Lands approx. 64m SW of 18 Ballinska Rd, approx. 80m SE of Seagate Technology, Springtown Industrial Estate, Derry BT48 0LY

HSENI has reviewed the response, dated 18th August 2022, to HSENI's previous comments.

As previously stated, HSENI recognises that certain battery technologies may reduce the risk of thermal runaway. However, they do not eliminate the risk of fire or explosion. HSENI advise the Council to take a precautionary approach and consider the scenario of a fire or explosion in a single BESS module/container.

HSENI acknowledges the applicant's comment that the proposed Battery Energy Storage System (BESS) consists of a modular system. Other BESS systems use containerised systems, as referred to in the HSENI Technical Note on BESS. The proposed system consists of modules with dimensions 3.4m x 2.5m x 1.4m giving an individual module volume of 11.9 m^3. An ISO shipping container used in other BESS developments has a typical volume of 77 m^3. Reducing the possible volume for an explosive vapour to form inside the module will decrease the effects of an explosion.

HSENI refers the Council to Table 5.1. of its Technical Note on BESS. HSENI has replicated this table below for convenience.

Table 5-1 Distances to Various Levels of Explosion Overpressure

Volume of vapour involved (m^3)	**0.5 m^3**	**5 m^3**	**50 m^3**
	Distance (m) to various levels of overpressure		
600 mbar	2	5	10
300 mbar	3	7	16
140 mbar	6	12	26
70 mbar	10	21	45

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The applicant can provide the actual internal free space in a module to determine the possible vapour volume.

For example, with a module volume of 11.9 m^3 and accounting for internal components (batteries, control and cooling systems), a 5 m^3 vapour volume may be appropriate.

A resulting explosion can produce 70 mbar overpressure up to 21 meters away. HSENI analysis of the proposed layout maps indicates this would affect the adjacent roads and car park. However, no buildings appear to be within this 21-meter range. For reference, in a Hazardous Substance Consent (HSC) consultation involving only developments such as car parks and roads in the 70 mbar outer zone, HSENI would respond with a Do Not Advice Against.

HSENI advised the Council that the proposed module layout could increase the risk of propagations between modules compared to ISO containers with a separation distance between them.

HSENI advise the applicant to clarify, in the scenario of a fire in a single module:

1. Will the fire spread to adjacent modules?
2. What is the rate of propagation to adjacent modules?

This information will allow the Council and COMAH CA to determine if it is reasonable to foresee a fire will generate dangerous substances above their thresholds for HSC and COMAH.

Yours faithfully

Notifications Team
HSENI

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