

Transportation of Defence Nuclear Materials

Report by Ricky Moffat, Head of Commercial Operations

1 Purpose of Report

The purpose of this report is to provide Midlothian Council with information regarding the contingency arrangements in place in relation to the transportation of Defence Nuclear Material.

Defence Nuclear Material is the Ministry of Defence collective term for nuclear weapons and Special Nuclear Material.

Special Nuclear Material comprises:

- Chemical elements (tritium, highly enriched uranium and plutonium) which are used in the production of nuclear weapons
- new and used submarine reactor fuel.

This issue was subject to a motion at the Council meeting in June 2018 where it was agreed that a leader write to the Minister of Defence. A response is awaited to the leader's letter of 5 July 2018 to the Ministry of Defence.

2 Background

In common with other Scottish local authorities, Midlothian Council has seen an increase in the number of enquiries regarding the movement of Defence Nuclear Materials. These enquiries have lately come from members of the public, media representatives, elected members and members of the Scottish Parliament.

The Ministry of Defence has listed Midlothian in *Local Authority and Emergency Services Information (LAESI) Edition 11* as one of many local authority areas where Defence Nuclear Material may pass through or fly over.

Local authorities are not provided with details of specific timings and routes though the police are advised in advance of a road convoy transiting through their area.

Nuclear weapons are moved in heavy duty vehicles designed to protect the cargo from a number of scenarios, including a severe road traffic accident. These vehicles will form part of a convoy escorted by Ministry of Defence Police and consisting of crews trained to carry out first aid, fire-fighting, mechanical repairs and radiation monitoring.

Special nuclear materials and used reactor fuel are both transported in containers designed in accordance with International Atomic Energy Agency Standards and will also be included in a convoy escorted by Ministry of Defence Police and other specialist officers.

United Kingdom nuclear weapons are not transported by air. United States nuclear weapons are occasionally moved by air in multi-engine aircraft. Information on routes is not openly shared.

The Ministry of Defence states in LAESI that:

“There has never been an accident involving Defence Nuclear Material in the UK that has led to, or come anywhere near leading to, the release of a radioactive material to the environment.”

However, the Ministry of Defence maintains a capability to respond in the event of an emergency during the transport of Defence Nuclear Material. In addition to the specialists who travel with the convoys, the Ministry of Defence also maintains response forces at a state of readiness during road, rail and air movements which will be deployed as required to meet the circumstances of the specific incident. Details of the Immediate Response Forces available is shown at Appendix 1.

The response by the emergency services and local authorities to an emergency of this type will be in common with the multi-agency response to any major emergency or incident. Midlothian Council would implement the generic emergency management response, act in support of the emergency and health services and take the lead, through the Care for People arrangements, in meeting the needs of those affected. As part of the multi-agency response structure, informed decisions would be taken based on the specialist advice available.

Under the duties contained within the Civil Contingencies Act 2004, Midlothian Council is required to work with multi-agency partners to carry out risk assessments and associated planning, training and exercising in accordance with the Act and guidance issued by Scottish Government. The regional risk assessment process is led by the Scottish Fire and Rescue Service.

One of the outcomes of this process is the production of Community Risk Registers which are made available to the public. The two relevant to the Midlothian area are the:

- Lothian and Borders Local Resilience Partnership Community Risk Register
- The East of Scotland Regional Resilience Partnership Community Risk Register.

Note: In publishing information, there is a caveat to avoid causing unnecessary alarm.

The two documents above are hosted on the Scottish Fire and Rescue Service's website and also available through a link on the Midlothian Council website.

The risk assessment process uses the same criteria across Scotland and is consistent with the National Risk Assessment which contains the Government's assessment of the likelihood and potential impact of the most significant emergencies that the UK could face over a five year period. The movement of Defence Nuclear Materials is not included.

3 Hazards and Response in Relation to an Incident involving Defence Nuclear Materials

It is Ministry of Defence policy to neither confirm nor deny the presence or absence of nuclear weapons at any particular time or place (this does not apply to Special Nuclear Material). However, this policy may be set aside in the interests of public safety:

- Where not disclosing the presence of nuclear weapons would cause an unacceptable risk to the public or emergency services
- To ensure the continued safety and/or security of any weapon present.

Nuclear weapons are designed in such a way that in order to function, a series of detonators must function simultaneously, having first satisfied the safety systems.

The hazards associated with nuclear weapons are related to the explosive, radioactive and toxic materials that they contain. Conventional hazards such as fire, smoke and propelled material, which may arise in the event of an accident, may pose an immediate threat.

Regardless of the means of transportation, alerts will be passed to all three emergency services and will include suggested precautionary countermeasures and public protection advice. The police will then be responsible for coordinating the provision of public safety information through the media, in collaboration with partner organisations.

In the event of a nuclear weapons emergency, the Ministry of Defence will advise the police to evacuate people within 600m to provide protection from conventional hazards, including an explosion.

Beyond the immediate hazard area, to protect from the potential for airborne radioactive hazards, advice will be to take shelter. A summary of precautionary public protection advice which will be given by the Ministry of Defence in the initial stages is shown at Appendix 2.

Further information is contained in LAESI.

4 Involvement of the Scottish Parliament

Following a motion raised in the Scottish Parliament in April 2018 and subsequently debated in May 2018, it is understood that a review of preparedness is about to be initiated by Scottish Government. Full details are awaited but the aim will be to review the security, resilience and response arrangements in relation to these movements. The scope of the review is intended to involve:

- Ministry of Defence
- Ministry of Defence Police
- Police Scotland
- Scottish Fire and Rescue Service
- Scottish Government Resilience Division
- Resilience Partnerships (which are multi-agency and include local authorities)

- SOLACE.

It is anticipated that Midlothian Council will be contacted in relation to the review.

5 Report Implications

5.1 Resource

There are no significant resource issues in relation to this report.

6.2 Risk

Details of specific convoy cargo, routes and timings are not divulged to local authorities to protect the integrity of the convoy. That, coupled with the complexity and specialist nature of the materials, means that local authorities are not equipped to complete meaningful risk assessments related to the convoy movements.

6.3 Single Midlothian Plan and Business Transformation

- Community safety
- Adult health, care and housing
- Getting it right for every Midlothian child
- Improving opportunities in Midlothian
- Sustainable growth
- Business transformation and Best Value
- None of the above

6.4 Impact on Performance and Outcomes

In the event of an incident involving a Defence Nuclear Material convoy, Midlothian Council would invoke the agreed internal emergency management structure as well as fully participate in the multi-agency response. In these circumstances this would include responding as appropriate to the scientific and technical advice being provided for the protection of public health.

6.5 Adopting a Preventative Approach

The purpose of this report is to provide information to the elected members of Midlothian Council. Whilst not the intended subject of the report, the forthcoming review of preparedness may lead to an enhanced state of preparedness.

6.6 Involving Communities and Other Stakeholders

No direct consultation has taken place with communities and other stakeholders for the purposes of this report. The forthcoming review of preparedness will be carried out across a number of organisations. With regard to the provision of public information, it is important that whilst it should inform the public it should not cause alarm.

6.7 Ensuring Equalities

This report is not introducing new services, policies, strategies or plans in the sense covered by this category.

6.8 Supporting Sustainable Development

This report does not directly contribute to supporting sustainable development.

6.9 IT Issues

There are no IT implications arising from this report.

7 Summary

This report seeks to provide the members of Midlothian Council with information on the transportation of Defence Nuclear Material through Scotland together with notice of a review of preparedness initiated through debate at the Scottish Parliament.

8 Recommendations

Midlothian Council is invited to note this report and consider the following recommendations:

- (a) Approve in principle Midlothian Council's involvement in a review of preparedness in relation to the transportation of Defence Nuclear Material
- (b) Receive an update report in due course as a result of the review.
- (c) Note that a response is awaited from the Ministry of Defence to the Leader, letter dated 5 July 2018.

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Immediate Response Forces

Road	<p>The IRF is embedded within the convoy and the convoy commander will act as MOD Incident Co-ordinator (IC). There will be sufficient equipment and trained personnel to alert and brief the Police, Fire and Ambulance services, to assess whether or not there has been a release of radioactive material, and to assist the Police in establishing an initial safety and security zone*. Additionally, trained personnel will co-ordinate with the Police in providing information for the media. Convoy personnel are cross-trained to enable them to undertake other roles should the designated personnel be incapacitated in the emergency.</p> <p>A Joint Operations Cell (JOC) monitors all road movements of DNM and will activate any additional response needed to support the IRF. The JOC will contact the Police immediately to inform them of an emergency that has or may have resulted in a release of radioactive material and to provide them with precautionary public protection advice on sheltering and evacuation. In the event of a serious road traffic crash that has no release of radioactive material, the JOC will also contact the Police to discuss any additional support requirements.</p>
Air	<p>The RAF maintains a Station NEO Team (SNT) at immediate readiness during the flight of aircraft carrying nuclear weapons, uranium, plutonium or tritium. This team will form the IRF for an air crash. Its Commanding Officer will become the MOD IC. The team is equipped and trained to identify any radiological hazard and provide advice and support to local emergency responders. The JOC monitors all air movements of DNM and will activate the SNT in the event of this type of emergency. The JOC will also contact the Police immediately to inform them of the emergency and to provide them with precautionary public protection advice on sheltering and evacuation* if appropriate.</p>
Rail	<p>The rail convoy, like its road equivalent, has embedded within it all the necessary equipment and personnel to alert and brief the emergency services, determine whether there has been a release of radioactive material, and assist the British Transport Police and /or local Police to set up and manage a safety cordon*. The convoy commander, a Ministry of Defence Police (MDP) Inspector, would be the MOD IC.</p> <p>A Joint Operations Cell (JOC) monitors all rail movements of DNM and will activate any additional response needed to support the IRF. The JOC will contact the Police immediately to inform them of an emergency that has or may have resulted in a release of radioactive material and to provide them with precautionary public protection advice on sheltering and evacuation. In the event of a serious rail crash that has no release of radioactive material, the JOC will also contact the Police to discuss any additional support requirements.</p>

Above extract is from LAESI version 11

Summary of Precautionary Public Protection Advice

	Transport Details	Evacuation Zone (360°)	Downwind Shelter Zone (45°)
Road	Weapon	600 metres	5 kilometres
	SNM shipments of plutonium, uranium or tritium	100 metres	1 kilometre
	New fuel*	100 metres	
	Used fuel In case of severe damage to flask such that fuel modules are exposed*	100 metres 500 metres	
Air	Weapon	600 metres	5 kilometres
	Shipments of uranium and plutonium	100 metres	1 kilometre
	Shipments of tritium	100 metres plus downwind evacuation to 600 metres over a 45° arc	
Rail	Used fuel	100 metres	
	In case of severe damage to flask such that fuel modules are exposed*	500 metres	

* Cooling of the containers with water is strictly prohibited.

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