The Risk Assessment and Management of Force Health Protection, CBRN, and Environmental and Industrial Hazards (EIH) on Operations and Exercises

Amendment record

This Annex has been reviewed by Directorate of Defence Safety (DDS) together with relevant subject matter experts and key safety stakeholders. Any suggestions for amendments to this chapter should in the first instance be directed to the Defence organisation's Safety Centre/Team Group Mailbox and with their approval, sent to DDS at: People-DDS-GroupMailbox@mod.gov.uk.

Version No	Date of publication	Text Affected	Authority
1.0	Dec 25	First version of Annex A to Chapter 43 (Force health protection aspects of medical planning) of JSP 375, Volume 1.	DDS

Introduction

1. This Annex sets out the process to be followed on Operations and Exercises to ensure that Environmental and Industrial Hazards (EIH[1]) to UK Forces are accurately assessed; potential health effects quantified, managed and recorded.

2. It applies to commanders and all those personnel involved with the planning, deployment, combat, post conflict, post deployment phases of Operations and for the relevant phases of Exercises.

3. Commanders of deployed forces manage significant force protection risks to secure strategic objectives consistent with Doctrine[2]. To assist the identification, assessment and control of EIH, within tolerable levels, a multi-disciplinary team approach[3], is to be adopted. This will ensure that the full Chemical, Biological, Radiological and Nuclear (CBRN) threat spectrum (see para 7 below) is appropriately assessed.

4. The medical organisation undertaking the assessment for EIH will be tailored to the mission. Depending on the circumstances, this assessment may come from a Combat Health Advisor (CHA), Combat Health Duties (CHD) qualified individual or a medical staff officer (Commander Medical – Comd Med) with multiple medical responsibilities, supported by public health officers or from preventive medicine and environmental health and other specialists[4].

---

[1] EIH are defined as including hazardous chemicals other than chemical warfare agents, pathogenic micro-organisms (including animal disease) other than when used as biological warfare agents, radiation hazards other than those arising from the use of nuclear weapons and physical hazards such as dust, noise, asbestos and smokes.

[2] AJP 3-14 Allied Joint Doctrine for Force Protection

[3] Public, Environmental and Occupational Health, and other specialists as required.

[4] AJP 4-10 Allied Joint Doctrine for Medical Support 5.7 4

5. For exercises, the same process will be undertaken as for operations, but the Comd Med role will be the responsibility of the Competent Medical Authority (CMA), who advises the activity commander about the activity medical plan including whether the health risks have been managed to As Low As Reasonably Practicable (ALARP) and will assist in identifying to commanders the residual risk that remain after reasonable mitigations have been put in place. This process may be supported by reconnaissance undertaken by deployed EH. During the Exercise, EIH assessments will be reviewed, if necessary, by exercising medical personnel supported by the CMA.

6. To assure the adequacy of EIH assessment and management, completed risk assessments may be subject to review by the Force Health Protection Bd via the Environmental Health Steering Group.[5]

Background

7. **CBRN Threat Spectrum** - The CBRN threat faced by UK Forces encompasses natural hazards or endemic diseases to human-made hazards, such as Toxic Industrial Materials (TIM), Toxic Industrial Chemicals (TIC), Toxic Industrial Biological (TIB) and Toxic Industrial Radiation (TIR), through to the use of CBRN weapons[6].

8. The CBRN spectrum refers to the full range (whether weaponised or not) and EIH refers to all physical, chemical, biological and radiological stressors to personnel other than the use of these stressors as weapons. EIH from a medical perspective is a component of Public, Environmental and Occupational Health routinely practiced during contingency.

9. EIH risk assessment and management is an element of Force Health Protection[7] and in accordance with Doctrine[8] is to include the involvement of Medical and CBRN staffs. For a complete EIH risk assessment to be made there **must** be active involvement of appropriately specialised medical personnel who can consider and advise upon the possible effects and consequences of identified hazards. EIH present a risk to the health of military personnel on operations and as such Medical will lead and co-ordinate the assessments, interpretation of risk and advice to all commanders.

10. The health effects of EIH may be both immediate (mission impact) or long-term (health impact) and the risks they pose **must** be properly assessed and managed. The identification of hazards alone, without qualification or quantification, does not inform a risk assessment process. EIH risk management **must** balance the significance of the risk with the wider imperatives and overarching mission.

---

[5] JTTP 4.10.1: Force Health Protection and health Risk Management
[6] JTTP 3.61.1 Joint NBC Defence 1404
[7] AJP 3-14: Allied Joint Publication for Force Protection - A008b
[8] AJP 4-10: Allied Joint Publication for Medical Support 2.1

Roles

11. The Commander aims to preserve freedom of action and operational effectiveness of the force whilst ensuring significant risks are identified, assessed and controlled within tolerable levels. Commanders **must** manage the balance of human and material costs against operational imperatives[9]. EIH avoidance, within the dictates of mission requirements, **should** be a primary consideration.

12. In order to characterise the hazard and determine the risk, the Commander will:

a. Identify battle-space EIH, initially by intelligence (especially medical intelligence) and confirmed by informed reconnaissance for example Intelligence, Surveillance, Target Acquisition, and Reconnaissance (ISTAR). To facilitate informed assessments to be undertaken, appropriately qualified EH, Combat Health Advisor (CHA) or other specialists personnel as necessary (number and qualification of individuals undertaking reconnaissance is to be based upon the initial threat assessment and threat) are be included in pre deployment reconnaissance teams[10].

b. If appropriate, qualify or quantify the nature of the hazard and the extent of the risk.

c. Implement appropriate control measures and monitor,[11] when avoidance is not achievable. A continuous assessment of the hazards and the risks posed **must** be maintained.

d. Audit the risk management system within the theatre of operations.

13. The Commander **should** deploy all appropriate force protection measures against the EIH presented, be they chemical, biological, radiological or physical hazards. These include:

a. **Detection** - Means of detection and identification of EIH of concern **should** be deployed, where available, with appropriately trained staff. This includes indicators such as human and animal health surveillance systems, medical information and medical intelligence in addition to any other technical means. It is important to note that the presence of a TIM may not indicate that a significant risk or, indeed that, any risk exists. Medical specialists are required in theatre and via reach back to assess the actual risk to the health of personnel and the impact upon the mission.

---

[9] AJP 3.8: Allied Joint Publication for CBRN Defence

[10] AJP 4.10: Allied Joint Publication for Medical Support

[11] Monitoring may include merely a periodic review of the control measures to ensure their continuing applicability.

b. **Warning and Reporting - (W&R).** CBRN specialists, when deployed, may provide the Commander with a W&R system capable of predicting downwind hazards to deployed forces from some EIH; however, this is only a prediction and cannot solely be relied on. Exposure to an EIH might only be detected when personnel begin to report sick. Hence, the importance of advanced medical surveillance and epidemiological reporting systems with collation and analysis of data by appropriately qualified medical staff that can be used to recognise abnormal morbidity on a near real time basis.

c. **Protection** - In the case of some EIH, the provision of Personal Protective Equipment (PPE) to military personnel and MOD civilians to protect against the effects of exposure may be required. Means of protection is to be deployed as appropriate and personnel trained to utilise any specialist protective equipment. Military CBRN respirators and protective suits are not designed to protect against EIH but may provide incidental (interim) protection against some, including industrial chemicals. The military respirator **should** only be used for emergency protection against the immediate effects of an EIH release and whilst evacuating from the immediate hazard zone. Guidance on appropriate PPE when required **should** be sought from the EH teams in theatre in the first instance.

d. **Hazard Management** - Hazard Management is to be adopted either to avoid areas of contamination or infection, or to mitigate its effects. During operations, the underlying principle for UK forces is that they **should** avoid EIH hazards wherever possible. Reconnaissance and assessment of EIH within a theatre of operations **must** be undertaken by specialist medical personnel (principally EHP) and CBRN Staff. The aim of this co-ordinated approach is to minimise the effects of Disease and Non-Battle Injuries (DNBI) on the deployed force.

e. Medical staffs are to assist J3 / J5 staff in the preparation of appropriate Standing Operating Procedures to deal with EIH incidents. These plans will need to include: the detection and monitoring of EIH, rapid incident W&R procedures followed by investigation, marking of hazards, evacuation plans, safe distances, protective equipment, decontamination procedures and medical response plans. Standing Operating Procedures will need to be co-ordinated with allies and host nations. Some health protection management measures will be required prior to deployment such as the provision of immunisations and chemoprophylaxis.

f. **Medical Intervention** - With respect to EIH, medical personnel **should** be aware of, or provided with, information on first aid and primary care actions to deal with the possible effects of exposure to the EIH issues identified through intelligence, reconnaissance and assessment process.

14. Operational / Exercise planning is to include the risks from EIH. EIH management **should** aim to reduce the risk to personnel to a level that is ALARP, while retaining the Commander's freedom of action. This can be achieved through a process of informed and tiered EIH management. The principles of EIH management are as follows:

a. **Medical Intelligence**. General and Medical Intelligence (MedInt), including the locations and types of hazards, are required to provide an initial assessment of risks to health, including those posed by EIH. These will be incorporated through the Intelligence Preparation of the Battlespace (IPB) into the Operational Estimate process and within the normal MedInt process. Collection and analysis of MedInt continues during and after the deployment.

b. **Reconnaissance**. Pre-deployment reconnaissance **must** include EIH to inform the estimate process and to identify appropriate Force Health Protection measures, including recommendations pertaining to those areas within theatre to be avoided if possible. EIH reconnaissance will also be required during the deployment. Appropriately qualified medical personnel, (for example, EH) or unit trained personnel (such as CHA and CHD) and in specific circumstances other specialists are to be included in reconnaissance parties as they are best placed to identify possible hazards that pose a significant potential risk to health. EHPs have access to Med Recce TIC / TIM and Water Sample Kits to assist this process.

c. **In-Theatre Risk Assessment**. Where it is suspected that EIH exist or incidents / exposures may have occurred, an assessment of the potential risk will be made by EHP. There may be a number of different EIH to be considered at each site, which might require a number of assessments to be conducted in parallel. In this case, those hazards with the greatest health risk **should** be assessed first. As a routine requirement, background radiation levels will be established for all sites[12]. CMA lead EH Staff is to coordinate this activity.

d. EIH assessments will be undertaken by Unit personnel, Medical Staff or other Specialists as required. To ensure that assessments are undertaken in a methodical manner the following tiers for EIH assessments are to be instigated:

(1) **Tier 1** – These are site assessments undertaken by appropriately trained Unit personnel[13]. If no trained unit personnel are available, then an appropriate appointed individual **must** undertake the Tier 1 assessment on behalf of the activity commander.

(2) The record to be used for Tier 1 assessments is at MOD Form 5040 and the assessment **must** be carried out at the earliest opportunity and **must** be completed for all locations unless operational constraints make it unfeasible. Tier 1 assessments should be completed within 48 hours of occupation. These are dynamic risk assessments and can be updated as more information is made available in locations.

[12] JTTP 3.61.1 Joint NBC Defence para 1460 c identifies the requirement for EH specialists (or nominated qualified persons) to establish background radiation levels at Level A (low hazard and low risk) as part of their routine reconnaissance and audit function.

[13] Unit personnel are defined as unit Medical Staff or unit personnel who have attended the Combat Health Advisors course or Combat Health Duties course delivered by DEOH DMA.

(a) **Operations**. (Either sS or Jt) New units deploying into an existing location are to undertake their own Tier 1 assessment. Completed assessments are to be copied to the formation EH Team for consideration by Comd Med / CMA. The Tier 1 assessments **must** be provided to the Lead formation G3 / 5 staff.

(b) **Exercises**. For exercises, the Tier 1 assessments are to be sent to the CMA EH Team and exercise Chain of Command (CoC) / local Commander.

(3) **Tier 2** – Tier 2 Site **Assessments** are undertaken by EHP and are required in the following circumstances:

(a) When sites or areas are identified pre deployment by MedInt or PJHQ / sS HQs as requiring an EIH assessment by EH Teams.

(b) As a result of submitting the Tier 1 assessment to the formation / supporting EH Team and they identify a requirement for further assessment or when units specifically request support following their Tier 1 Assessment.

(c) When the Operation is at steady state EH Teams are to undertake confirmation of the Unit Tier 1 EIH Assessments.

(d) **Operations**. For hazards that fall outside immediate and surrounding area (for example 500m radius of locations), Comd Med, assisted by EH Teams and other specialists are to undertake a Tier 2 assessment.

(e) **Tier 2 Assessment Review** - Tier 2 assessments are to be reviewed at least every 6 months, unless classified as low risk,[14] then they are be reassessed at least annually or sooner in the event of a significant change. Copies of the assessments are to be forwarded in accordance with para 14 d(1)(a).

(f) **Exercises**. It is unlikely that a unit will be deployed for a sufficient period to require a review. However, any Tier 2 assessments for exercises are to be copied through the CoC to the CMA EH Team.

(3) **Tier 3** – The deployment into theatre of a Specialist Monitoring Team to undertake in-depth surveys, monitoring and / or sampling. Analysis of samples may be undertaken initially by field equipment, but this will, where required, be followed up in the UK by accredited laboratories for definitive results.

(a) **EIH Assessment Records** - It is essential to record and preserve EIH information. This will be in the format shown on the MOD Forms 5040 and 5041. but may also be in the form of intelligence and risk assessments, health surveillance and other relevant operational background data.

[14] JTTP001 - Force Health Protection and Health Risk Management.

(b) Copies of all EIH assessments[15] are to be forwarded via the CoC to the CMA EH Team for review and archiving.

e. **Control**. The Commander will be advised by medical staff on the options available for EIH Force Protection measures. These may include area evacuation, implementation of exclusion zones and other local area controls to minimise the risk. Significant risks to safety or health **should** be communicated directly, via the operational CoC, to personnel who may be exposed to EIH.

f. **Specialist Risk Assessments**. Specialist[16] support may be required to conduct or advise on risk assessments if the operational imperative requires the force to remain in, or near, a hazardous area where a significant residual risk remains, even with local area controls in place. This may include a requirement to take samples for detailed laboratory analysis. There may also be scope to evaluate such exposures after the event through predictive principles to qualify exposure.

(1) Comd Med / CMA is the EIH lead[17] and is to co-ordinate all EIH recces and all requests for monitoring in Theatre. This is to ensure that the appropriate Medical Force Protection measures can be briefed to commanders and their personnel.

(2) All requests for EIH monitoring by specialists not in theatre (including sS Ops and Exs) are to be staffed through the CoC to the lead Formation EH Staff who will seek advice from the appropriate monitoring expertise.

g. **Health Surveillance.** A monitoring system is must be established where the residual risks from EIH cannot be avoided or controlled[18]. Where appropriate, the monitoring system is to include health surveillance of the deployed force. Medical exposure records are to be maintained for individuals who have, or may have, been exposed to EIH. Individual post-deployment health surveillance may be required for personnel deemed to have been at risk of exposure from EIH.

h. **Review**. Comd Med / CMA is to establish a periodical review of EIH assessments. The audit results will be used to inform the Commander of the potential and possible extent of a hazard and provision made to control, monitor and respond to such hazards whether delivered as a weapon, or because of release other than attack (ROTA) or other means.

---

[15] Including those undertaken by LRTs
[16] Specialists could be drawn from DSTL, INM, Fd Army EMT, RAF CAM, HPA or other Government Departments.
[17] AJP 4.10: Allied Joint Doctrine for Medical Support
[18] JSP 375, Vol 1, Chapter 14 – Health Surveillance and Health Monitoring provides further guidance.

Exposure to Hazards or Potential Hazards

15. Comd Med / CMA or OC are to inform the CoC when a risk or potential acute or chronic risk to the short-term or long-term health of personnel is identified.

16. Individuals must record and report the incident iaw JSP 375, Vol 1, Chapter 16. An entry is to be placed by Unit Admin Staff on relevant service personnel's JPA record identifying that they have or may have been exposed to a harmful substance, the dates when the exposure is believed to have occurred and the location of the exposure[19]. Where appropriate and practical, Comd Med / CMA is also to ensure that an identical entry is placed on the relevant personnel's health record. In all cases appropriate health advice is to be provided. Details of this together with the date it was provided, is to be annotated on the EIH Tier 2 record.

17. Further to the inclusion of a hazard exposure on JPA / health records, Comd Med / CMA or OC will notify the CoC where hazardous material has been identified and, where appropriate, will provide further guidance as to whether that hazard is important in the maintenance of the health of the local population (for example, chemicals used for water purification). Information will be shared with appropriate Civilian agencies and advice sought on the importance of the EIH to the local economy.

[19] This is done using MOD Form 960 – Personal Record Annotation and should be passed to the relevant med and admin support to ensure the exposure is recorded on and individuals med records and personal file.