

NUCLEAR SAFETY DIRECTORATE - BUSINESS MANAGEMENT SYSTEM		
<b>BUSINESS SUPPORT</b> <b>GUIDANCE: IDENTIFYING AND CONTROLLING</b> <b>RISKS FOR NSD STAFF VISITING NUCLEAR</b> <b>SITES</b>		<b>G/BSS/HRM/006</b>
		ISSUE 003
Approved By: <i>M J Tew</i>	M J Tew	Issue Date: 22/05/00
Open Government Status: Fully Open		Review Date: 22/05/03

## 1. Purpose & Scope

### 1.1 This document provides

1) guidance on identifying and controlling risks for NSD staff who are working away from HSE offices including travel on official business. The risk assessment has been carried out using a modified methodology developed by Offshore Safety Division.

2) a model written systems of work (WSW) which provides guidance primarily for non classified NII inspectors who need to enter areas which have been designated as controlled areas under the Ionising Radiations Regulations 1999. Such inspectors should adhere to the written system of work at the site visited.

## 2. Policy

2.1 The model WSW applies to entries made for the purposes of visual inspection, observation, examination, audits, familiarisation, etc. It does not cover either work requiring “hands on” involvement in any work with ionising radiations, or work undertaken by a pregnant or breast feeding inspector.

## 3. Guidance

3.1 The risk assessment has been based on the normal work pattern of an NII Site Inspector as this group is more likely to be exposed to the range of hazards considered and is hence likely to represent the upper bounding case that would cover the majority of NSD inspectors work. The results of the assessment are presented in **Annex 1 of BSS/HRM/010**. For each hazard, guidance on the existing control measures which are in place are listed along with additional control measures where appropriate. This assessment should be considered as generic.

Where line managers are aware of additional hazards or the work to be undertaken is not adequately covered by this guidance they should undertake a local risk assessment based on this methodology and instigate any additional risk control measures that are reasonably practicable. The licensee's staff should normally be consulted as part of a local risk assessment. Any such local risk assessment must be written prior to the work activity and copies forwarded to the Directorate Health and Safety Co-ordinator.

3.2 Additionally, any member of staff who considers that her/his work at site is not adequately covered by the risk assessment in this guidance (or in any additional local risk assessment provided by the Unit Head) should raise the matter with their Unit Head.

3.3 One of the control measures to protect staff from risk is control of their access to the workplace and their behaviour within it. The model management arrangements are set out below.

### **Model written system of work**

3.4 Inspectors should expect to see conditions in the written system of work for non-classified workers applicable at the site visited along the following lines, noting that where radioactive contamination is not present some of the precautions would not be necessary. It should be noted that it may be necessary to adhere to additional conditions in order to comply with reasonable requirements of a licensee's local rules.

- 1) The inspector shall wear any dosimeter provided by HSE (this is usually a TLD), together with any dosimeter reasonably required by the licensee's arrangements.
- 2) Before entering a controlled area the inspector shall provide the licensee with an estimate of his / her dose to date in that calendar year together with details of National Insurance number and date of birth.
- 3) The inspector shall be accompanied in the controlled area by a person who is familiar with the dose control measures necessary in the areas to be visited including actions required in the event of an emergency, unless the inspector is fully conversant with the necessary safety requirements.
- 4) The inspector shall only remain in the controlled area for the

minimum time necessary to complete the required work and avoid remaining unnecessarily in plant where there are indicated hot spots.

5) The inspector shall not eat, drink, smoke, apply cosmetics, take snuff or use a personal handkerchief in controlled areas.

6) Any recent or other breaks in the skin must be declared by the inspector to the licensee before entry to the controlled area and if necessary should be covered by a suitable dressing.

7) If a cut or other break in the skin is sustained whilst within a controlled area, the inspector shall inform the licensee's staff and his / her RPS.

8) The inspector shall wear appropriate PPE specified by the licensee for people entering the area to which entry is required, and the inspector shall comply with local radiological monitoring requirements.

9) The external dose received by the inspector should not be expected to exceed 40 micro Sv/day without prior agreement of the inspector's RPS.

10) The internal dose received by the inspector should be controlled by not entering any area where the airborne activity level can reasonably be expected to exceed 30% of the Derived Airborne Concentration (DAC) unless respiratory protective equipment is worn.

11) Before the inspector enters for the first time an area where respiratory protective equipment must be worn, inspector's RPS should give prior agreement based on an acceptance that suitable training has been undertaken by the inspector, and that the entry is justified. A further prior agreement of the RPS should be obtained before the inspector enters any area where the airborne activity can reasonably be expected to exceed 32 DACH in any day.

## **Consequence**

3.5 This classifies the actual bodily harm caused to a person when a hazard potential is realised:

<b>MINOR</b>	Short term harm or ill health; minor injuries (e.g. cuts/abrasions, bruises, sprains/strains); small superficial and intermediate burns; short term inconvenience, fatigue, stress, for ionising radiation exposure this is taken to be between 0.1 and 0.3 times the annual limits (* See below).
<b>SERIOUS</b>	Ill health effects in long term (e.g. respiratory, hearing), fractures, loss of minor limb, 5-10% superficial and intermediate burns, any deep burns, concussion, hypothermia; for ionising radiation exposure this is taken to be between 0.3 and 1.0 times the annual limits (* See below).
<b>MAJOR</b>	Loss of major limb or sight, crushing, blast or over-pressure injuries, serious disease >10% superficial and intermediate burns, disability that prevents continued employment; for ionising radiation exposure this is taken to be between the annual limits and the onset of acute effects (approximately 500 mSv).
<b>DEATH</b>	This is cautiously taken to be acute exposure to ionising radiations exceeding 500mSv. Both acute and chronic effects of exposure to other hazards.

## Likelihood

3.6 This accounts for the likelihood of an event and the likelihood of a person being present and suffering harm:

<b>IMPROBABLE</b>	Extremely unlikely, verging on the incredible.
<b>REMOTE</b>	Is credible but seen as unlikely, no occurrence yet in a reasonable database.
<b>OCCASIONAL</b>	Only expected to occur rarely, if at all to any one person in NSD, is not expected to occur to every inspector during a normal working life:
<b>PROBABLE</b>	Can be reasonable foreseen to occur, is just 'waiting to happen', has been experienced, every inspector could expect it to happen during a working life.
<b>FREQUENT</b>	Has been experienced repeatedly, every inspector could reasonably expect it to happen more than once.

\* It is noted that the consequences from such a level of ionising radiation exposure are relatively small compared to other consequences in this category. However, the categorisation for ionising radiation exposure is based upon NSD management's concern at the loss of close control implied by such an enhanced exposure.

## Risk

3.7 The risk category is the product of consequence and likelihood according to the following matrix.

	Minor	Serious	Major	Death
IMPROBABLE	N	GA	T	T
REMOTE	N	GA	T	T
OCCASIONAL	GA	T	T	U
PROBABLE	T	U	U	U
FREQUENT	T	U	U	U

where: N = Negligible Risk  
GA = Generally Acceptable Risk  
T = Tolerable Risk  
U = Unacceptable

3.8 Risks from the potential causes identified as relevant to NSD inspectors are categorised according to the matrix in the previous paragraph. Existing control measures are specified and additional measures are proposed for risks classified as tolerable, or where it is considered that additional control procedures are easily introduced or a standard practice at the sites NSD visit. No risks assessed have been classified as unacceptable - where the risk cannot be justified save in extraordinary circumstances. It should be noted that these risk assessments are not meant to be rigorous quantified assessments but should be viewed as aids to decision making in response to identified hazards; for example those identified as tolerable (rather than generally acceptable) would be the subject of further consideration of what could be done to reduce the risk.

## 4. Associated documents

4.1 **BSS/HRM/007** - Ionising Radiation & Exposure Monitoring (to be reviewed)

4.2 **BSS/HRM/006** - Ionising Radiation - Classification (to be reviewed)

4.3 **G/BSS/HRM/003** - Guidance IRR85 and OW93 (to be reviewed)

4.4 **G/BSS/HRM/005** - Guidance: Issue and Renewal of Protective

## Equipment

4.5 **BSS/HRM/009** - Issue and Renewal of Personal Protective Equipment

4.6 **BSS/HRM/010** - Identifying and controlling risks for NSD staff visiting Nuclear Sites

4.7 **G/BSS/HRM/008** - Guidance: Display Screen Equipment Assessment

4.8 **G/BSS/HRM/004** - Guidance: New and Expectant Mothers

4.9 **BSS/HRM/019** - Local Rules under IRR99 for NSD staff visiting Nuclear Sites

4.10 Chemical (Hazard Information & Packaging for Supply) Regs 94

4.11 Electricity at Work Regs 89

4.12 Control of Asbestos at Work Regs 87

4.13 Personal Protective Equipment Regs 92

4.14 Ionising Radiations Regs. 1999

4.15 **Health and Safety Guidance for Managers in HSE Offices**

4.16 Confined Spaces Regs 97

4.17 Provision and Use of Work Equipment Regs 92

4.18 Management of Health Safety and Welfare Regs 1999