

CHIEF DIRECTORATE OF OCCUPATIONAL HEALTH AND SAFETY

CONSTRUCTION, EXPLOSIVES AND MAJOR HAZARD INSTALLATION REGULATIONS

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MHI WORKSHOP
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Major Hazard Installation Regulations, 2022

Registration

- Administrative process
- Comply with regulation 4 requirements and key regulations including regulation 10, 3 and 14, 15, 19
- FORM A must be completed correctly,
- Endorsed by relevant the local government
- Supporting documents in terms of regulation 4 (3)(a)



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4(3)(a)

- The duty holder to ensure that the land used to operate MHI has been and has a document/certificate issued by the relevant local government in South Africa that indicates that a property or building has been zoned correctly, inspected and deemed safe for use or occupation.
- Further to the above the burden to proof that the establishment has been designed by a professional engineer and has correct build in safety measures and within acceptable standards lies with the duty holder. The duty holder must ensure this requirement is complied with, before the starting to erect or modify the existing establishment and that the Process Flow Diagram (PFDs) and Piping and Instrumentation Diagrams (P&IDs) are passed and approved.
- The PFDs are the foundation control documents for the process design, and can be broken down into a number of P&IDs indicating equipment numbers and brief (a few words) descriptions, material and energy balances, equipment sizes (often rough, or preliminary), materials of construction, flow direction arrows on pipelines, and simplified primary process control loops. Whereas the P&ID must clearly indicate and describe the overall engineering processes, show the interconnection of process equipment and instrumentation to control the system, and provide the primary schematic drawing used for detailed engineering.



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4(3)(a)

- Subregulation 3(a) is supported by Spatial Planning and Land Use Management Act, Rural Development Scheme and section 4(3) of National Building Regulations and Building Standard Act, as amended, says:

"Any application referred in subregulation 2 shall-

(a) contain the name and address of the applicant and, if the applicant is not the owner of the land on which the building in question is to be erected, of the owner of such land;

(b) be accompanied by such plans, specifications, documents and information as may be required by or under this Act, and by such particulars as may be required by the local authority in question for the carrying out of the objects and purposes of this Act"

- The physical address must be the same as the registered company address. If it is different, then the details of lessee agreement with the proof of landownership as well as the duty holder's registered place of business and, must be attached.
- Thus, it is by implication that the local government permission shall indicate the exact



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4(3)(b, c & d)

4(3)(b)

- The latest appointment letter indicating who the responsible person is, their competency particulars and the establishment they are responsible for.
- Particulars might also be submitted as a resume.

4(3)(c)

- The total inventory including the identity of the dangerous substance(s), its generic category and even the ones belonging to a category of dangerous substances as in Annexure A, Chapter 1, Chapter 2 and Chapter 3.
- The total maximum quantity in the installation must be declared in consideration of the aggregation and 2% rule.

4(3)(d)

- The total quantities should be the maximum quantities stored at any one time and must be distinguished between actual threshold levels and envisaged quantities.
- In situations where there are frequent inventory fluctuations, or where there are complex inventories with large numbers of dangerous substances, the duty holder must declare and notify the maximum quantities anticipated.



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4(3)(e, f, g & h)

4(3)(e)

- Latest risk assessment compiled by AIA.

4(3)(f)

- A sitemap indicating the most important hazardous areas, thus, making sure they are easily identifiable.
- It also helps in understanding the MHI structure, making it easier to navigate the site.
- A sitemap may also be filed to provide more information about the specific major hazard location, tank farms, machinery, equipment, piping on the site, and the relationships between them.

4(3)(g)

- a hazardous substance location plan must be drawn to a scale of 1:2500 and must indicate places where specific controls are put in place in order to safely operate, control the quantities in storage to maintain the safe operating levels and maximum quantities as well as above specified amounts.

4(3)(h)

- Aerial view indicating neighbours and exact distance from the major hazard location (s) as implied on 4(3)(i) here below.



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4(3)(i, j, & k)

4(3)(h)

- Aerial view indicating neighbours and exact distance from the major hazard location (s) as implied on 4(3)(i) here below.

4(3)(i)

- Future developments, etc.

4(3)(j)

- Latest advertisement as per regulation 4(4) here below.

4(3)(k)

- MIPP as per Regulation 11.



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DECLASIFICATION

2. The Exit Report must be generated by an AIA and must:
 - a. Revisit the inventories of all the materials on site since the materials that made a site an MHI in the past may no longer make them an MHI, but there may be other materials that do now make them an MHI site.
 - b. Check for major offsite impacts, if the facility has no materials (even when aggregated) that are above any of the thresholds, then it is possible that the site may no longer be an MHI. However, they may still be capable of major offsite impacts and this must be checked by the AIA.
 - c. The AIA should –
 - i. Perform a consequence analysis of the worst case fires, explosion and toxic gas releases from all the relevant materials on site.
 - ii. The following quantitative impact criteria should be plotted on a map of the area:
 1. Toxics – the 50% lethality level, using probits or the UK HSE SLO values.
 2. Fires – the 50% lethality or a radiation level of 20 kW/m^2 with 20 s exposure time (See Reference at bottom of page).
 3. Flash fires – the maximum extent of the lower flammable limit (LEL) (See Reference at bottom of page).



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DECLASIFICATION

4. Explosions – the 35 kPa (5 PSI) over pressure level (**).
- iii. The land-use in the area around the facility should be determined and vulnerable receptors marked on a map of the area, i.e. any Level 3 or 4 Sensitivity Developments as per the land use planning clause 4.10 of SANS 1461:2018 which in turn aligns with the United Kingdom: Health Safety Executive (UK HSE), Planning and Development near Hazardous Installations system (PADHI).
- iv. If any of the above impact criteria extend over any Level 3 or 4 Sensitivity developments, then the facility should remain an MHI Establishment.
- v. The facility should then be classified as a LHE and should comply with all the requirements of the MHI regulation applicable to a LHE.
- vi. If none of the above impact criteria extend over any Level 3 or 4 Sensitivity developments, then the facility need no longer be considered an MHI



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Establishment and an Exit Report including all the above information, calculations, maps etc. should be compiled for the facility by the

3. The duty holder of an establishment, which is no longer an MHI, needs to complete the relevant sections of FORM A in the MHI Regulation of 2022.
4. The AIA generated Exit Report together with Completed FORM A need to be submitted to the local government for approval.
5. Thereafter the duty holder must submit the above mentioned documentation with the local government support, to the Provincial and the for de-registration.

*** Reference - UK HSE Methods of approximation and determination of human vulnerability offshore major accident hazard assessment.*

*https://www.hse.gov.uk/foi/internalops/hid_circs/technical_osd/spc_tech_osd_30/spctecoso
28th July 2023.*



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Regulation 5

- Function of the Department
- Produce the correct information
- Verifications/audits/etc.
 - Full compliance
- Issuing of a certificate within 60 days
 - When do we start counting the 60 days?
 - Issuing of a certificate



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Thank You...



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