DEVELOPMENT OF A COMPREHENSIVE SECURITY PLAN FOR RADIOACTIVE WASTE DISPOSAL FACILITY IN MALAYSIA (BOREHOLE DISPOSAL FACILITY)

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WHAT IS SECURITY PLAN?

A document — prepared by the operator and possibly required to be reviewed by the regulatory body — that presents a detailed description of the security arrangements in place at a facility.

THE OPERATOR SHALL

DEVELOP  IMPLEMENT  TEST PERIODICALLY  REVISE NECESSARILY

COMPLY WITH ITS PROVISIONS
MALAYSIA LEGISLATIVE REQUIREMENT FOR NUCLEAR SECURITY CONTROL

MALAYSIA LEGISLATIVE REQUIREMENT

Security and protection of radiation source

70. The licensee shall take all measures to ensure the security and protection of all radiation sources in his possession or under his control to prevent theft, loss or sabotage.

Accountability for radiation source

69. The licensee shall maintain an accountability system that includes record of—
   (a) the location and description of each radiation source which is in his possession or under his control; and
   (b) the activity and description of each radioactive material, nuclear material and prescribed substance which is in his possession or under his control.

Security and protection of radiation source

50. The licensee shall take all measures to ensure the security and protection of all radiation sources in his possession or under his control to prevent theft, loss or sabotage.

Notification of theft, loss or sabotage

71. (1) The licensee shall, upon discovering any theft, loss or sabotage of any radiation source in his possession or under his control—

Atomic Energy Licensing Act 1984 Atomic Energy Licensing (Basic Safety Radiation Protection) Regulations 2010
LICENSE CONDITION (LPTA/A/724)

**MANDATORY TO DEVELOP AND MAINTAIN SECURITY PLAN**

**BAHAGIAN IV - KAWALAN SEKURITI**

24. **Kawalan Sekuriti Kemudahan Penyinaran**

Pemegang lesen hendaklah memastikan bahawa bahan radioaktif dikawal dengan lebih ketat dan terjaga untuk mengelakkan kecurian, kehilangan atau dibobotai dengan mengadakan:

24.1 **Rancangan Sekuriti (Security Plan)**

a) Pemegang lesen hendaklah mengadakan Rancangan Sekuriti yang menerangkan bagaimana langkah-langkah sekuriti dipenuhi ke atas bahan radioaktif yang diluluskan oleh pihak berkuasa keselamatan dan perlu dikaji semula sekurang-kurangnya setahun sekali atau apabila berlaku sebarang perubahan bagi memastikan ianya sesuai dengan keadaan semasa.

b) Pemegang lesen hendaklah melaksana dan menguji sepenuhnya Rancangan Sekuriti yang diluluskan oleh AELB serta mendokumenkan laporan pelaksanaan dan dimaklumkan kepada AELB.
SECURITY PLAN GUIDELINE FOR RADIOACTIVE SOURCES
A security plan document sets out the security measures that the facility implements to prevent the loss, sabotage, illegal use, illegal possession, and illegal removal of sealed sources throughout their entire lifecycle.
RADIOACTIVE CATEGORIZATION

AELB GUIDELINE
LEM/TEK/62 SEM 2
2018

- Code of Conduct on The Safety and Security of Radioactive Sources“ & others related document as below:
  - I.Categorization of Radioactive Sources (IAEA-TECDOC-1344)
  - II.Security of Radioactive Sources (IAEA-TECDOC-1344)
  - III.Guidance on Import/Export of Radioactive Sources
CONTENT OF SECURITY PLAN

AELB GUIDELINE LEM/TEK/62 SEM 2 2018

- INTRODUCTION
- SECURITY MANAGEMENT
- INTERNAL SECURITY
- STORAGE
- SECURITY POLICY
- SITE PLAN
- TRANSPORTATION
- INFORMATION SECURITY
- PERIMETER
- ACCESS CONTROL
- THRUSTWORTHINESS
- PHYSICAL PROTECTION SYSTEM MAINTENANCE
- CONTINGENCY PLAN
- SECURITY AWARENESS
- SECURITY PROCEDURE
### CHALLENGE

<table>
<thead>
<tr>
<th>New Technology To Implement In The World</th>
<th>Possess More than 12,000 Cat 3-5 of radioactive DSRS</th>
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<tbody>
<tr>
<td>Development Of Security Plan for facility that never been existed before</td>
<td>Long term security measure</td>
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<tr>
<td>Requirement By AELB (convincing)</td>
<td>Security measure as main concerned</td>
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<tr>
<td>Confusing on RS categorization</td>
<td>Limited Human Resources availability</td>
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THE BIGGEST CHALLENGE

TO MAINTAIN & TO SUSTAIN ACCORDINGLY
01 Document Development Based On Threat Assessment

Evaluation Of Effectiveness

03 Radioactive Categorization Based On Threshold Value (Radioactive Accounting)
Thank You
For Your Attention
SPECIAL THANKS

- INTERNATIONAL ATOMIC ENERGY LICENSING AGENCY (IAEA)
- MINISTRY OF ENERGY, SCIENCE, TECHNOLOGY, ENVIRONMENT & CLIMATE CHANGE (MESTECC)
  - MALAYSIAN NUCLEAR AGENCY
  - ATOMIC ENERGY LICENSING BOARD (AELB)
  - ASSOC.PROF.DR IRMAN ABD RAHMAN (UKM)
  - NUR SHAZWANI BINTI ZAINAL ABDIN (AELB)
• OTHERS SLIDE IF NEEDED
The BDF is a narrow diameter borehole (260mm) and entails emplacement of waste packages into a borehole repository. The borehole is plugged with cement at the bottom which is allowed to set before the first waste package is disposed of. Waste packages are lowered gently into the borehole using a winch. Cement backfill is poured and allowed to set before the next package is emplaced.

105 meter closure zone
60 meter disposal zone
60 waste packages