Table 1.General Data for Surveillance Specimens

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| --- | --- | --- |
| **Surveillance Specimens Specification** | | |
| No. | Description | Quantity/ specification |
| 1 | Number of Temperature Specimens | 140 Pcs |
| 2 | Number of Irradiated Specimens | 140 Pcs |
| 3 | Number of References Specimens | 140 Pcs |
| 4 | Maximum Activity of samples | 10 GBq for each specimen |
| 5 | Type of radiation | Gamma |
| 6 | Sample materials | 15X2HMФA Class 1/ GOST 5632 |
| Hot-Cell Lay out/Design | | |
| 1 | Number of Hot-cell/glove box | 8 Hot-Cells and 4 shielded Glove Box |
| 2 | Life time of laboratory | 30 Years |
| 3 | Size of Hot-Cells | According to Table 2 |

Table .Hot-Cell/Glove box Specification

| **Instrument/ Equipment** | **(H×W×L) Size** | **Process Specification** | **Hot Cell(HC) / Glove box(SB) Designation** | |
| --- | --- | --- | --- | --- |
| --- | 4×2.5×3  thickness of Shielding= 25 cm of lead | Cask Reception | HC-01 | |
| Cutting band saw | 3.5×2.5×3  Shielding= 25 cm of lead | Cutting & Specimens Withdraw | HC-02-1 | HC-02 |
| 3-Axis linear milling machine |
| Specimens Classification | HC-02-2 |
| Quantometery | 3×2.2×3  thickness of Shielding= 20 cm of lead | Quantometery | ---- | HC-03 |
| Impact Test Machine | 6.5×2.2×3  (3.5×2.2×3 ,  3 ×2.2×3)  thickness of Shielding= 20 cm of lead | Impact Test | HC-04-1 | HC-04 |
| Image Analyzer system |
| Tensile Test Machine | Tensile Test | HC-04-2 |
| Crack Resistance Test Machine |
| Crack Resistance Test | HC-04-3 |
| --- | 3.3×2.5×3  thickness of Shielding= 20 cm of lead | Specimens’ Archive | --- | HC-05 |
| Drilling Machine | 3.5×2.2×3  thickness of Shielding= 20 cm of lead | Machining (Specimen Preparation) | --- | HC-06 |
| EDM |
| EBW | 3.5×2.2×3  thickness of Shielding= 20 cm of lead | Machining (Welding) | --- | HC-07 |
| Elevator | 4.1×2.2×3  thickness of Shielding= 20 cm of lead | Elevator Cell | --- | HC-08 |
| HPGe | 2.2×1.0×3  thickness of Shielding= 10 cm of lead | Radio spectroscopy | --- | SB-01 |
| --- | 3×3×3  thickness of Shielding= 10 cm of lead | Waste Management and Maintenance |  | SB-02 |
| Grinding | 3.5×2.2×3  thickness of Shielding= 10 cm of lead | Metallography& Hardness | --- | SB-03 |
| Polishing |
| Etching |
| Washing |
| Drying |
| Optical microscope |
| Stereo microscope |
| SEM | 3×2.2×3 | SEM | --- | SB-04 |



Figure 1.Material Flow Diagram for Surveillance Specimens Test Laboratory for BNPP