

(ATTACHMENT)

Summary of Changes to the MST-30 SARP For Revision 2 (MMTL)

The Japanese Safe Transport Regulations for Nuclear Fuel Material were revised on July 1, 2001. The revised Japanese regulations incorporate the latest IAEA Regulations (2000, TS-R-1). The Japanese MST-30 SARP was revised to comply with the new Japanese regulations; therefore, the American version of the SARP must also be revised to incorporate the new information.

The primary changes to SARP include:

1. Incorporation of the requirements for a package containing Uranium Hexafluoride (UF_6), regardless of whether the payload is a Fissile Material or a Non-Fissile Material. These changes include hydrostatic pressure testing of all UF_6 cylinders and the change in ambient pressure for evaluation in the SAR.
2. Elimination of the requirement for 0.3m rim drop testing prior to the 1.2m corner drop test required for a Fissile Material Package. This requirement, specified in the 1985 IAEA Regulations (See: Para. 622(b) of SS.No.6), has been removed from TS-R-1.
3. Updates of the Reference listings, including the change of an application of ICRP Publication to the SARP from Sub. 51 to Sub. 74 and Paragraph Numbers (Para. No.) referring to ST-1, TS-R-1 and SS.No.6.
4. Incorporation of the requirements for evaluation of an individual package containing UF_6 categorized as a Fissile Material in the criticality evaluation.
5. Incorporation of the Criticality Safety Index (i.e. CSI).
6. Miscellaneous corrections to misspellings, missing words or punctuation, changes of Certificate Number, and so on.

The revisions made to the SARP are detailed in the Revision Comparison Table attached to the SARP (Revision-2) which will be submitted to DOT in June 2002.

Summary of Change in Revision 3 of the Safety Analysis Report for the Model MST-30 Package

The safety analysis report for the model MST-30 package (“SAR” for short) has been revised from Rev.2.1 to Rev.3.

The principal items revised in Rev.3 are as follows;

1. Uranium specification (allowable limit for U-236) has been changed.
2. The latest UF₆ cylinder standard, ANSI N14.1-2012, has been reflected into the SAR. (Except 30C cylinder)
3. Specification of the tie-down bolt has been changed, and related structural evaluation is revised.
4. Some of mechanical properties for evaluation have been changed, and related structural evaluation for cylinder components is revised.
5. Thermal evaluation is reevaluated including adding supplemental evaluation, using ABAQUS code instead of the previous TRUMP code.
6. A part of assessment in the containment evaluation has been revised.
7. The criticality analysis is recalculated using SCALE code instead of the previous JACS code in order to add a benchmark result for the calculation code.
8. Other minor revisions including update of information, corrections of phrase etc.

Detail of the changes is summarized in attached Revision Comparison Tables.

Attachment

Revision Comparison Table for MST-30 SAR

Summary of Changes to the MST-30 SARP For Revision 4

A new Japanese design certificate for MST-30 package was issued in 2010. Japanese identification mark for MST-30 package is revised from "J/159/AF-96" to "J/159/AF-96(rev.1)" in this new certificate, and the safety analysis report for the model MST-30 protective shipping package (SARP) is also revised from Revision 3 to Revision 4.

Major changes to the SARP Revision 4 are as follows;

1. Change of Specification of Contents (Chapter 1.0, Section 1.2.3 in SARP)
The specification of uranium isotope for the contents (uranium hexafluoride (UF_6)) has been changed. The new specification of the contents also does not exceed Type A quantity, then the category of package type has not been changed.
2. Re-evaluation of Shielding Evaluation (Chapter 5.0 in SARP)
The shielding analysis for MST-30 is recalculated using the new specification of the contents. As the calculation result, the dose rates on the package surface and at 1m from the surface increase very slightly.
3. Revise of Inspection Program for Overpack and 30B Cylinder (Chapter 7.0 and 8.0 in SARP)
The inspection programs for overpack and 30B cylinder have been revised.
4. Revise of description related IAEA regulations (Whole of SARP)
Since MST-30 is approved as complying with TS-R-1, 2005 edition by Japanese competent authority, "ST-1" which was described in Revision 3 SARP was deleted from the sentence of Revision 4.
5. Update of Information about Polyurethane Foam and Phenolic Foam (Appendix 1.3.4)
Foaming agent specification for polyurethane foam and phenolic foam materials of MST-30 has been changed since 2005. This change had been already informed US-DOT by letter before the new foaming agent was used for the fabrication. Descriptions of the foaming agent in SARP are updated this time including some additional information.

The revisions made to the SARP are detailed in the Revision Comparison Table provided below.

Just for your information, the previous Japanese certificate (J/159/AF-96) and the related US certificate (USA/0585/AF-96, revision 2) will be used until December 12, 2012 in the latest case.

**Summary of Change in Revision 5 of the Safety Analysis Report
for the Model MST-30 Protective Shipping Package
for 30-inch UF6 Cylinder**

The safety analysis report for the model MST-30 package (“SARP” for short) has been revised from Rev.4 to Rev.5.

The principal items revised in Rev.5 are as follows;

1. Uranium specification (allowable limit for U-236) has been changed.
2. The latest UF₆ cylinder standard, ANSI N14.1-2012, has been reflected into the SARP. (Except 30C cylinder)
3. ISO standard for 30B cylinder, ISO-7195, is taken in the SARP.
4. Specification of the tie-down bolt has been changed, and related structural evaluation is revised.
5. The thermal evaluation is totally reevaluated including adding supplemental evaluation, using ABAQUS code instead of the previous TRUMP code.
6. Other minor revisions including update of information, corrections of phrase etc.

Detail of the changes is summarized in attached Revision Comparison Tables.

Attachment

Revision Comparison Table for MST-30 SARP