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Use of Electronic Seals and Remote Data Transmission to Increase the Efficiency of Safeguards Applied in a Static Plutonium Store

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The Pu timeliness goal of one month has been the deciding factor for determining the frequency of inspections at static Pu stores. The scope of these inspections mainly concerns the verification and replacement of seals and surveillance review. Using electronic seals together with remote data transmission (RDT) can significantly reduce the need for the physical presence of inspectors on site. For a static Pu store in Sellafield, jointly inspected by the European Commission (EC) and the IAEA, special covers which prevent access to the channel locks were developed and attached to the channel charge face. Electronic (EOSS) and Cobra group seals were applied that ensure minimal loss of knowledge in the event of any individual seal failures. At present, the EOSS seals are verified at the EC HQ in Luxembourg once a week with seal status data forwarded to the IAEA. Surveillance data can be used to investigate any potential issues with seals data. If an issue cannot be resolved by performing a video review, a physical inspection in situ will be necessary to perform verification activities as needed. The modified safeguards approach requires the operator to announce all planned visits to the store for maintenance and other planned work well in advance by sending an email to a functional mailbox at the EC HQ. This gives the inspectorates the possibility to participate when they are present on site for other activities or if they see a need otherwise. The use of RDT makes it possible for the inspectorates to replace monthly inspections with seal data checks, supplemented by periodic design information verification, at low frequency to ensure the continuing integrity of the system. The inspection frequency has initially been reduced by 50 %, which means savings in terms of personnel resources and increased operational flexibility for the operator.

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