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Nuclear Material Accounting and Reporting Software for India

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India has an item specific Safeguards Agreement, INFCIRC/754 with the IAEA and a nuclear material accounting system which generates the monthly reports for the Agency promptly. Subsequent to entry into force of subsidiary arrangements to INFCIRC/754 and as a part of implementation of new reporting Structure, India is developing new software to cater to its NUMAC reporting requirement. This paper gives the details of the software wherein the requirement of reporting for each of its facility to the Nuclear Controls & Planning Wing (NCPW) and the State level report to IAEA. The software is being developed on Linux (Ubuntu) OS, Mysql database and PHP. All the components are based on open source software and is developed as a two module system. The first module is for facility and the second one is for State level reports. The application has multi-level security for both the modules. Additionally, the facility level module is hardware interlocked. The facility reporter module generates a pdf file for the facility authority to sign, authenticate and hard copy filing. It can generate another xml file with an encryption, which can be sent to the State authority. In the State level module, the State authority generates reports for the Agency from xml file so received (after decryption and verification with the facility after receiving the signed hard copy) and also appends to its national database with all the information. The National database has all the information whereas the facility database has local information. The State module, in turn generates a pdf file, authenticate the same with signature of the authorized signatory (either in hardcopy form or in electronic form with PGP encryption as required by IAEA) and sends the same to the Agency. All the necessary security precautions to protect the entire NUMAC and safeguards information.

Country or International Organization

India

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