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Information Assurance for International Safeguards Process Monitoring Applications

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The IAEA's implementation of Information Driven Safeguards should reduce costs and improve timeliness of their verification activities. At the facility level information driven safeguards can use operating parameters to detect anomalies. One aspect of the Next Generation Safeguards Initiative (NGSI) investigates how process information from nuclear facilities could be used to satisfy safeguards objectives such as: 1) increasing confidence in accountancy measurements, 2) reducing on-site presence by IAEA inspectors at safeguarded facilities, 3) increasing IAEA ability to meet timeliness requirements, 4) improving confidence that materials are not diverted from processes and storage locations, 5) assessment of facility operation as declared and 6) contributing to Safeguards by Design efforts for future facilities.

Information assurance is an important element of this work. Instrumenting large facilities for IAEA safeguards can be extremely costly so the IAEA relies on information from a variety of sources including operator systems, joint use equipment and IAEA owned systems to draw their safeguards conclusions. The IAEA needs to trust the accuracy of their information while using some systems that are not under their control. Information assurance measures can increase trust in individual elements and the systems that utilize them. This paper describes information assurance approaches for process monitoring systems and discusses how enhanced information assurances support the IAEA safeguards objectives.