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Violations Analysis Methodology in the System of Accounting for and Control of Nuclear Materials in the Russian Federation



ANALYSIS METHODOLOGY FOR MC&A VIOLATION

During inspection activity at nuclear facilities Rostechndazor detects violations of regulatory requirements, such as NP-030-12 “Basic Rules on Accounting and Control of Nuclear Materials” (which corresponds to IAEA Nuclear Security Series No.20 and No.25-G)

Rostechndazor authorized SEC NRS to perform analysis of control and accounting of nuclear material (MC&A) violations. SEC NRS developed methodology to analyze such violations in 2009

The objective of the analysis methodology is to evaluate MC&A violations and identify weak in MC&A system, including potential gaps in regulation or inspection procedures



ANALYSIS METHODOLOGY FOR MC&A VIOLATION

- Collection of information about MC&A violations (as a result of inspections)
- Classification of violations
- Assessment of the MC&A violations
- Development of proposals to Rostekhnadzor on improvement of regulatory activities for MC&A



COLLECTION OF INFORMATION ABOUT MC&A VIOLATIONS

Collection of information about MC&A violations is done by receiving of periodic (on a quarterly basis) reports from Rostekhnadzor's regional offices and Headquarters. These reports provide information on results of inspection activities

Information on detected violations is added to SEC NRS database



VIOLATIONS CLASSIFICATION

Violations classification per:

- Facility types
- MC&A components
- Significance

and combinations of the listed classifications



VIOLATIONS CLASSIFICATION PER FACILITY TYPES

- Nuclear power plants
- Uranium mining facilities (UMF)
- Research facilities
- Uranium enrichment facilities (UEF)
- Fuel cycle facilities
- Nuclear power installations for vehicles (ships)
- Higher educational institutions
- Big chemical combines (complex facilities which combine few fuel cycle stages in one facility)

VIOLATIONS CLASSIFICATION PER MC&A COMPONENTS

- Management of MC&A system at the nuclear facility in general
- Determination of nuclear materials balance area (MBA)
- Technical means and measures applied for access control
- Organizing the system of nuclear material measurements
- Procedure on nuclear materials transfers

VIOLATIONS CLASSIFICATION PER SSAC COMPONENTS

- Physical inventory of nuclear materials
- Records and reports
- Personnel qualification and training
- Nuclear materials accounting and exemptions



VIOLATIONS CLASSIFICATION PER SIGNIFICANCE

- Low-level (less significant) violation
- Medium-level (significant) violation
- High-level (gross) violation

In order to evaluate the violation significance the following parameters are used:

- Assessment of violation nature
- Assessment of violation scale
- Detection of the violation causes
- Assessment of potential consequences of violation



ASSESSMENT OF THE MC&A ON THE BASIS OF THE REVEALED VIOLATIONS

- Facility type with the maximum number of violations
- MC&A components with the maximum number of violations in the reported period
- Presence of high-level (gross) violations and their percentage in the number of the detected violations
- Comparison of data for the same period of the previous year

SEC NRS SUPPORT TO ROSTECHNADZOR

Development of proposals to Rostekhnadzor:

- To update regulation documents in the area of MC&A
- To develop and update guides in the area of MC&A
- To pay special attention to MC&A components that mostly contribute to overall violations
- To pay special attention to facilities with high-level (gross) violations



CONCLUSION

The methodology for analysis of MC&A violation was developed and used by SEC NRS

The results of violations analysis are used by SEC NRS for identification of the potential improvements in MC&A regulatory activity of Rostekhnadzor



Thank you for your attention!

