Job Description Print Report

Position Review

Position Number	191093	Position Type	CFE/JPO	Subject to Radiation	No	Subject to GD	No
Hyperion Position Number		Fund Type	EBR	Parent Position	010193		
Organization	SGIM-Nuclear Fuel Cycle Analysis Section	FTE	1	CCOG 1	1M02		
Grade	P5	Duty Station	DS - IAEA VIENNA	CCOG 2			
Classified Grade	P5	Position Title	Statistical & Probabilistic Methodologies Expert	Proposed New Title			

Job Description

Organization Settings

The Department of Safeguards carries out the IAEA's duties and responsibilities as the world's nuclear inspectorate, supporting global efforts to stop the spread of nuclear weapons. The primary role of the Department is to develop and implement IAEA safeguards to ensure that there is no diversion of declared nuclear material from peaceful activities and no indications of undeclared nuclear material or activities in a State as a whole.

The Department comprises nuclear safeguards inspectors, responsible for carrying out inspections and verifications of all-safeguards relevant information for nuclear facilities in over 180 States; and technical staff responsible for a wide range of activities including: developing concepts and approaches for implementing safeguards; developing and maintaining safeguards equipment; providing analytical and laboratory services for sample analysis; collecting, evaluating and analysing safeguards-relevant information; providing information and communication technology infrastructure and services; and providing programme coordination support.

The Division of Information Management (SGIM) implements state of the art methodologies and techniques for the collection, processing and analysis of a range of safeguards-relevant information, including declarations submitted by States, evaluations resulting from the analysis of samples or measurements collected during infield activities, and information from open sources, including nuclear trade-related data and satellite imagery. Staff perform data validation and complex information analysis and evaluation to support infield activities and provide key input to the State evaluation process.

Main Purpose

Reporting to the Team Leader (Statistical Analysis), the Statistical and Probabilistic Methodologies Expert contributes to the IAEA's overall objective to maintain and further develop an effective and efficient verification system through the development and implementation of statistical methodologies for safeguards applied to verification approaches and verification data evaluation.

Role

The Statistical and Probabilistic Methodologies Expert is: 1) a specialist providing expert advice on statistical and probabilistic methodologies applied to the evaluation of safeguards data and on sampling and random verification approaches, critically reviewing the related technical documentation and participating in the development of specialized computational tools by providing detailed technical requirements; 2) a project leader and innovator leading the overview and revision of statistical and probabilistic methodologies for safeguards and identifying areas of theoretical development and implementation which could be of safeguards interest.

Partnership

The Statistical and Probabilistic Methodologies Expert collaborates with colleagues within the Division of Information Management on evaluation challenges, verification approaches and related questions. The role requires regular liaison with counterparts in the Office of Analytical Services (SGAS), the Division of Concepts and Planning (SGCP), the Division of Technical and Scientific Services (SGTS) and with the Operations Divisions. The Statistical and Probabilistic Methodologies Expert provides advice and authoritative guidance to nuclear safeguards inspectors, plant operators and State Regulatory Authority (SRA) representatives in the field of statistical methodologies applied to safeguards. In addition, he/she develops partnerships with universities and research centres at the international level to engage them in joint research and development (R&D) projects. He/she promotes new R&D projects to Member State counterparts in order to mobilize their support.

Functions / Key results Expected

- Lead and oversee inter-Divisional projects to review and modernize the statistical and probabilistic methodologies applied to safeguards verification approaches and to the evaluation of safeguards data.

- Develop work plans for the design, upgrade, integration and harmonization of safeguards statistical methodologies, organizing and supervising the related tasks allocated to internal staff and external partners.

- Develop, modernize and integrate statistical methodologies including the provision of detailed theoretical derivations and practical implementation illustrated by examples, in collaboration with other internal and external experts.

- Coordinate the production of technical documents describing upgraded, harmonized and integrated methodologies and detailed procedures supporting their implementation. Coordinate the preparation of user requirements for the development and implementation of specialized software applications.

- Deliver lectures and organize and participate in seminars on statistical methodologies for safeguards.

Competencies

Core Competencies

Competency	Occupational Role	Definition
Communication	Individual Contributor	Communicates orally and in writing in a clear, concise and impartial manner. Takes time to listen to and understand the perspectives of others and proposes solutions.
Achieving Results	Individual Contributor	Takes initiative in defining realistic outputs and clarifying roles, responsibilities and expected results in the context of the Department/Division's programme. Evaluates his/her results realistically, drawing conclusions from lessons learned.
Teamwork	Individual Contributor	Actively contributes to achieving team results. Supports team decisions.
Planning and Organizing	Individual Contributor	Plans and organizes his/her own work in support of achieving the team or Section's priorities. Takes into account potential changes and proposes contingency plans.

Functional Competencies

Competency	Occupational Role	Definition
Analytical thinking	Specialist	Analyses information to identify cause and effect relationships and correlations. Identifies critical elements and assesses consequences of different courses of action and proposes solutions.
Commitment to continuous process improvement	Specialist	Plans and executes activities in the context of quality and risk management and identifies opportunities for process, system and structural improvement, as well as improving current practices. Analyses processes and procedures, and proposes improvements.
Judgement/decision making	Specialist	Consults with supervisor/manager and takes decisions in full compliance with the Agency's regulations and rules. Makes decisions reflecting best practice and professional theories and standards.

Expertise		
Expertise	Description	Asset
Management and Programme Analysis | Development of Analytic Methodologies and Processes	Extensive expertise in the development of statistical and probabilistic methodologies.	N
Management and Programme Analysis | Guidance Development	Ability to develop clear positions, recommendations and guidance and to promote these to internal and external counterparts.	N
Statistics / Advanced Statistical Methods	Knowledge of statistical and probabilistic methods applied to nuclear fuel cycle activities, including uncertainty quantification and the design of random verification approaches.	N
Safeguards / Quality Management of Analytical Measurement	Knowledge of analytical methods and techniques applied to nuclear material to establish accountancy values and for safeguards verification purposes.	N

Languages	
Languages	Asset Languages
English	Arabic Chinese French Russian Spanish

Qualification	
Qualification Title	Description
Bachelor's Degree	First level university degree in statistics, operations research, applied mathematics or a related field plus two years of additional relevant work experience may be considered in lieu of the advanced degree.
Master's Degree	Advanced university degree in statistics, operations research, applied mathematics or a related field.

Experience

- Minimum of 10 years of experience in the field of statistical methodologies applied to technical data.

- Extensive experience in the development of statistical methodologies, particularly related to the estimation and propagation of measurement errors, the application of sampling methodologies, hypothesis testing and power analyses, and the analysis of multidimensional data.

- Experience of coordinating work across interdisciplinary teams and monitoring performance against deadlines and milestones.