

Position Management Detail Report

Print Date: 2016-03-24 15:52:27

Position Review

Position Number	16/TUS-001	Position Type	CFE	Subject to Radiation	Yes
Hyperion Position Number		Fund Type		Parent Position	
Organization	SG/IAEA	FTE	1	CCOG 1	
Grade	P5	Duty Station	Vienna	CCOG 2	
Classified Grade		Position Title	Nuclear Instrumentation Systems Expert	Proposed New Title	

Job Description Review

Organization Settings

The Department of Safeguards (SG) is the organizational hub for the implementation of IAEA safeguards. The IAEA implements nuclear verification activities for some 180 States in accordance with their safeguards agreements. The safeguards activities are undertaken within a dynamic and technically challenging environment including advanced nuclear fuel cycle facilities and complemented by the political diversity of the countries.

The Department of Safeguards consists of six Divisions: three Operations Divisions: A, B and C, for the implementation of verification activities around the world; three Technical Divisions: Division of Concepts and Planning, Division of Information Management, and Division of Technical and Scientific Services; as well as three Offices: the Office for Verification in Iran, the Office of Safeguards Analytical Services and the Office of Information and Communication Services.

The Unattended Systems Section (TUS) is comprised of two teams: Surveillance and Unattended Monitoring Systems. The Section is responsible for the complete lifecycle of all measurement and surveillance safeguards equipment permanently installed and operating in unattended mode at nuclear facilities worldwide, including development, assembly, testing, deployment, and maintenance. In addition, the Section provides expert services to the other divisions in the department in the area of unattended systems, like support in data review and analysis.

Main Purpose

As a team member reporting to the Leader of the UMS Team, the Instrumentation Systems Expert provides professional expertise for the development and deployment of unattended non-destructive assay (NDA) systems. He/she participates in and leads the current medium-long term Research and Development projects that have been initiated internally or through Member State Support Programs, which include project planning, supervision, coordination with National Laboratories, prototype testing, system engineering, and field implementation of Unattended NDA systems. He/she also proposes new R&D projects in line with the Safeguards R&D strategic plan.

Role

The Instrumentation Systems Expert is: a project leader, ensuring the efficient and effective implementation of the development, installation, service and verification of UMS and supervising Team technicians; a technical specialist, advising the UMS Team Leader, technicians and other technical staff; an implementer, installing, calibrating and testing UMS; and an engineer, designing, developing, and assembling UMS.

Partnerships

This Instrumentation Systems Expert in the UMS Team provides guidance to the Team's technicians. He/she collaborates with the other technical professionals in the Team to develop and design the optimal UMS to address safeguards needs. He/she establishes links and engages with technical professionals and Section and Unit Heads from the Operations Divisions in the Department of Safeguards to determine the UMS needs and

requirements of the Operations Divisions. He/she establishes, coordinates, negotiates, and manages technical collaborations with National Laboratories and other entities for the development and implementation of the R&D Programme through MSSPs.

Functions / Key results Expected

- Participate with other Team members and the Team Leader in the development of new, advanced UMS technology, particularly NDA technology, data acquisition systems and front-end electronics.
- Lead medium-long term R&D projects using internal resources or through MSSPs tasks.
- Provide effective engineering solutions for UMS mainly focussed on component Standardization, Usability, Maintainability and Cost-effectiveness related approaches.
- Develop and write the required quality management system (QMS) technical documents, System Reference Manuals, Guidelines, testing and calibration procedures for equipment, and trip reports that detail the installation, repair, design or calibration of UMS installed at nuclear facilities.
- Evaluate nuclear facilities throughout the world to determine the most effective UMS solution that could be applied in particular instances.
- Provide expert advice and support to the three Operations Divisions to determine implementation requirements and ensure that all requirements are satisfied within available resources.
- Oversee the evaluation and testing of UMS and relevant components prior to deployment in the field.
- Draft and present clear and concise plans and presentations covering strategy, sustainability, standardization, project management, implementation, maintenance and procurement needs, technical specifications and procedures.
- Install, calibrate, and test UMS at various nuclear facilities throughout the world
- Repair, maintain and address operational problems of existing UMS installed throughout the world.

Competencies

Core Competencies

Competence	Level	Behavioral Indicator
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	Level	Behavioral Indicator
Technical/Scientific Credibility	Specialist	Provides guidance and advice in his/her area of expertise on the application of scientific/professional methods, procedures and approaches.
Knowledge Sharing and Learning	Specialist	Identifies and establishes etc etc
Analytical Thinking	Specialist	Applies business analytics etc etc
Expertise		
Expertise	Description	
Engineering; Non-destructive Assay	Ability to design, develop, test and implement NDA system used to verify the presence/absence, amount and unique characteristics of Pu/U/Spent Fuel; Experience w/ transport simulation codes(e.g. MCNP)	
Engineering; Project Management	Ability to manage projects, set objectives and plan activities/projects in advance. Ability to identify and organize internal/external resources and monitor performance against very tight deadlines.	
Operations and Inspections; Nuclear Fuel Cycle/Nuclear Facilities	Demonstrated experience on process control and Safeguards instrumentation for Nuclear Fuel Cycle facilities and nuclear reactors.	
Position Specific Expertise	Description	
Languages		
Languages	Asset Languages	
English	Arabic	
	Chinese	
	French	
	Russian	
	Spanish	
Qualification		
Qualification Title	Description	
Master's Degree	Advanced university degree in physics, applied physics, nuclear engineering or electrical engineering	
Experience		
<ul style="list-style-type: none"> At least 10 years of work experience in the development, deployment, production or use of nuclear NDA instrumentation, experience with IAEA instrumentation being an asset. Demonstrated experience in the set-up, diagnostics and troubleshooting of NDA instrumentation and data 		

acquisition computer set-up and configuration.

- Detailed design, development or implementation experience with nuclear detectors and related data acquisition systems applied to NDA, such as high resolution gamma, low resolution gamma and neutron counters.
- Demonstrated experience in computer data acquisition systems applied to NDA instruments.
- Demonstrated experience with NDA data acquisition and review software.
- **Demonstrated experience with simulation software codes (on Radiation-Matter interaction) such as MCNP.**
- Experience with unattended monitoring systems used for safeguards desirable, specific experience with LANL-based systems being an asset.

Job Description Remarks

Requisition

Contract Type	Fixed Term - Regular	Expected Start Date	2017-01-01	Duration	24
Fully Competitive Recruitment		No	Travel	Yes, 25 % of the Time	

Task Proposal (SP-1)

1. Task Proposal

- 1.1. Task Proposal ID:** 16/TUS-001
- 1.2. Task Title:** Expert - Nuclear Instrumentation Systems
- 1.3. Requestor / Division / Section:** Ely James_Harold / SGTS / TUS
- 1.4. Task Proposal Type:** CFE Task
- 1.5. Task Category:** E (Containment, Surveillance and Monitoring Systems)
- 1.6. Reason (if task is either a joint task or desires multiple acceptance)**

2. Project

- 2.1. Project ID and Title:** SGTS-011 - Unattended Measurement Techniques
- 2.2. Project Manager / Division / Section:** Pochet Thierry / SGTS / TUS

3. Safeguards Requirement Identification

3.1. Background

The Section for Unattended Systems (TUS) needs an expert on nuclear radiation based measurement systems, with a thorough experience on the design and development of NDA techniques and nuclear measurement methods, and an excellent knowledge of associated data acquisition systems and collect and review software. Knowledge of the UMS components, hardware and software, developed by USSP also required. Knowledge of unattended measurement systems and of the IAEA safeguards practice would be an asset.

The duration of the CFE position will be limited for the period of time until a fixed-term post has been created. The purpose of the request is to replace a CFE who will be leaving the IAEA.

3.2. What is Needed and When

The CFE will take over the current CFE's responsibilities on innovative projects of strategic importance for Safeguards that are highlighted below.

Expanded use of unattended instrumentation is a central feature of the IAEA's biennial, medium-term and long-term strategy documents. The CFE is the UMS team's lead on a number of projects identified in those documents and in particular in the Development and Implementation Support Programme (D&IS) for 2016-2017, SGTS-11, Unattended Measurement Techniques, as summarized below:

- Design and development of new unattended instruments and methods.
- Unattended instrumentation concepts for enrichment plant safeguards: The CFE will be leading an effort to qualitatively and quantitatively assess how the proposed unattended instrumentation, for example, cylinder verification stations, could support verification objectives in large-capacity modern plants. The CFE will collaborate with staff from SGTS, SGOA/B/C and SGCP, and will coordinate with related EURATOM and US DOE projects.
- On Line Enrichment Monitor (OLEM): The CFE will manage the OLEM tasks active with the USSP,

and will be helping to coordinate related efforts in the NNSA's NGS. In 2016, OLEM were first installed in a facility with data analysis and performance evaluations being performed. In addition, the CFE will coordinate and monitor with the OLEM prototype ongoing test and evaluations. The OLEM tasks are expected to continue through mid-2017

- Finnish and Swedish encapsulation plants and repositories: The CFE is the UMS's lead for the development of instrumentation for proposed safeguards approaches in these new back-end facilities (first-of-a-kind for the IAEA). The CFE will be working closely with SGCP and SGOC to prepare the draft safeguards approach and to initiate the necessary SP-1s, a process which will continue in 2016 and beyond.
- The CFE will be taking a proactive role with SGTS, SGOA and SGCP teams in the conceptual design of new NDA instrumentation dedicated to pyro-processing facilities.
- Instrument development: The CFE will be leading the development of new instrumentation, as requested by Operations Divisions.
- Modernization and standardization of UMS systems:
 - The CFE will be actively involved in the effort to modernize and standardize UMS systems.
 - Installation, troubleshooting and repair of UMS:

The CFE will complete measurements, analysis, modelling and documentation to install, improve and repair various unattended measurement systems, as detailed in the yearly UMS work plan for implementation and maintenance.

3.3. Why is the task needed and consequences if task is not performed

The ability of TUS/UMS to install and maintain new standardized UMS according to our SGTS R&D plan will be in jeopardy.

3.4. How will the task results be used and by whom

The tasks results will be used by the TUS engineers and technicians to provide a firm foundation for TUS to meet its development, installation and maintenance responsibilities for unattended measurement systems.

4. Proposed Sub Tasks

5. Proposed Work Outline

- 5.1. Estimated Duration (months): 24
- 5.2. Status Report Frequency: Once every 3 Month
- 5.3. Supporting Divisions(s) / Section(s): SGTS / TUS
- 5.4. End User Divisions(s) / Section(s): SGTS / TUS
- 5.5. Proposed Work Phases

Phase Number: 1

Phase Title: Produce Work Plan

Description

To produce Work Plan based on the projects highlighted in paragraph 3.2 above.

On parallel with Work Plan production, familiarization with the IAEA's specific procedures and technologies, including, but not limited to documentation, administration, procurement, scheduling, shipping, travel, and training as required.

Start Month after acceptance: 1 **End Month:** 3

Carried out in sub tasks:

Phase Number: 2

Phase Title: Manage Projects

Description

Taking the lead on the projects highlighted in paragraph 3.2 above.

Organizing the different teams in coordination with the Team Leader and preparing the respective project plans by clearly identifying tasks, milestones and deliverables. Following up on the development of corresponding Member State Support Programme (MSSP) tasks by setting up regular meetings and verifying that progress is made in a timely manner and objectives do not deviate from the IAEA initial requirements.

Start Month after acceptance: 4 **End Month:** 24

Carried out in sub tasks:

6. Safeguards Approval Process

6.1. Suggested to MSSPs: USA

6.2. Reason for suggestion of MSSPs

The expert needs to be familiar with the UMS components, hardware and software, developed by USSP.

7. Attached Documents

N/A