Task Proposal (SP-1)

1. Task Proposal

1.1. Task Proposal ID:	15/IFC-001
1.2. Task Title:	EXPERT: Environmental Sampling Database Applications Administrator/Developer
1.3. Requestor / Division / Section:	SUMANASENA-WANIGASEKERA Aiona / SGIM / IFC
1.4. Task Proposal Type:	CFE Task
1.5. Task Category:	A (Measurement Methods and Techniques)

1.6. Reason (if task is either a joint task or desires multiple acceptance)

2. Project

2.1. Project ID and Title:	SGIM-007 - Evaluation of Data from Environmental Sampling and Destructive Analysis
2.2. Project Manager / Division / Section:	Fischer Diane Marie / SGIM / IFC

3. Safeguards Requirement Identification

3.1. Background

3.2. What is Needed and When

The Environmental Sampling Database (ESDB) has been in use since 2000 and serves as the core source of information related to environmental sampling (ES). The ESDB is used for storage and retrieval of the ES data, including sample collection information, laboratory analysis requests and status, analytical results, and evaluation conclusions. This tool is crucial for the effective administration of the ES programme, including archiving of historical data, management of day-to-day operations, and reporting of sampling results.

The ESDB runs on Oracle platform and SGIS has an expressed their plans to convert all Oracle databases to Microsoft .Net SQL. IFC requires the services of a Cost Free Expert, Environmental Sampling Database Administrator / Developer, commencing in mid-2016 for a period of two years, to interact with the SGIS team and ensure a smooth transition of the ESDB to Microsoft .Net SQL. The expert will also work to resolve issues to more closely integrate the ESDB with the SGAS sample & analysis tracking database(s) and streamline the transfer of data packets between software systems or be integrated with the ESDB.

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

Interruption of the services or the corruption of the ESDB would be highly detrimental to the effective evaluation of ES results, thus jeopardizing confidence of the relevant safeguards conclusions. ES evaluations rely not only on the measurement results of the current samples, but also involve the comparison to past samples from the same and other sampling locations. The ESDB facilitates this comparison, as well as provides up to the minute information on samples being processed. Without access to accurate, complete, indexed, and structured information, ES evaluations and contributions to State Evaluations would be severely hampered, resulting in greatly increase evaluation times and be susceptible to data omissions that would impair the final conclusions.

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

The expert will document the ESDB user requirements required by SGIS for a future migration to Microsoft .Net SQL. The expert shall also propose ways to improve integration and data ESDB exchanges between SGIM-IFC the SGAS sample & analysis tracking database(s).In addition, the expert is expected to review ES evaluation software in use and suggest concepts for better integrating and exchanging data between software packages and the database, which will contribute to more efficient production and higher quality SGIM-IFC work products (evaluation reports and State evaluation inputs).

4. Proposed Sub Tasks

5. Proposed Work Outline

5.1. Estimated Duration (months): 24

5.2. Status Report Frequency:	**Once every**	120	Day
5.3. Supporting Divisions(s) / Section(s):	SGIM / IFC		
5.4. End User Divisions(s) / Section(s):	SGIM / IFC		

5.5. Proposed Work Phases

a. Arrival of CFE mid-2016.

b. Define and coordinate IFC ESDB requirements for migration of ESDB to Microsoft .Net SQL 2014 to 2015

1. Draft user (IFC) requirements guide that documents the business needs for ESDB functions, user account management, user access, DB administrative policies, etc.

2. Liaise with SGIS to identify resources and the schedule for conversion of ESDB to Microsoft .Net SQL,

including transition to secure network.

3. Review and assess SGIS hardware and software plans for migration of ESDB to Microsoft .Net SQL to meet IFC business needs and potential vulnerabilities (project risks).

4. Propose ways to improve integration (data exchange) between the ESDB and the SGAS sample & analysis tracking database(s).

c. Review the work flow for ES evaluations, propose and implement software solutions that could streamline the transfer of data packets between software systems or be integrated with the ESDB, 2017 to 2018.

6. Safeguards Approval Process

6.1. Suggested to MSSPs: USA

6.2. Reason for suggestion of MSSPs

SMC

7. Attached Documents

N/A

IAEA
International Atomic Energy Agency

Job Description for Professional Posts

Position and Grade:	Expert for Environmental Sampling Applications (P4)
Organizational Unit:	Department of Safeguards (SG) Division of Information Management (SGIM) Section for Nuclear Fuel Cycle Analysis (IFC)
Duty Station:	Vienna
Type/Duration of Appointment:	Cost Free Expert

Organizational Setting

The Department of Safeguards is the organizational hub for the implementation of IAEA safeguards. The IAEA implements nuclear verification activities for more than 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; and three Technical Divisions, (i) Division of Concepts and Planning, (ii) Division of Information Management, and (iii) Division of Technical and Scientific Services, as well as two Offices: the Office of Safeguards Analytical Services and the Office of Information and Communication Services.

The Division of Information Management (SGIM) comprises four sections and provides the Department of Safeguards with data processing services, secure information distribution, information analysis and knowledge generation necessary to draw independent, impartial and soundly based safeguards conclusions.

Main Purpose

Reporting to the Team Leader for ES Evaluations, the expert contributes to the Department of Safeguards mission by supporting the divisional effort to enhance the effectiveness of collection, analysis and evaluation processes of Safeguards-relevant information related to Environmental Sampling and their contribution to State Evaluation and Safeguards conclusions. The expert will work at ensuring close integration between the Environmental Sampling business solutions (including Environmental Sampling database, ESDB) and other departmental solutions, with particular emphasis to the SGAS sample, analysis tracking, and quality control solutions.

Role

The Expert for Environmental Sampling business solutions is a business expert who investigate, model and specify business functions, processes, information flows and data structures that will meet business requirements, using methodical and consistent techniques; a specialist, who provides

comprehensive advice on information architecture and Oracle based solutions; a project manager, defining, planning and making a business case for projects to develop/implement components of business processes; and a key contributor to broader efforts to develop and improve Environmental Sampling Evaluation capabilities across the Department.

Partnerships

The Expert for Environmental Sampling business solutions collaborates with colleagues, particularly from within the Nuclear Fuel Cycle Analysis Section and the Division of Analytical Services (SGAS) He/she works closely with all ES evaluation users in the Department of Safeguards to fully understand their business needs in order to provide them with business solutions for improving their effectiveness and efficiency. He/she also coordinates with staff in Division of Information Systems (SGIS) to exploit all possible synergies and to ensure that the proposed architecture solutions are in compliance with best practices and ensure that proper coordination and enforcement of appropriate standards are implemented, including with regard to information security.

Functions / Key Results Expected

- Acts as a subject matter expert in the development of business architecture framework and design methodology for the Environment Sampling Evaluation business area
- Lead the effort to work with stakeholders to identify business capability needs and prioritization
- Lead in designing, specifying and implementing information system solutions, considering functionality, data, security, integration, infrastructure and performance and providing the supporting documentation
- Conduct review and analysis of section and department needs and goals for the enhancement and implementation of business solutions related to the Environment Sampling Evaluation area
- Conduct analysis to understand the dependency between Oracle and third party software components to build fully integrated business solutions
- Work with the team to develop high level project schedule resource plans for implementation projects.
- Conduct analysis to determine best path for solving business problems/opportunities
- Coordinate and provide technical support with Divisional partners, in particular with SGIS Project Section and Infrastructure Sections, to ensure solutions developed are aligned to enterprise architecture standards and principle and enforce best practices for architectural standards, security standards, and the delivery of services.

Knowledge, Skills and Abilities

Technical expertise

- Strong background in Data (structured and unstructured) modelling design, data verification methods and operations

- Strong query language skills (SQL, PL/SQL etc.)
- Strong experience with using, tuning, and deploying solutions on a commercial database such as Oracle and SQL Server
- Strong conceptual and analytical skills - demonstrating outside-the-box problem solving skills
- Strong understanding in Information Security

- Familiarity with nuclear laboratories techniques and environmental sampling business area for Safeguards is an advantage

Analytical skills: Innovative thinking and strong analytical and problem solving skills to deal with complex business challenges

Interpersonal skills: Ability to work harmoniously in a multicultural/multidisciplinary environment with respect and sensitivity for diversity

Communication skills: demonstrated ability to write analytical and technical documents and to speak clearly and effectively.

Learning attitude: Ability to keep abreast of technological developments.

High degree of reliability in handling confidential information

Education, Experience and Language Skills

- Advanced university degree (or equivalent) in computer science, engineering, physics, mathematics or related disciplines.
- A minimum of seven years of working experience in the relevant field(s) mentioned above, especially in an environment with significant IT security constraints.
- Deep familiarity in development, administration and conversions of Oracle database and applications. Oracle certification or profession training is highly desirable.
- Fluency in written and spoken English. Knowledge of other official IAEA languages (Arabic, Chinese, French, Russian or Spanish) an asset.

Internal Human Resources use only:	
Effective Date:	
Occupational Group(s):	
Post Number:	