Annex D - Tender Response Template

Part 1: Supplier Information

1.1 Organisation Details

Please answer the following questions in full. Note that every organisation that is being relied on to meet the selection must complete and submit the Part 1.

	Question	Response
1.1 (a)	Full name of the supplier submitting the information	Axis 12 Ltd NAC International Inc.
1.1 (b)	Registered office address (if applicable)	Axis 12: Unit 14, The Ivories 6-18 Northampton St London N1 2HY NAC: 3930 E. Jones Bridge Road, Suite 200 Norcross, GA 30092 Unites States of America
1.1 (c)	Trading status a) public limited company b) limited company c) limited liability partnership d) other partnership e) sole trader f) third sector g) other (please specify your trading status)	Axis12: Limited Company: NAC: Not a publicly-traded stock corporation
1.1 (d)	Date of registration in country of origin	Axis12: 7th April, 2010 NAC: August 26, 1968, formed with original name Nuclear Assurance Corporation; as of January 3, 1994 name changed to NAC International Inc.
1.1 (e)	Company registration number (if applicable)	Axis12: 07215135 NAC: Delaware State Division of Corporations File Number: 2366430.
1.1 (f)	Head office DUNS number (if applicable)	Axis12: 216358474 NAC: 048691679
1.1 (g)	Registered VAT number	Axis12: 997480160 NAC: None

1.1 (h)	If applicable, is your organisation registered with the appropriate professional or trade register(s) in the member state where it is established? If yes, please provide details including the registration number(s).	Axis12: Yes ISO27001 certified and accredited by the British Standards Institution with reg. No.598644 NAC: Yes X, State of Georgia, USA, No. K404409, Annual Registration filed January 25, 2018 No ☐ N/A ☐
1.1 (i)	Is it a legal requirement in the state where you are established for you to possess a particular authorisation, or be a member of a particular organisation in order to provide the services specified in this procurement? If yes, please provide additional details of what is required and confirmation you have complied with this.	Axis12: No X NAC: Yes ☐ No X
1.1 (j)	Trading name(s) that will be used if successful in this procurement	Axis12 Axis Twelve NAC: NAC International NAC
1.1 (k)	Are you a Small, Medium or Micro Enterprise (SME)[1]?	Axis12 No X NAC Yes ☐ No X
1.1 (l)	Details of Persons of Significant Control (PSC), where appropriate[2]: - Name; - Date of birth; - Nationality; - Country, state or part of the UK where the PSC usually lives; - Service address; - The date he or she became a PSC in relation to the company (for existing companies the 6 April 2016 should be used); - Which conditions for being a PSC are met; - Over 25% up to (and including) 50%, - More than 50% and less than 75%, - 75% or more.[3]	Axis12: Not Applicable NAC: Not applicable per footnote 2. NAC International Inc. is a U.S.A. – State of Delaware, corporation.

[1] See EU definition of SME: http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/

[2] UK companies, Societates European (SEs) and limited liability partnerships (LLPs) will be required to identify and record the people who own or control their company. Companies, SEs and LLPs will need to keep a PSC register, and must file the PSC information with the central public register at Companies House. See PSC guidance.

[3] Central Government contracting authorities should use this information to have the PSC information for the preferred supplier checked before award.

1.1 (m)	Details of immediate parent company if applicable: - Full name of the immediate parent company - Registered office address (if applicable) - Registration number (if applicable) - Head office DUNS number (if applicable) - Head office VAT number (if applicable)	Axis12: Not Applicable NAC: HITZ HOLDINGS U.S.A. INC. 2 Grand Central Tower 140 East 45th Street, 17th Floor New York, NY 10017 Tel: (212) 883-9060 Fax: (212) 883-9064 DUNS: 614756070
1.1 (n)	Details of ultimate parent company if applicable: - Full name of the ultimate parent company - Registered office address (if applicable) - Registration number (if applicable) - Head office DUNS number (if applicable) - Head office VAT number (if applicable)	Axis12: Not Applicable NAC: Hitachi Zosen Corporation 7-89, Nanko-kita 1-chome, Sumi-noe-ku, Osaka 559-8559, Japan Tel: +81-6-6569-0001 Fax: +81-6-6569-0002
1.1 (o)	Please confirm whether you already have, or can commit to obtain prior to the commencement of the contract, the levels of insurance indicated: Employer's (Compulsory) Liability Insurance = £10,000,000 per claim. Public Liability Insurance = £5,000,000 per claim. Professional Indemnity Insurance = £10,000,000 per claim.	Axis12: Employer's (Compulsory) Liability Insurance = £10,000,000 per claim. Public Liability Insurance = £5,000,000 per claim. Professional Indemnity Insurance = £5,000,000 per claim. NAC: Yes, we confirm for Employer's and Public Liability Insurance. Professional Indemnity Insurance is $1M per claim

Please note: A criminal record check for relevant convictions may be undertaken for the preferred suppliers and the persons of significant in control of them.

1.2 Procurement Approach

Please provide the following information about your approach to this procurement:

	Question	Response
1.2 (a)– (i)	Are you bidding as the lead contact for a group of economic operators?	Axis12: No ✓ NAC: Yes ✓ No ☐ If yes, please provide details listed in questions 1.2(a) (ii), (a) (iii) and to 1.2(b) (i), (b) (ii), 1.3, Section 2 and 3. If no, and you are a supporting bidder please provide the name of your group at 1.2(a) (ii) for reference purposes, and complete 1.3, Section 2 and 3.
1.2 (a) – (ii)	Name of group of economic operators (if applicable)	Axis12 & NAC International
1.2 (a) – (iii)	Proposed legal structure if the group of economic operators intends to form a named single legal entity prior to signing a contract, if awarded. If you do not propose to form a single legal entity, please explain the legal structure.	Teaming Agreement

1.3 Contact details and Declaration

I declare that:

- I am submitting an official Tender in Response to the Invitation to Tender (ITT) for a Safeguards Information Management and Reporting System (SIMRS).

- I, or another representative assisting with this Tender, have read, in their entirety, the ITT document and provided Annexes.

- I, and my represented company, agree to all terms & conditions outlined in the ITT.

- All provided information/evidence within this Tender is accurate to the best of my knowledge and that I, or other company representatives, have undertaken sufficient checks to ensure the accuracy of provided information/evidence.

- The proposed Tender schedule includes a SIMRS minimum viable product solution that would meet all mandatory requirements by the Project Completion date of 31st December 2018.

- upon request and without delay I will provide the certificates or documentary evidence referred to in this document.

- I, and my represented company, agree to this Tender being assessed using the outlined selection process and evaluation criteria provided with the ITT.

- I understand that the authority may reject this submission in its entirety if there is a failure to answer all the relevant questions fully, or if false/misleading information or content is provided in any section. I am aware of the consequences of serious misrepresentation.

- I, and my represented company, confirm that no collusion, bribery or anti-competitive behaviour was involved in the development of this tender response.

- I, and my represented company, confirm that the costing's included within this tender have not been fixed or adjusted inappropriately in collusion with any other party.

- Any commercially sensitive, confidential or other protective markings relating to this Tender have been appropriately identified at the top and bottom of every page.

- I, and my represented company, have never been convicted of:
    - Conspiracy within the meaning of section 1 or 1a of the Criminal Law Act 1977 or article 9 or 9a of the Criminal Attempts and Conspiracy Order 1983 where the conspiracy relates to participation in a criminal organisation as defined in article 2 of Council Framework Decision 2008/841/JHA

- Corruption with the meaning of section 1 of the Public Bodies Corrupt Practices Act 1889 or section 1 of the Prevention of Corruption Act 1906 where the offence relates to active corruption.
- Bribery, where the offence relates to active corruption, within the meaning of section 1 or 6 of the Bribery Act 2010.
- Fraud, where the offence relates to fraud affecting the financial interests of the European Communities as defined by Article 1 of the Convention relating to the protection of the financial interests of the European Union.
- Money laundering within the meaning of section 340(11) of the Proceeds of Crime Act 2002.
- An offence in connection with the proceeds of criminal conduct within the meaning of section 93A-C of the Criminal Justice Act 1988 or articles 45-47 of the Proceeds of Crime Order 1996.
- An offence in connection with the proceeds of drug trafficking within the meaning of sections 49-51 of the Drug Trafficking Act 1994.
- Any other offence within the meaning of Article 45(1) of Directive 2004/18/EC as defined by the national law of any relevant State.

Please provide Y/N to the follow questions. Y answers do not guarantee disqualification, but the ONR reserves the right to contact you for further information and to disqualify suppliers on these grounds.

Is any of the following true of your represented organisation:

(a) being an individual, is a person in respect of whom a debt relief order has been made, is bankrupt or has had a receiving order or administration order or bankruptcy restrictions order, or a debt relief restrictions order made against him or has made any composition or arrangement with or for the benefit of his creditors or has not made any conveyance or assignment for the benefit of his creditors or appears unable to pay or to have no reasonable prospect of being able to pay, a debt within the meaning of section 268 of the Insolvency Act 1986, or article 242 of the Insolvency (Northern Ireland) Order 1989, or in Scotland has granted a trust deed for creditors or become otherwise apparently insolvent, or is the subject of a petition presented for sequestration of his estate, or is the subject of any similar procedure under the law of any other state. **Response: Axis12- Not Applicable NAC- Not Applicable**

(b) being a partnership constituted under Scots law, has granted a trust deed or become otherwise apparently insolvent, or is the subject of a petition presented for sequestration of its estate. **Response: Axis12- Not Applicable NAC- Not Applicable**

(c) being a company or any other entity within the meaning of section 255 of the Enterprise Act 2002, has passed a resolution or is the subject of an order by the court for the company's winding up otherwise than for the purpose of bona fide reconstruction or amalgamation, or had a receiver, manager or administrator on behalf of a creditor appointed in respect of the company's business or any part thereof or is the subject of similar procedures under the law of any other state. **Response: Axis12- No NAC- No**

(d) Has been convicted of a criminal offence relating to the conduct of the business or profession. **Response: Axis12- No NAC- No**

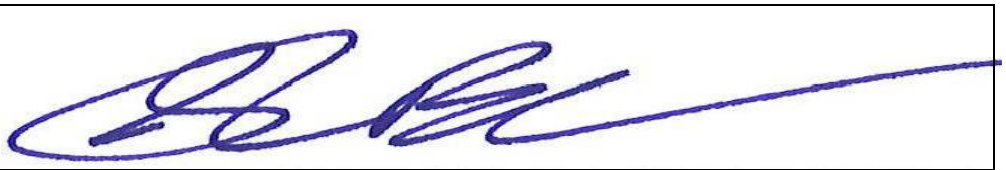
(e) Has committed an act of grave misconduct in the course of the business or profession. **Response: Axis12: No ;NAC- No;**

(f) Has failed to fulfil obligations relating to the payment of social security contributions under the law of any part of the UK or of the relevant State in which the company is established. **Response: Axis12: No; NAC- No**

(g) Has failed to fulfil obligations relating to the payment of taxes under the law of any part of the UK or of the relevant State in which the company is established. **Response: Axis12: No NAC- No**

(h) Has been found guilty of serious misrepresentation in providing any information required of the company under Regulation 23 of the Public Contracts Regulations 2006. **Response: Axis 12: No NAC- No**

	Question	**Response**
1.3 (a)	Contact name	Axis12: [redacted] NAC: [redacted]
1.3 (b)	Name of organisation	Axistwelve NAC International
1.3 (c)	Role in organisation	Axis12: Director NAC: Director
1.3 (d)	Phone number	Axis12: [redacted] NAC: [redacted]
1.3 (e)	E-mail address	[redacted]
1.3 (f)	Postal address	Axis12: The Ivories Unit 14 6/18 Northampton Street London N1 2HY United Kingdom NAC: 3930 East Jones Bridge Road Suite 200 Norcross, Georgia 30092 United States of America
1.3 (g)	Signature (electronic is	

	ac-cepta-ble)	
1.3 (h)	Date	

Part 2: Tender Response

2	INVITATION TO TENDER - RESPONSE
2a	Please provide an executive summary regarding your proposed solution.
	[redacted]

Axis 12 & NAC International: Company Profiles

A description of the two companies follows.

Axis12

Axis12 are experts in hosting and supporting large scalable websites and providing unrivalled levels of data security.

Our ISO27001 accreditation is certified by the British Standards Institute who audit us annually. We have in-house CLAS consultants to support us in our ongoing commitment to data security and ensuring our obligations under GDPR.

We host and support some of the most data sensitive sites in the UK, such as the NHS's Provider Portal for health and social care services in England, and the online learning platform for all 450,000 of the UK's Civil Servants.

We also host and support some of the highest traffic sites in the UK, such as the Care Quality Commission's public website, which serves over 540 million requests per month.

The datacentres where we locate our hardware are provided by "The Bunker" who provide one of the most secure hosting environments in Europe, located within purpose-built, armoured, nuclear bomb-proof, military-specified fortresses. Certified by PCI DSS, HMGCESG, G Cloud, they are also ISO27001 accredited and NHS IGSoC approved.

The unequalled level of security and redundancy is coupled with the ability to support high levels of power and cooling and stringent access-control procedures. Our datacentres are staffed 24×7×365 by security, technical and network staff able to provide remote hands or to be booked to carry out more complex tasks right up to full-system builds. The datacentres are linked to the Internet by fully redundant, multi-homed, gigabit network picking up multiple carriers from a number of POPS in locations in London.

NAC

NAC International (NAC) is a provider of nuclear material control and accounting systems, nuclear fuel consulting, engineering and fuel management solutions to international nuclear operators, fuel cycle companies and government agencies. Since 1968, NAC has been at the core of the global nuclear industry development with its unique and innovative solutions to tackle the most challenging nuclear material, waste management and quality assurance issues.

NAC's Corporate Headquarters is in Atlanta and it maintains representatives in Japan, Spain, Moscow and China. The company serves more than 200 customers. NAC specializes in the development and operation of nuclear material control and accounting systems, nuclear material transport, spent fuel storage and transport technologies, fuel cycle information services, and nuclear industry technical, quality, and commercial consulting. NAC employs about 70 staff and generates annual revenues of approximately $60 million (US) through its three operating divisions.

NAC's Engineering and Projects Division provides the design, license and deployment of innovative technologies to store, transport and manage nuclear materials, having supplied more than 500 spent fuel storage systems. Our professional staff possesses unsurpassed industry knowledge and experience needed to tackle all aspects of nuclear project management.

NAC's Site and Transportation Services Division offers comprehensive nuclear material packaging and transportation services. In accordance with the latest international regulations and supported by our large fleet of spent fuel transport casks, our team of cask operators and field engineers constantly provides the means to relocate and manage nuclear materials domestically and internationally.

NAC's Consulting Division serves the world's most prestigious nuclear organizations. We provide high quality products and services, including:

- Development and operation of nuclear material control and accounting systems
- Independent nuclear fuel market information and impartial market evaluations,
- Nuclear fuel technical evaluations and product performance reviews,
- Quality assessments and oversight services, and
- Training services in all technical and business aspects of the nuclear fuel and quality assurance.

Nuclear Material Control and Accounting System Development & Operation

Axis12 Experience

Axis12 does not have MC&A experience but they have significant experience in developing high traffic web-based products.

NAC Experience

In the early 1990's NAC redesigned and rebuilt the U.S. State System of Accounting for and Control of Nuclear Material (SSAC), which is called the Nuclear Materials Management and Safeguards System (NMMSS). NAC then operated NMMSS for about 15 years. NAC's scope included designing and building the initial client/server system in the early 1990s and modifying the system as the government's requirements changed. These changes included those in response to modifications in regulations but also fundamental changes such as the move from tracking material origins to tracking obligations. In addition, NAC was involved in several system re-designs and upgrades. Operationally NAC received data, checked its validity, reconciled balances and produced reports for governments, facilities and the International Atomic Energy Agency (IAEA).

The NMMSS actually operated under three separate sets of accounting rules integrated into one platform. The system was designed to meet the needs of the Department of Energy (DOE) including its weapon facilities; the Nuclear Regulatory Commission (NRC) for the commercial industry; and international reporting requirements of the IAEA and U.S. trading partner countries. The NMMSS system that NAC designed and ran contained information subject to multiple levels of security. Much of the DOE information was classified as top secret and all of the NRC information was at least proprietary. Our

systems were required to assure that information was only available to properly authorized recipients. The system received input from as many as 1,000 data submitters, produced as many as 2000 reports a month and never experienced a security infraction.

Prior to NAC redesigning and implementing NMMSS in the early 1990's, the system was run on a main frame system and required approximately 40 people, the majority of whom were programmers. NAC's approach fundamentally changed operations. The total staff was reduced to about 15, only 2 of whom were programmers. System costs were reduced substantially while customer responsiveness and data accuracy improved dramatically.

NAC Reporter Overview

Based on its extensive operational experience, NAC understood that substantial improvements in efficiency and system accuracy could be obtained by automating and improving the software for functions such as reconciliation of submitter balances with the balances in the SSAC and transit matching. These improvements result in substantial savings in costs and more confidence in the SSAC by trading partners and the IAEA.

Recognizing that many SSAC's were old and would need upgrading and the emergence of additional countries deploying commercial nuclear power would result in additional countries and facilities needing nuclear accounting and control software, NAC decided to invest in developing its Nuclear Material Accountancy and Control system called Nuclear Accounting and Compliance Reporter (NAC Reporter) based on IAEA requirements (IAEA Nuclear Material Accounting Handbook) plus the capability to handle obligations accounting and to automate the functions discussed above. Obligations accounting can be complex due to the varying requirements of countries and the layering of obligations (some fuel may be obligated to multiple countries). Some of the States that currently require obligation accounting include the United States, European Union, Australia, Canada, Japan etc. This list is likely to expand in the future. NAC understands obligations and designed its program to easily meet the requirements.

The NAC Reporter software was also designed to be readily modified to take into account any special or unique requirements of a particular country or site. After more than six man-years of development, our base state MC&A system software (NAC Reporter) is now complete and ready for immediate use. Code modifications to the base system to meet the specific needs of ONR are expected to be straight forward. A customized NAC Reporter provides a low cost and schedule risk approach for ONR to obtain, successfully deploy and operate a world class nuclear material accounting and control system. Developing a new MC&A system is not a trivial exercise. NAC is unique in that it brings together professional, experienced software engineers with MC&A system operational experience and commercial nuclear fuel expertise.

The NAC system has been designed to be efficient and easy to use through:

- Minimizing manual data entry
- Developing input forms that mimic what is familiar
- Providing drop down lists wherever possible
- Automatically validating data entries
- Providing software tools to identify data inconsistencies for reconciliation
- Automating reporting

The NAC system has been developed using widely available and familiar software tools that are flexible and expandable, including:

- Microsoft Visual Studios 2013 (Visual Basic)
- Microsoft SQL Server 2014
- DevExpress DXperience 16.1

NAC reporter has been deployed and used at 5 facilities in the U.S. to report to the U.S. SSAC (NMMSS). It is also being deployed in the United Arab Emirates as a facility system and in Kazakhstan as both a state and facility system. It is also being actively considered in several other countries. The intuitive nature of inputs and the rigorous data validation checks have allowed these facilities to efficiently and accurately report.

NAC Reporter is available as a State system or a Facility system or as an integrated system. NAC Reporter has been penetration tested by a customer and proved to meet security requirements, providing far better security than our competitors.

As part of the current deployment in Kazakhstan, NAC has added the capability to have system generated menu options, labels, instructions, and messages presented in Kazakh and Russian. This capability is being implemented in a manner that allows other languages to be readily added.

Modifying NAC Reporter is a low cost and low schedule risk approach to meeting ONR's requirements. Developing the U.S. SSAC took more than 5 years and cost more than $5 million. In addition, the Team offers MC&A and nuclear fuel cycle experts which will minimize misunderstandings of requirements.

NAC Reporter provides the basis to meet ONR's requirements. However, the Team recognizes that there are significant additional requirements that must be met. The Team also understands that there may be some more needs identified after the requirements analysis meeting. The Team believes that the changes required to our software are significant but manageable in the specified time frame. Our plan is to provide a deliverable that meets ONR requirements. Required project documents will be modified to include topics and content related to ONR's requirements.

Shortly after contract execution, the Team will conduct a meeting with ONR to demonstrate all aspects of Reporter as it currently exists and to discuss the additional requirements in sufficient detail to assure a common understanding of what is to be accomplished. During the meeting, the Team expects that ONR will provide feedback as to any additional modifications it desires. At the end of the meeting, the Team will prepare a list of changes that will be implemented. The Team will then implement the changes and schedule additional meetings to demonstrate progress on the revised product. After the product development is complete, the Team will return to ONR to perform training and to assist in the installation of the software.

Previous Implementations

The NMMSS was a large-scale project with a development budget of 4 to 5 million U.S. dollars. Government projects of this size must follow a very rigid, government-defined software project life cycle and quality assurance plan. The project was required to meet the requirements of the U.S. government, commercial industry and the IAEA. NAC was required to produce and seek government approval for all documents. Once the development phase was completed, the project was placed into maintenance and NAC operated the new system and the legacy system in parallel for one year. All requested changes or defects identified during this time were submitted to a Configuration Change Board for approval. After a year of parallel testing, the new environment was certified to be the U.S. SSAC system.

After 15 years of running the NMMSS project, NAC was unable to bid on the contract again because we were no longer a small business. Using our experience and knowledge gained from managing the NMMSS, NAC knew that substantial improvements in efficiency and system accuracy could be obtained by automating and incorporating improvements in a software to help U.S. data submitter. The software is hosted by NAC and has been designed to improve a site's ability to accurately report to the U.S. SSAC system without errors.

In developing this software, NAC took a different approach. Documentation on the software exists as an UML Design tool that NAC uses for software development. Design and requirements all exist in the design tool. Testing of the software was performed by knowledgeable individuals with experience in the NMMSS project. Because of the size of the system and the experienced software staff, this approach was the most cost effective and reasonable approach to take in developing this software.

NAC began the UAE facility system development process in early October 2016 and the system went live in February 2018. This was the first international implementation of our

	system. The customer had very specific ideas for customization that required substantial time to implement. In July 2017 NAC was awarded a contract to supply both a state and facility level system to the Republic of Kazakhstan. Meetings were held in July to identify customizations desired by the client. Due to Kazakh government requirements for software certification, a decision was made to concentrate on the state system. Modifications were agreed, and the software was completed in March 2018. The major modification required is to allow system menus, titles, headings and messages (but not information input by the users) to be able to be displayed in English, Russian and Kazakh. This language capability was implemented in a manner that will allow other languages to be added. Now that the state system is complete, NAC will modify the facility system, including adding the additional language capability.
2b	Please provide details regarding the design of your proposed solution, including methodology and approach.
	If a contract is secured the Team will schedule a meeting with appropriate ONR staff to demonstrate the State version of NAC reporter and discuss ONR specified requirements. The objective of this meeting is to assure that the Team and ONR have a common understanding of the requirements. The Team will take this information and develop a list of the modifications required to adapt NAC Reporter to meet ONR's needs. The team will then make the modifications. After about two months of working on the modifications, the Team will meet with the ONR again to demonstrate application operation and obtain feedback. The objective is to assure the changes meet ONR's needs and to redefine any that do not. Once all changes are complete, the Team will demonstrate the system again. Any additional modifications will be identified. The Team will then assist in the installation and setup of the application and conduct training. Since the base system is operational today, the Team is confident that it can deliver a product within the 8 months specified. NAC has invested more than 6 man-years in developing the application and finds it improbable that anyone without a functioning system and safeguards experience can meet the schedule.
2c	Please provide details of your planned delivery including detailed timescales, identification of the critical path and highlighted milestones.
	Proposed Schedule • Start work- about May 1, 2018 • Prepare for meeting, identify questions, setup demonstration, start modifications • Conduct First Meeting with ONR Staff- about May 1-18, 2018 • Prepare listing of modifications required to meet ONR needs and continue implementation • Conduct Second meeting and demonstration, clarify any uncertainties and assure understanding of requirements- about July 30-August 3, 2018 • Implement and test modifications • Conduct third meeting with ONR to demonstrate changes- about September 24-28, 2018 • Complete and retest modifications • Install and setup system and conduct training October 31, 2018 • Conduct Training Early November 2018 • Parallel operations begin December 31, 2018 • Assist parallel operations January 2019 • Go-Live- about February 15, 2019 The critical path is to identify all modifications required to meet ONR requirements and to implement and test the changes in the application.

2d	Please provide details of governance / a relationship liaison plan.
	This plan describes the practices, steps, strategies and decisions used to manage the successful completion of this development, implementation and operation. The Team assigned to this project is small and highly experienced in MC&A and development, implementation and operation of the software. The principal team members have worked together for almost three decades, so they know each other well. The goal of the project is to produce software that meets the specified requirements on the agreed schedule. The software must operate efficiently while using many established procedures. It should be easy for MC&A professionals to learn. The experience of the key staff results in a simpler, less complex plan. [redacted] will develop the work break- down structure and schedule for each modification that will be tracked weekly to determine progress and identify problem areas. [redacted] will review progress and provide alternatives if the schedule is deemed to be slipping. Corrective action will be identified, executed and monitored. Biweekly meetings with the customer will provide a forum for feedback and prioritization. The principal approach to reducing risk is to assure the develop- ers understand the requirements. This will be accomplished in face to face meetings with demonstrations.
2e	Please provide details regarding how security, as identified in Annex C, will be addressed.
	Microsoft SQL Server has a feature called Transparent Data Encryption (TDE). This feature encrypts data files used by SQL Server to store data in the database. We have recommended turning on this feature to current customers if they have the "protect data at rest" requirement. The application is a web based product. Therefore, HTTPS can be deployed to secure communication between the web host server and ONR users. There is also a setting where the Supervisor user can set report marks for every standard report. The NAC reporter application has been vulnerability tested by a third party (Global Digital Forensics, GDF) under contract to the U.S. government. The testing focused on: • Security from an outside attacker • Security from an inside threat • Granular security configuration and compartmentalization Based on these realms, GDF devised a testing plan as follows: • Install and configure the software while monitoring installation • Initial login and review of the features • Utilize features through a proxy connection • Scan the software for known issues using commercial scanners • Plan attack vectors and attack the software, attempting to gain access • Attempt to gain access to the physical system and the data contained within the database The results of the tests are described below: *"NAC Reporter is a .NET Web application that connects to an MS SQL Server Database to store data and presents the user interface through a Web browser. Since the NAC Reporter program is a browser-based application, GDF conducted testing on the security of the database, its connections, encryption of data at rest and data in transit, the overall security of the .NET application, and how it handles logins and compartmentalization."* *"In order to test the software, GDF installed Windows Server 2008 with MS SQL 2014 installed on a separate virtual machine. GDF utilized several commercial scanners, including Burp Suite, NetSparker and AppScan, to scan the application for vulnerabilities. In addition, GDF conducted a manual review and application penetration test on the NAC Reporter application. Testing did not reveal any major security issues, and aside from some simple ASP.NET programming changes, the overall programming is sound. The major concern is implementation of some type of audit log. Currently, GDF sees no user logging or auditing available within the application interface, or any report feature to allow user activity auditing."* *"Based on GDF testing for both application security and user security, NAC Reporter has the most robust security features, including security for Data at Rest, Security for Data In Motion, and overall ability to limit users*

	roles and access to data. The one major flaw is the lack of audit trails and logging. If NAC Reporter can implement robust logging, this tool was far superior, from a security perspective, than the two other tools tested." It should be noted that the version of NAC Reporter supplied to GDF did not have audit logs but Reporter does maintain logs as described in NF19 above.
2f	Please provide details of a data migration plan.
	See Appendix B
2g	Please provide draft details for a system specification.
	See Appendix C
2h	Please provide Technical Design details as requested in the SIMRS ITT section 8.4.10.
	See Appendix D
2i	Please provide details regarding any provider requirements, as specified in the SIMRS ITT section 8.4.11.
	Key ONR staff members responsible for final acceptance and end users of the software will be needed to answer questions; provide additional detail on the software requirements; participate in acceptance testing and training. To support the installation and operation of the software, ONR must have available the following: ■ Windows Server 2012 R2, X64 (or newer version) ■ Microsoft SQL Server 2014 (or newer version) ■ Windows 7 (or newer version) ■ Internet Information Services (IIS) 7.5 (or newer version) ■ IT support with administrative rights to install the software Given NAC detailed software development and operational experience with MC&A systems and the maturity of the NAC Reporter software, the demands on the ONR MC&A staff for technical direction and problem solving will be far lower than with other applications. NAC expects to need ONR staff time to support the delivery of the project, including: ■ An initial demonstration and meeting to review specification requirements and confirm common understanding of the final product ■ Review of the ONR SIMRS, a customized version of NAC Reporter ■ Provide ONR IT installation support with administrative rights ■ Arrange the facilities, equipment, and proper staff to be available for meetings, installation and training ■ Arrange proper staff to be available for testing
2j	Please provide details regarding the 2 year support, maintenance and future development proposal.
	For the two year support, the Team will provide contact information for key staff that will be available 24 hours each day, 7 days/week. The Team will receive and log ONR's support requests related to the MC&A system. The Team will locate the NAC technical staff member on-call and every effort will be made to respond to the request within the required timeframes. For low to mid-level help requests, the Team will establish an online help desk (after implementation). Submitting a help desk request will be as simple as sending an email to our help desk email address. The Team will also provide a procedure for submitting help desk requests in order to receive all pertinent information needed to assist the requestor and/or resolve the issue as quickly as possible.

	This approach has been implemented with a customer in the middle east and has worked well. For critical tasks (even those outside our scope) Team members have provided support at all hours of the day and night, including weekends and holidays. The Team understands that critical problems must be resolved quickly. Annual maintenance includes: o Updating application due to changes in SQL Server, Visual Studio Visual Basic, DevExpress o Correcting any application defects identified o Modifying code for changes in IAEA requirements o Support questions relative to operations, troubleshooting problems The Team is available and prepared to support future development requests as required by ONR.
2k	Please provide details regarding the handover process and how IP rights would be managed.
	Once the modified version of NAC Reporter has been completed and fully tested, the Team will assist ONR in the installation and initial setup of the application. The Team will conduct sufficient training to assure staff competence in operating the application. The team will then assist ONR in migrating historical data into the application. Once the application is operational, the Team will provide support as necessary to assure successful implementation. NAC will retain ownership of the application but provide ONR with a perpetual, non-transferable, non-sublicensable and non-exclusive license to view and use the application, including but not limited to importing Licensee data, printing Licensee reports and sending License reports to third parties at licensee's sole discretion to meet Licensee's reporting obligations.
2l	Please provide details of future operating system requirements.
	No changes are anticipated
2m	Please provide details of any identified risks with your solution/delivery and how these would be managed.
	The NAC Reporter application has been fully tested and is in the process of being operated. Consequently the base application has essentially no risk. The application works and can now support most of ONR's requirements. The major risk is that ONR required modifications could require more time than anticipated. To mitigate this risk the Team will develop a level of effort and schedule for each task and monitor progress. Tasks will be prioritized to assure critical tasks are completed. The team's approach is a low risk option.
2n	Please provide details of your proposed working arrangements and mobilisation.
	If selected the Team will schedule a meeting with ONR staff to demonstrate the State version of NAC Reporter and to go over the requirements to assure a common understanding of the scope. The team will then prepare an estimate of the time required to perform each modification and prepare a schedule considering the priority, complexity and relationship to other tasks. The Team will perform the modifications in our offices but will communicate frequently with ONR staff to resolve questions. The team plans to have four additional face to face meetings with ONR to discuss progress, demonstrate modifications made to the application and assist in implementation. Face to face meetings will be supplemented with biweekly conference calls.
2o	Please provide details of the resource you plan to deploy on this SIMRS work. CV's can be attached and is encouraged.
	Axis12 staff have decades of strategy, management and development of high traffic web based projects. They provide excellent client facing skills used to communicate through all phases of development, from requirements through ongoing maintenance and user training. For this tender [redacted] will be the key Axis12 person assigned to this project. NAC MC&A professionals have over 50 years of combined experience in the design, implementation and operation of nuclear MC&A systems. For this Tender, NAC proposes [redacted] as the key

individual. [redacted] will also be the lead technical person. [redacted] has about 25 years of MC&A experience. This work experience and the history of accomplishments outlined in the CV's clearly demonstrate the adequacy and competency of his professional expertise. He has been involved in the development of more MC&A's than anyone in the world. His effort will start immediately upon contract award. [redacted] will have additional programmer support at his disposal.

The NAC team project manager [redacted] who has over 40 years of nuclear experience, including 25 years of managing or overseeing the operation of the U.S. SSAC and consulting on MC&A issues. If selected NAC will prepare a project plan that will provide a work breakdown, identify key milestones and risks and provide a schedule for their completion. The milestones will include the main software customization tasks, product delivery, training and implementation and verification tasks. Once work begins progress will be monitored and resources adjusted to comply with commitments. Risk mitigation strategies will be identified and employed.

The team will be supplement by additional IT support staff as required.

[redacted] **- Chief Technical Officer**

Career Summary

Specialise in strategy, management and development of high traffic web based projects. Providing excellent client facing skills used to communicate through all phases of development, from requirements through ongoing maintenance and user training. Leading and managing teams from the front and by example, to provide guidance and support resulting in projects being completed on time and in budget. This is backed up by over 20 years of development experience in web development. Excellent analysis and database design skills. Experienced in Media, Music, Educational, Financial, Business, Legal Sectors.

Profile of experience

- 20 years IT experience specialising in IT programme/project management and leading IT/web solution development teams;
- 15 years team leader experience includes initiating and leading combined teams of permanent employees and recruited IT contractors, in a matrix management environment, for the full life cycle of information management applications and solutions, in particular web technology and e-commerce solutions;
- 13 years programme/project management experience includes specialising in applications development and web technology using Agile, Scrum and MSP/Prince 2 methodologies;
- Advanced contract, supplier management and procurement skills, with extensive experience in recruiting IT contractors for specific projects and development roles including excellent third party and stakeholder management, off shore and outsourced supplier management, liaison and negotiation skills;
- Advanced finance, revenue and resource management, including project specific resources, shared resources and many years experience of bidding for and managing large annual developments of typically £5 million;
- Extensive commercial experience, including many successful bids for major work of greater than £5 million
- Excellent analytical and problem solving skills with experience in business process design focusing on improving processes and productivity;

- Award winning expertise in digital media projects, including Web 2.0, online communities and social networking;
- Advanced client and user liaison skills with experience in training and supporting user and technical groups;
- Advanced change management skills including experience as change agent for major organisation-wide projects;
- Advanced desktop and infrastructure support including experience as a hands-on help desk member, manager and third party provider manager; and
- Excellent communication skills including advanced presentation, liaison and negotiation skills.

Expertise

Operating Systems: Windows 2000 Server & Professional, NT 4.0 Server & Workstation, Windows 3.11 - XP, Unix, Linux (Red Hat, FreeBSD, Gentoo) and Solaris.
Databases: Access 1.0 -XP (2000), Interbase, MySQL, Ms SQL Server 7.0/2005 (Transact SQL), PostgresSQL, and Oracle.
Database Connectivity: ADO, DAO, RDO, ODBC.
Application Languages: Visual Basic 4-6, Visual Basic for Applications (VBA), Python, C, Pascal, and Java.
Server-side Scripting: PHP, Perl, ASP, CGI.
Client-side Scripting: HTML, DHTML, JavaScript, XML (including XSL/T, DTD, Schemas/XSD) and VBScript.
Applications: Microsoft Office, Dreamweaver, Photoshop.
Networking: TCP/IP, IPX/SPX.
Web Server Apps: Apache, Tomcat, Jetty, IIS, Varnish, Squid, Amazon S3, Amazon EC2.
Development processes: UML, OOP, Procedural, Event Driven, Scrum, Waterfall (Prince 2).

Education

2009 – Post Graduate Diploma, Computer Science – Canterbury University
2000 – BSc Sports Science, University of Otago

Employment Details

CTO, Axis12 Ltd, UKJan 2011 - Current

I am a founding director of Axis12 Ltd. Axis12 are one of the UK's leading providers of Drupal and SOLR based web solutions. As part of the senior management team I am responsible for all aspects of the business from solutions architecture through to project management and business development.

Skills utilised in this role include Agile project management, Architecting release and test solutions, and general design of Drupal and Solr based solutions.

Enterprise Architect, Capita Strategic Children's Services, UKJul 2009 – Jan 2011

- Alignment of IT strategy and planning with company's business goals.
- Optimization of information management approaches through an understanding of evolving business needs and technology capabilities.
- Long-term strategic responsibility for the company's IT systems.
- Promotion of shared infrastructure and applications to reduce costs and improve information flows. Ensure that projects do not duplicate functionality or diverge from each other and business and IT strategies.

- Work with solutions architect(s) to provide a consensus based enterprise solution that is scalable, adaptable and in synchronization with ever changing business needs.
- Management of the risks associated with information and IT assets through appropriate standards and security policies.
- Direct or indirect involvement in the development of policies, standards and guidelines that direct the selection, development, implementation and use of Information Technology within the enterprise.
- Build employee knowledge and skills in specific areas of expertise.

Achievements:

- Designed long term strategy for multiple high traffic site delivery.

Technical Snapshot: Drupal (5 & 6), PHP, Python, MySQL, Solr, Tomcat, Varnish, XML, XSLT, redhat 5.2, JBoss ESB, PrinceXML, SOAP, XMLRPC, JMeter, Urchin, Jasper Reports, Infobright

Snr Solutions Architect, Capita National Strategies, UKAug 2008 – Jul 2009

- Working as an internal technical expert to rapidly develop and maintain a strategic focus on designing the required solution
- Rapidly design detailed technical models for the end-to-end platform
- Define and communicate detailed system interactions to both technical and non-technical audiences.
- Working closely with both customers (internal and external) and team members on rapidly developing plans and roadmaps for multiple, closely coupled releases of the platform
- Pro-actively suggesting and engaging in overall project to improve the overall deliverable for the benefit of both the National Strategies and the end users

Achievements:

- Designed and prototyped SOA Architecture for SSO and bulk content generation.

Technical Snapshot: Drupal (5 & 6), PHP, Python, MySQL, Solr, Tomcat, XML, XSLT, zThes, cql, Redhat 5.2, Varnish, Amazon S3

Web Platform Manager, Capita National Strategies, UKAug 2007 – Aug 2008

- Provide development expertise and guidance to a team of 16 developers
- Work with senior management team in performance management and technical strategy
- Define the technical vision for the content delivery platform including server architecture
- Support, training and documentation for the CMS

Achievements:

- Developed technical and server architecture for a high profile high traffic (+20 million page impressions a month) website
- Delivery of National Strategies website on time (6 month from inception to launch) and in budget

Technical Snapshot: Drupal (5 & 6), PHP, Python, MySQL, Solr, Tomcat, XML, XSLT, zThes, cql, Redhat 5.2,

[redacted].—

MC&A Support Software Manager

[redacted] has about 25 years of professional experience including 15 years spent working as a Soft- ware Engineer on the U.S. State System of Accounting for and Control of Nuclear Materials (SSAC), or more typically referred to as the Nuclear Materials Management and Safeguards System (NMMSS). [redacted] has been with NAC International since 1994.
During [redacted]'s tenure at NAC International, he has been involved in several major nuclear material accounting projects.

MC&A System (most current) - [redacted] designed and developed a MC&A System that contains core components most MC&A Systems need to track nuclear material at country level and report to the International Atomic Energy Agency (IAEA). The system has been designed with the intent to meet basic reporting needs of countries and facilities but can be easily enhanced to meet additional report requirement outside of IAEA reporting. [redacted] has been the lead person for the UAE devel- opment of a facility NMAC. As part of his responsibilities he has been dedicated to this project for the past 8 months.

Nuclear Accounting & Compliance (NAC) Reporter® - [redacted] developed and designed a web- based software meant to assist companies comply with the reporting requirements set by IAEA, Nu- clear Regulatory Commission's (NRC) and Department of Energy's (DOE) rules, regulations, policies and orders for NMMSS.

Uranium Supply Analysis (USA) System - [redacted] is responsible for the software maintenance of NAC's USA System. The USA System is a highly detailed database of uranium production cost esti- mates containing technical and financial information on more than 460 worldwide uranium deposits, providing the ability to forecast new sources of uranium.

Nuclear Materials Management and Safeguards System (NMMSS) - Prior to [redacted]'s current role, he served as Technical Team Leader on the NMMSS Project. In that capacity, he orchestrated the changes made to the software and monitored compliance with operating procedures. It was also his job to make sure the program adhered to industry software development and maintenance standards. As team leader, additional responsibilities included managing the software engineering group. [redacted]'s vast knowledge of the NMMSS system was a key fact in the successful NMMSS upgrade from a DOS- to Windows-based platform database system.

While part of the NMMSSS team, [redacted] served as NMMSS' database administrator. His intricate knowledge of historical NMMSS data was key in maintaining data integrity and confidence in data accuracy. His understanding of the data was instrumental in the successful programming the IAEA data conversion module and IAEA U.S. data submissions.

[redacted] was one of the key principal engineers in the transition of the NMMSS mainframe system to a personal computer platform.

[redacted] designed, coded, tested and maintained a mini-version of NMMSS called Safeguards Management Software (SAMS) from the early 1990's through 2008. This software is still used at subscribing nuclear facility sites to preliminarily edit data before submitting it to the NMMSS

Prior to joining NAC in 1994, [redacted] was a systems and applications specialist for Reynolds Electrical & Engineering Company, Inc. They had the Operations and Maintenance contract for the Department of Energy's Nevada Test Site.

Fort Valley University
B.S., Computer Science, Minor Mathematics 1991

[redacted]***—Director, Consulting,***
NAC International

[redacted] has more than 40 years of experience in the nuclear fuel industry with particular expertise in commercial aspects of the nuclear fuel cycle, operation of MC&A systems and complex project management. [redacted] knows most fuel buyers and sellers around the world with whom he has built a strong reputation of integrity. He has provided first-hand consulting expertise to most entities in the nuclear industry all over the world. [redacted] has assisted foreign and domestic utilities develop and refine procurement strategies and sellers in the development of marketing and sales strategies. [redacted] has conducted seminars on the commercial and technical aspects of the nuclear markets and provided numerous market briefings for clients. He has presented nuclear market analyses to top management and the boards of international companies assisting them in making investment decisions. He has also consulted with governments on the development of policies related to nuclear power and nuclear control an accounting. In his consulting capacity [redacted] has completed and managed several hundred consulting assignments for clients.

At various times, NAC set up offices in Moscow, Tokyo, and London. [redacted]managed these people and developed new products and approaches to NAC's analyses.

In 2002 [redacted] was asked by our customer to assume direct responsibility for the operation of Nuclear Materials Management and Safeguards System (NMMSS). NMMSS is the U.S. government's State System of Accounting for and Control of Nuclear Material. The government subsequently

	acknowledged that the system had never operated better (in over 40 years of operation). This was accomplished while reducing costs by over 30% and improving information quality. [redacted] has been the Executive Director of the World Nuclear Fuel Market (WNFM) since 1987. The WNFM is an industry association of about 90 companies in 20 countries. The WNFM facilitates trading in nuclear materials and price transparency. [redacted] is also a past member of the Board of the World Nuclear Association. Georgia Institute of Technology B.S., mechanical engineering 1971 Georgia State University M.A., business administration specializing in finance 1975
Please describe how you will meet the following requirements as detailed in the SIMRS ITT Annex A Requirements document.	
NF1	The source code will be placed in escrow and be accessible to ONR in the event defined conditions are met.
NF2	Supplier will provide an initial two year maintenance and support program, with the option to extend for 2 years in single year increments. The maintenance and support program will be sufficient to meet the operational expectations of NF25-NF27. Supplier anticipates that all desirable requirements will be functional by the end of 2018. Supplier will provide contact information for the development staff that will be available to support ONR 90 percent of the time, on a twenty four hours a day, seven days a week basis.
NF3	Supplier will provide training materials that include using the application to perform expected activities. The application has been designed so that operations are performed in a consistent fashion and to be intuitive. The length of training required will depend on the Users' material control and accounting experience and proficiency. Experienced and proficient Users will learn how to use the system with a few days of training. Less experienced will require more time and possibly more training classes.
NF4	Supplier will provide hard copy of training materials along with a detailed User's manual.
NF5	The Team will provide all requested documents related to the design of the system.
NF6	NAC Reporter has been developed and is in the process of being deployed. The current version of the application meets most of ONR's requirements. All development will be performed on supplier hardware.
NF7	Axis12 is nominating [redacted] to support this project. [redacted] is in the clearance process and is expecting his SC by May 1, 2018. The two key NAC individuals have a U.S. government Secret level clearances. Supplier envisions that the first few months of the project will be focused on identifying requirements and customizing our existing application. During this period supplier will not need access to any UK data. Thus if additional time is needed to obtain clearances, it should not impact schedule. Prior to NAC staff obtaining clearances, [redacted] will handle any classified matters. Also NAC does not believe access to classified information is required. NAC is working on installations where NAC will perform data migration without access to the data. The customer will supply the formats and NAC will develop the software to input the data.
NF8	NAC Reporter currently has this capability.
NF9	NAC Reporter is currently accessible from a number of commonly used browsers, including Internet Explorer, Chrome, Edge, Fire Fox. The modified version of Reporter that will be delivered to the UK as SIMRS, will also be accessible from these browsers.
NF10	Once ONR's branding and colour scheme is identified, the Team will update NAC Reporter to reflect this branding and colour scheme. A future version of NAC Reporter will allow the application's System Administrator to make these changes.

NF11	NAC Reporter has been developed using widely available, fully supported and familiar software tools: • Microsoft Visual Studios (Visual Basic) • Microsoft SQL Server • DevExpress Dxperiemce The application can be installed on a laptop, desktop or server using: • Windows Server 2012 R2, X64 (or newer version) • Windows 7 (or newer version) • Internet Information Services (IIS) 7.5 (or newer version)
NF12	NAC Reporter has been designed to perform nuclear material accounting based on the IAEA Labelled Model Code 10 of Subsidiary Arrangement SG-FM-1172, Fixed Model Code 10 of Subsidiary Arrangement SG-FM-1171, the Nuclear Material Accounting Handbook, and the general requirements of supplier country obligation reporting. The Team recognizes that the application must be customized to take into account the specific country rules and regulations, existing processes and systems, likes and dislikes, and specific requirements of existing bilateral agreements. NAC Reporter was designed to accommodate these changes. The different processes that result from the Euratom approach to MC&A are part of requirements F3, F4, F6, F15 and F16. No additional costs are included in the scope of this NF12 requirement as no additional resources are expected to be required for the Euratom processes. The additional IAEA reporting processes are covered in requirements F12 and F13 and no additional effort is expected to meet the NF12 requirement. These are expected to be the major efforts required to meet this requirement. If additional items are identified in the discovery phase, hours will be added to the estimate.
NF13	NAC Reporter currently has this capability, but a small amount of additional work is expected.
NF14	NAC Reporter currently has this capability.
NF15	Microsoft SQL Server has a feature called Transparent Data Encryption (TDE). This feature encrypts data files used by SQL Server to store data in the database. We have recommended turning on this feature to current customers if they have the “protect data at rest” requirement. The application is a web based product. Therefore, HTTPS can be deployed to secure communication between the web host server and ONR users. There is also a setting where the Supervisory User can set report marks for every standard report.
NF16	NAC Reporter currently has this capability.
NF17	NAC Reporter allows the customer to select how Users log into the application. The application can be setup to require dual authentication where the user inputs an account number and password and the system randomly generates a PIN. The PIN is emailed to the User. The user inputs the PIN and is logged onto the application. Alternatively the application can use the active directory with or without a randomly generated PIN to allow User access to the application. Thirdly the application can be configured to allow a User to enter an account number and password. This is typically used when the application does not have access to email. If login failure occurs three consecutive times (current default setting) during a single login attempt, the account will be locked. If a User account is locked, then the User must wait a specified time until the account is automatically unlocked or ask the application administrator to unlock the account. The default settings are set by the System Administrator.
NF18	NAC Reporter is designed to limit actions that can be taken based on defined roles. Reporter is installed with three defined roles, but additional roles can be defined. The currently defined rights of the three roles included in the initial installation are: • System Administrator- a senior person with the ability to access only the Administration tab on the Home page and have access to no data. The System Administrator will establish the menu options available to the Supervisory Users, Facility Users and any additional roles.

	• Supervisory User- a person with the ability to access all data stored in the system for all reporting facilities. The precise access available to a Supervisory User is set by the System Administrator. • Facility User- a person responsible for maintaining specified information and producing reports. The precise access available to a Facility User is set by the System Administrator. Only those menu options available to a particular user will be displayed in that user's version of the system. Modifying the rights is easily accomplished by the System Administrator selecting or deselecting options in a screen.
NF19	NAC Reporter logs the following: • Login Activities • Logout Activities • Password Expiration Activity • User Accessed Pages • User Update Activity • Application Start up • Application Shutdown • Updates to Activities Logged • Updates to System Settings • Document Management
NF20	The NAC reporter application has been vulnerability tested by a third party (Global Digital Forensics, GDF) under contract to the U.S. government. The testing focused on: • Security from an outside attacker • Security from an inside threat • Granular security configuration and compartmentalization Based on these realms, GDF devised a testing plan as follows: • Install and configure the software while monitoring installation • Initial login and review of the features • Utilize features through a proxy connection • Scan the software for known issues using commercial scanners • Plan attack vectors and attack the software, attempting to gain access • Attempt to gain access to the physical system and the data contained within the database The results of the tests are described below: *"NAC Reporter is a .NET Web application that connects to an MS SQL Server Database to store data and presents the user interface through a Web browser. Since the NAC Reporter program is a browser-based application, GDF conducted testing on the security of the database, its connections, encryption of data at rest and data in transit, the overall security of the .NET application, and how it handles logins and compartmentalization."* *"In order to test the software, GDF installed Windows Server 2008 with MS SQL 2014 installed on a separate virtual machine. GDF utilized several commercial scanners, including Burp Suite, NetSparker and AppScan, to scan the application for vulnerabilities. In addition, GDF conducted a manual review and application penetration test on the NAC Reporter application. Testing did not reveal any major security issues, and aside from some simple ASP.NET programming changes, the overall programming is sound. The major concern is implementation of some type of audit log. Currently, GDF sees no user logging or auditing available within the application interface, or any report feature to allow user activity auditing."* *"Based on GDF testing for both application security and user security, NAC Reporter has the most robust security features, including security for Data at Rest, Security for Data In Motion, and overall ability to limit users*

	roles and access to data. The one major flaw is the lack of audit trails and logging. If NAC Reporter can implement robust logging, this tool was far superior, from a security perspective, than the two other tools tested." It should be noted that the version of NAC Reporter supplied to GDF did not have audit logs but Reporter does maintain logs as described in NF19 above.
NF21	As described in NF18, NAC Reporter has been set up with three roles and additional roles can added. These will be defined during the initial phases of the project. There is no limit to the number of staff assigned to each role. The functionality available to User groups can be easily set.
NF22	NAC Reporter is configured to allow Administrators to setup new users, and assign them to Roles which assigns specific menu options to the user.
NF23	See response to NF 24 below.
NF24	We have recommended, to a current customer, that local backups of the database be taken on a daily bases using Microsoft' SQL Server backup utility. A full or incremental backup can be scheduled during off hours and deleted from the local hard drive after a specified number of days. The network administrator can create an image or copy backup of the application and database. The frequency of backups should be decided by ONR and their network support staff. Also where these backups are located should be decided by ONR network support staff.
NF25	NAC Reporter is designed to minimize any data loss. Microsoft SQL Database is the database used with NAC Reporter and is highly reliable database software. Therefore, the likelihood of losing data is extraordinarily low.
NF26	The Team believes that NAC Reporter will meet this requirement.
NF27	The Team believes that NAC Reporter can meet this requirement.
NF28	NAC Reporter has been built using the following tools: Visual Studio Visual Basic, DevExpress ASP.net and ElDos (use for email and PGP encryption).
NF29	Update and/or database maintenance can be performed during off hours.
NF30	NAC Reporter is an ASP.net based application. Users use a web browser to access the application. The application has not been designed to work in a cloud-based environment. The industry demand for this type of functionality is rare. Therefore, we have not invested the time and funds to enhance NAC Reporter to function in a cloud-based environment.
NF31	Refer to response to NF30.
NF32	The Team understands the importance of the December 2018 deadline. We believe having an application that meets most of the requirements puts us in a good position to meet the desired schedule.
NF33	Currently NAC Reporter can produce a number of reports that could satisfy FOI requests. Additional reports can added as defined in the discovery phase. NAC Reporter will meet this requirement once F7 and F29 requirements have been met. All system data is protected as described in NF15.
NF34	**Digital Service Standard** The Digital Service Standard is a set of 18 criteria to help government create and run good digital services.

All public facing transactional services must meet the standard. It's used by departments and the Government Digital Service to check whether a service is good enough for public use.

1.Understand user needs

Understand user needs. Research to develop a deep knowledge of who the service users are and what that means for the design of the service.

NAC has worked with regulators, U.S. Department of Energy, IAEA and other users of nuclear material control and accounting information for about 25 years. In addition, we have discussed our approach with a number of countries seeking to implement new systems. This process has allowed us to have a broad and deep understanding of user needs. The identified needs were used to design our NAC Reporter, including determining flexibilities offered. NAC Reporter will need to be modified to meet ONR requirements. NAC has reviewed the requirements in the scope of work, Euratom Regulation No 302/2005 and Euratom Recommendation on guidelines for the application of Regulation 302/2005. NAC believes it has good understanding of the modifications required to transform NAC Reporter into the desired functionality of the U.K. SIMRS. However, clarifications will be required to assure a common understanding of scope. To assure this common understanding, the Team will meet with ONR, provide a demonstration of our current system and discuss each requirement. The results of the discussion will be documented. The Team will propose questions to clarify details as it progresses in the modifications. The Team will meet periodically to demonstrate the modifications and receive feedback.

2.Do ongoing user research

Put a plan in place for ongoing user research and usability testing to continuously seek feedback from users to improve the service.

NAC continues to interact with users and adjust our approach to system operations. For a more specific response see the response to item1.

3.Have a multidisciplinary team

Put in place a sustainable multidisciplinary team that can design, build and operate the service, led by a suitably skilled and senior service owner with decision-making responsibility.

The Team includes a multidisciplinary staff with MC&A, system development, programming, operational and nuclear fuel cycle experience.

[redacted] specializes in strategy, management and development of high traffic web-based projects. He provides excellent client facing skills used to communicate through all phases of development, from requirements through ongoing maintenance and user training. Leading and managing teams from the front and by example, to provide guidance and support resulting in projects being completed on time and in budget. This is backed up by over 20 years of development experience in web development.

[redacted] has about 25 years of professional experience including 15 years spent working as a Software Engineer on the U.S. State System of Accounting for and Control of Nuclear Materials (SSAC), or more typically referred to as the Nuclear Materials Management and Safeguards System (NMMSS). Brown has been with NAC International since 1994. [redacted] is unique because he has a deep understanding of nuclear material control and accounting along with application development and programming. He will provide multiple roles in this project.

[redacted] has more than 40 years of experience in the nuclear fuel industry with particular expertise in commercial aspects of the nuclear fuel cycle, operation of MC&A systems and complex project management. [redacted] has provided first-hand consulting expertise to most entities in the nuclear industry all over the world. [redacted] has assisted foreign and domestic utilities develop and refine

procurement strategies and sellers in the development of marketing and sales strategies. [redacted] has conducted seminars on the commercial and technical aspects of the nuclear markets and provided numerous market briefings for clients. He has presented nuclear market analyses to top management and the boards of international companies assisting them in making investment decisions. He has also consulted with governments on the development of policies related to nuclear power and nuclear control and accounting. In his consulting capacity [redacted] has completed and managed several hundred consulting assignments for clients. [redacted] assumed direct responsibility for the operation of Nuclear Materials Management and Safeguards System (NMMSS) in 2002. NMMSS is the U.S. government's State System of Accounting for and Control of Nuclear Material. The government subsequently acknowledged that the system had never operated better (in over 40 years of operation). This was accomplished while reducing costs by over 30% and improving information quality and customer service.

Additional programming resources will be provided by less experienced staff under the direction of [redacted].

4.Use agile methods

Build your service using the agile, iterative and user-centred methods set out in the manual.

We use as much of the agile methodology as possible to allow us to quickly modify, through iteration, a system that meets the ONR's business needs.

5.Iterate and improve frequently

Build a service that can be iterated and improved on a frequent basis and make sure that you have the capacity, resources and technical flexibility to do so.

In transitioning NMMSS from the mainframe-based system to a client server-based system. NAC was required to identify, understand and document requirements; implement them and prove they were satisfied during parallel operations. In the process NAC identified issues related to requirements, suggested solutions to users, and implemented changes. After the system began operations, NAC identified additional changes that needed to be implemented (such as the change from origin tracking to obligation tracking), made and tested the changes.

With the development of NAC reporter, NAC developed a base system that met IAEA and obligation accounting requirements. It was always expected that every installation would require and desire modifications. To date we have completed modifications to a facility system in the United Arab Emirates and a state system in Kazakhstan. We are in the process of modifying our facility system for Kazakhstan. In each of these installations NAC followed a similar approach of reviewing customer rules and regulations, demonstrating our product, identifying issues and resolving the issues with the users. This process included multiple discussions to assure a common understanding. At project conclusion the application was demonstrated to assure compliance with all requirements.

6.Evaluate tools and systems

Evaluate what tools and systems will be used to build, host, operate and measure the service, and how to procure them.

The technology used to design and build NAC Reporter is widely used. The technologies selected are provided by well-known companies that have been in business for decades. Customers want proven leading-edge technology and we selected tools that meet that standard, can be used for years to come and keep the cost of technology reasonable.

7.Understand security and privacy issues

Evaluate what user data and information the digital service will be providing or storing and address the security level, legal responsibilities, privacy issues and risks associated with the service (consulting with experts where appropriate).

Our software has gone through a penetration test conducted by a company chosen by a customer. The NAC Reporter test results were far better than our competitor's results. The 2 minor issues identified by the test were meditated. Because of the sensitivity of the data stored in the system, customers generally elect to have their hosting network be an intranet with no internet access. Though, we are prepared to host the SIMRS website if requested.

8. Make all new source code open

Make all new source code open and reusable, and publish it under appropriate licences (or provide a convincing explanation as to why this can't be done for specific subsets of the source code).

NAC spent considerable time and its own money in developing NAC Reporter. Consequently NAC does not plan to make the source code open.

9. Use open standards and common platforms

Use open standards and common government platforms where available, including GOV.UK Verify as an option for identity assurance.

NAC reporter was developed using common platforms including Microsoft Visual Studios (Visual basic), Microsoft SQL Server and DevExpress Dxperience.

10. Test the end-to-end service

Be able to test the end-to-end service in an environment identical to that of the live version, including on all common browsers and devices, and using dummy accounts and a representative sample of users.

Our test environment will mimic as close as possible the production environment. Once the decision has been made on who will host and the configuration of the host site, plans will be made to finalize the user's test and production test environments.

11. Make a plan for being offline

Make a plan for the event of the digital service being taken temporarily offline.

If we are instructed to host the system, we will work with ONR on plans for extended outages.

12. Make sure users succeed first time

Create a service which is simple to use and intuitive enough that users succeed the first time.

NAC Reporter has been designed with a consistent interface. Location of buttons, look-and-feel and behavior are consistent throughout the system. We have made every attempt to not duplicate the same functions in more than one location. This makes it easy for users to determine where to go in the system to perform a specific task.

13. Make the user experience consistent with GOV.UK

Build a service consistent with the user experience of the rest of GOV.UK including using the design patterns and style guide.

One of the requirements outlined in ITT was that the system must use a color scheme and logos defined by ONR.

14. Encourage everyone to use the digital service

Encourage all users to use the digital service (with assisted digital support if required) alongside an appropriate plan to phase out non-digital channels and services.

Where applicable, we will encourage users to use digital services as much as possible.

15. Collect performance data

Use tools for analysis that collect performance data. Use this data to analyse the success of the service and to translate this into features and tasks for the next phase of development.

See response to 17.

16. Identify performance indicators

Identify performance indicators for the service, including the 4 mandatory key performance indicators (KPIs) defined in the manual. Establish a benchmark for each metric and make a plan to enable improvements.

See response to 17.

17. Report performance data on the Performance Platform

Why you should report data and how you'll be assessed.

SIMRS is a unique UK government system. It will be the only system tracking nuclear material within the UK. 15, 16 and 17 partially appear to be asking for metric for systems that are for the public access. There are metrics that make sense to monitor such as User Satisfaction. Maintenance/Support will be supplied by us for 2 years. During this period, we will keep statistics on defects, system usage and user satisfaction using questionnaire.

18. Test with the minister

Test the service from beginning to end with the minister responsible for it.

Built into the RFP is a required testing period (2 months). This testing period is before the Parallel Test Period. We will request signatures at the end of the test period to end test and switch to Parallel Testing. The last request of signatures will be to end Parallel Testing and permission to go live.

Get notifications

When any points in the Digital Service Standard are updated

F1	As long as ONR installs the application on an internet or intranet accessible server then the application can be available to as many sites as ONR desires.
F2	See F1 above
F3	As currently configured NAC reporter can import Code10 and XML file formats. The application can be enhanced to import files in any format required.
F4	NAC Reporter currently has the capability to allow duty holders limited access to the application. The facility can import, validate and submit their data. Prior to submittal, no one at ONR or another facility has access to the data. Once the data is submitted, the application makes a copy of the data and places it in the ONR dataset for processing.
F5	NAC Reporter currently is capable of importing data submittals from MBAs without ONR users specifying file format or data type. NAC Reporter will have to be enhanced to decrypt a file before importing the data. A standard list of acceptable encryption methods will have to be established for this to work seamlessly. The **facility** version of NAC Reporter encrypts files and sends them to the regulator for decryption.
F6	NAC Reporter currently uses Roles to control which user has access to menu options in the application. Therefore, Roles assigned to MBA transaction data menu options can input accountancy information.
F7	NAC Reporter has various parameterized standard reports. The report results can be customized based on the selected report parameters. NAC Reporter will have to be enhanced to allow ONR users to create their own report templates (form). Another solution could be to create database views for ONR users to select data into Excel, Word and/or Access.
F8	NAC reporter performs validation checks on all data submitted by duty holders to assure the proper information is contained, syntax is acceptable, etc. It also performs compatibility checks on LOF data and reconciliation of MBRs and PILs. In addition, it suggests actions to correct identified errors. Until the information passes these checks the system will limit its use. In the investigation stage these checks will be demonstrated and some enhancements/additions may be required.
F9	See F8 above
F10	See F8 above
F11	NAC Reporter currently uses Roles to control which user has access to menu options in the application. NAC Reporter will have to be enhanced to control which ONR users can view/create/update the calendar on the Home page.
F12	NAC Reporter currently has the capability to import and export IAEA data in Code 10 Label format. NAC Reporter will have to be enhanced to translate Euratom coded data to IAEA coded data before generating IAEA reports for submittal.
F13	According to the "SIMRS Supplementary Pack #1", IAEA data submittals will be zipped, encrypted and downloaded to media and sent to the Agency using SDP located on another network. NAC Reporter will be enhanced to meet this requirement. The facility version of NAC Reporter performs a similar function now.
F14	NAC Reporter can generate reports in PDF, HTML or Rich Text format and save them in the system to be downloaded later. Any file created by the software or imported is stored in the database. The User has the capability to find and download any of these files. The category of reports that currently can be generated are: • Reference Reports • Form Reports (ICRs, PILs, MBRs)

	• Data Processing Reports (Listing of Reports with and without Violations, Listing of LOF Transfers with and without Violations, Listing of Processed Reports and LOF Transfers, Reconciliation Data Comparison Reports, etc.) • General Reports (General Ledger, Report Listings) • Obligation Reports (Obligation material Balance Reports, Obligation Country Reports) • Generated Reports Each of these reports can be modified by changing parameters to provide the desired information. In addition, batch production and distribution of reports can be set up. The application allows a User to setup various reports to be automatically produced on a fixed schedule and distributed to a predetermined list. Additional report templates identified during the investigation phase can be added as need, see response to F7.
F15	NAC Reporter can be modified to adopt the Euratom nomenclature.
F16	Once we are given the details of this translation, the Team will enhance NAC Reporter to meet these requirements.
F17	NAC Reporter has a 2 person QA approval feature for system generated reports (i.e. data processing error reports). Example: MBA NNNA wants an error report sent to them whenever their submitted data is processed. This report will be a part of a batch of reports produced during a data processing run. ONR users will then review the generated reports twice before sending it. NAC Reporter will be enhanced to include IAEA data submittals as part of this process.
F18	NAC Reporter can generate reports in PDF, HTML, Excel or Rich Text format and save them in the system to be downloaded later. Any file created by the software or imported is stored in the database. The User has the capability to find and download any of these files.
F19	According to the "SIMRS Supplementary Pack #1", IAEA data submittals will be zipped, encrypted and downloaded to media and sent to the Agency using SDP located on another network. Therefore SIMRS will not be able to interact with the portal.
F20	NAC Reporter currently has some reference tables that can be used to store information on UK MBAs. NAC Reporter will have to be enhanced to store additional information.
F21	NAC Reporter currently has this capability. All batch items are stored at the MBA level.
F22	NAC Reporter currently has this capability. All imported files and documents are stored in the database.
F23	NAC Reporter currently has this capability.
F24	NAC Reporter currently has this capability.
F25	NAC Reporter can import information in XML and Code10 formats. During the discovery phase formats will be identified and the application will be enhanced to import the required files.
F26	NAC Reporter currently has the capability to attach, store and manage documents. NAC Reporter will be enhanced to organize general safeguards files for future reference.
F27	NAC Reporter has a calendar feature accessible to all ONR users on the Home page. ONR users can create a notification and set a timeframe to alert users of an upcoming event and more.
F28	NAC Reporter already has the capacity to import documents in various formats and associate them with data in the system. NAC Reporter will be enhanced to organize imported inspection documents for future reference.

F29	NAC Reporter will be enhanced to search the database using ad-hoc search criteria entered by the user.
F30	Once the details of the nuclear cooperation agreements related to data exchange are provided, NAC Reporter can be enhanced to meet these requirements.
F31	NAC reporter can currently import Code10 and XML formatted data. Supplier will develop and implement a methodology to import this data. ONR must supply the format and structure of the data to be imported.
F32	NAC Reporter stores all imported data, exported data (i.e. IAEA reports generated by the system), system generated reports (i.e. data processing error report) and more in the database.
F33	NAC Reporter will be enhanced to retain information on notifications. Refer to F35 – F36 for more information on how this will be implemented.
F34	NAC Reporter will be enhanced to notify key personnel when events occur. Refer to F35 – F36 for more information on how it will be implemented.
F35	NAC Reporter currently allows ONR users to perform a data processing run with just a push of a button (including data validation on MBA and LOF data, generation of State book values, automatic reconciliation of book and reported balances, automatic freezing (closing) of violation free and reconciled data, generation of batched reports). This data processing run can be executed manually or scheduled to run automatically on a date, time and frequency (daily, biweekly, monthly & etc.) as desired. NAC Reporter will be enhanced to add a notification feature that can be selected as part of the data processing run profile. Another cost saving solution can be letting the scheduled data processing run be the notification. If ONR personnel know the data processing run is scheduled for specified time (such as 13:00 Monday – Friday), they can access the system and retrieve data processing run reports generated after 13:00 to determine if any data has been submitted and/or processed.
F36	NAC Reporter will be enhanced to send notifications to key personnel when IAEA reports are generated and sent.
F37	Refer to response F27.
F38	Refer to response F35
F39	Refer to response F35
F40	NAC Reporter will be enhanced to allow submittal of encrypted data through the IAEA secure connection. The manner in which this will be accomplished will be determined once the specific requirements are identified. The requirement may be that the file should not be encrypted. It is possible that all of the required secure (encryption) is handled by the IAEA secure connection.

3	**REFERENCES AND CASE STUDIES**
3.1	Bidders should **provide references of where their organisation has delivered similar services for other clients.** Please provide details of up to three contracts from either or both the public or private sector, that demonstrate delivery of a requirement similar to ONR'S requirement. The customer contact should be prepared to speak to ONR to confirm the accuracy of the information provided below.

	Reference 1	**Reference 2**	**Reference 3**
Customer/Organisation (name):	[redacted]	[redacted]	
Customer contact name and phone number:	[redacted]	[redacted]	
What services did you provide? (max 250 words per reference)	[redacted]	[redacted]	
Date contract awarded:	[redacted]	[redacted]	
Contract reference:	[redacted]	[redacted]	
Value of contract:	[redacted]	[redacted]	
Date contract was completed:	[redacted]	[redacted]	

3.2	Have you had any contracts terminated for poor performance in the last three years, or any contract where damages have been claimed by the contracting authority? If yes, please give details.	[redacted]

4	COSTS	
4.1	Cost for SIMRS solution meeting minimum viable product by end of December 2018.	[redacted]
4.2	Cost for 2 year support, maintenance and future development.	[redacted]
4.3	Cost for SIMRS meeting all requirements (including all desirable requirements) by end of December 2018. ***Optional***	[redacted]
4.4	Please provide a full breakdown of all costs for providing the required services, taking note of the requested cost breakdowns in the ITT pack provided. Please also indicate what day rates and numbers of personnel were used to calculate the above 4.1-4.3 costs.	
	See Appendix A	

5	**ONR STANDARD TERMS AND CONDITIONS OF CONTRACT**
	Bidders must complete either Part A or B of this Declaration. Failure to do so may invalidate your tender. Continuation sheets may be used. The ONR terms and conditions of contract for the provision of services, attached to this Invitation to Tender as Schedule D, shall form part of and apply to any Contract which may arise. However, Office for Nuclear Regulation's intention is to reach mutual agreement over terms and conditions of contract before award of contract. Negotiations after award of contract will only take place with the express agreement of the Office for Nuclear Regulation. **NB**: Please note that clause 20 in relation to Publication are non-negotiable.
	A) Declaration of Acceptance I confirm that our organisation has studied the Office for Nuclear Regulation (ONR) Terms and Conditions of Contract for the *Provision of Services* and hereby agree to be bound by such terms and conditions of contract. Name of Organisation…… Signature……..…….. Name in Capitals……..…… Position……..…… Date…….……
	B) Request for Clarification / Amendment / Deletion I confirm that our organisation has studied the ONR Terms and Conditions of Contract for the *Provision of Services* and we request clarification / amendment / deletion of the clauses listed below. Name of Organisation…NAC International Inc……. Signature  Name in Capitals……[redacted]……..…… Position…[redacted]……..…… Date..……April 2, 2018……..……

Part B, Schedule 8

Nature of inquiry

To be discussed with respect to necessity and alternatives. Respectfully, a performance guarantee for a project of this size and the contract price seems of questionable necessity.

Part C, Clause 6

Nature of Inquiry

Please insert the following language at the end of Clause 6, Warranties, representations and acceptance criteria:

"EXCEPT AS EXPRESSLY SET FORTH HEREIN, THERE ARE NO OTHER WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED WITH RESPECT TO THE SERVICES OR DELIVERABLES PROVIDED BY SUPPLIER HEREUNDER, INCLUDING, BUT NOT LIMITED TO, WARRANTIES AS TO TITLE OR INFRINGEMENT OF THIRD-PARTY RIGHTS, EXCEPT AS SET FORTH HEREIN, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. CONTRACTOR DOES NOT AND CANNOT WARRANT THE PERFORMANCE OR RESULTS BUYER MAY OBTAIN BY USING THE SOFTWARE OR COMPLIANCE WITH APPLICABLE UK-ONR SIMRS REPORTING REQUIREMENTS INCLUDING ACCURACY OR COMPLETENESS."

Part C Clause No. 9

Nature of inquiry

Please add the following after the words "Crown body" in Clause 9.1:

"limited to money owed pursuant to liabilities under this Framework Agreement"

Part C, Clause 11

Nature of Inquiry

Please add the following new language to Clause 11, Confidentiality :

In the event of a breach of this Contract, Contractor and Buyer agree that (a) the Disclosing Party will suffer irreparable injury which could not adequately be compensated by monetary damages, (b) the Disclosing Party's monetary damages would be exceedingly difficult to measure, and (c) the Disclosing Party's remedies at law would be inadequate, and accordingly, the Receiving Party agrees that, in addition to any other remedies available in law or equity, the Disclosing Party shall be entitled to seek equitable relief by way of the entry of an order by a court of competent jurisdiction for the grant of an injunction against such breach without any requirements to provide or post a bond or other security as a condition of such relief.

Part C, Clause 13

Nature of Inquiry

NOTE: To be negotiated per mutual agreement of the Parties. This language is of particular importance to Supplier pertaining to the subject matter of this procurement and protection of Supplier's valuable intellectual property rights in the software.

Please insert the following language at Clause 13, Intellectual Property Rights.

"Notwithstanding anything to the contrary contained herein, Buyer and Supplier agree that Supplier owns all proprietary rights, including patent, copyright, trade secret, trademark and other proprietary rights, trade secrets and know-how, in and to the NAC Reporter® internet website and software (the "Software") and any corrections, bug fixes, enhancements, updates or other modifications, including custom modifications, to the Software, whether made by Supplier or any third party. No title to the Software is transferred hereby and Buyer's rights hereunder are strictly limited as set forth herein. The term "Software" also includes any supplied corrections, bug fixes, enhancements, maintenance, assistance, updates or other modifications created and supplied by Supplier to Buyer and any user manuals or other documentation supplied by Supplier to Buyer in conjunction with the Software. Under no circumstances shall Buyer sell, license, publish, display, distribute, or otherwise transfer to a third party the Software or any copy thereof, in whole or in part, without Supplier's prior written consent."

“Notwithstanding anything to the contrary contained herein, provided that Buyer is in material compliance with the terms and conditions of this Contract, Supplier hereby grants to Buyer, pursuant to the terms and conditions of this Contract, a perpetual, nonexclusive, nontransferable license (hereinafter “License”) to view and use the Intellectual Property Rights contained in the Software, including accessing via a Supplier-supplied Buyer password, importing Buyer data, printing Buyer reports and sending Buyer emails to third parties at Buyer’s sole discretion, and logging out, to facilitate Buyer’s meeting its obligations as a reporting organization to the UK-ONR SIMRS database.”

Please add the following at the end of Clause 13.13:

Supplier shall have no responsibility hereunder to the extent any infringement, or claim thereof, is caused by (a) a design or drawing provided by Buyer which causes any Services or Deliverables or any part thereof to become infringing, (b) a modification of the Services by anyone other than Supplier that makes the Services infringing, or (c) use of the Services or Deliverables for any purpose except as contemplated by the applicable

Please add the following new language at the end of Clause 13:

“Notwithstanding anything to the contrary contained herein:

a. *Authorized Use*. Buyer shall use the Software only to provide access to the information therein contained and for its preparation of reports while using the Software as provided herein and as required by Supplier, and to manage, update, and maintain information related to Buyer’s UK-ONR SIMRS database reporting obligations.

b. *Restrictions on Use*. Under no circumstances shall Buyer (i) permit any unrelated third parties to use the Software, (ii) process or permit to be processed the data of any other party, or (iii) use the Software in the operation of a service bureau or in competition with Supplier in respect of the [UK-ONR SIMRS] database.

c. *Modifications; Reverse Engineering.* Buyer agrees that only Supplier shall have the right to alter, maintain, enhance or otherwise modify the Software. Buyer shall not disassemble, decompile or reverse engineer the Software or attempt to do the same. Buyer shall not permit or assist any third party to disassemble, decompile or reverse engineer the Software.”

Appendix A

Cost Breakdown

			Manhours				
Req. No.	**Requirement**	**Priority**	**Devel-oper**	**Project Man-ager**	**Pro-gramer**	**Axis12**	**Issues**
	Number of Staff		**1**	**1**	**2**	**1**	
NF 1	Escrow Source Code	M	[redacted]				tra Costs
NF 2	2 Year Support Option	M	[redacted]				Extra costs
NF 3	Training Included	M	[redacted]				luded in Fixed Price
NF 4	Training Documentation	M	[redacted]				Included in Fixed Price
NF 5	Provide System Documentation	M	[redacted]				tra Costs
NF 6	Developed on Our Hardware	M	[redacted]				additional Cost
NF 7	Must have SC Clearance	M	[redacted]				No additional Cost
NF 8	Support 50 concurrent Users	M	[redacted]				tra Costs
NF 9	Accessible thru Standard IT Infrastructure	M	[redacted]				luded in Fixed Price
NF 10	Must Use Standard ONR Color/Branding	M	[redacted]				tra Costs
NF 11	Based on Currently Supported Technology	M	[redacted]				luded in Fixed Price
NF 12	Align with ONR & Safeguard Processes	D	[redacted]				aybe Some Extra Costs
NF 13	Capacity to Store 30 Years of Data	M	[redacted]				Extra Costs
NF 14	Capacity to Store in excess of 30 Years of Data	M	[redacted]				rt of NF 13
NF 15	Adhere to UK Standards for SNI Up to Official-Sensitive	M	[redacted]				tra Costs
NF 16	Hold all data in UK	M	[redacted]				luded in Fixed Price
NF 17	Control Access	M	[redacted]				tra Costs
NF 18	Functionality Limited by User	M	[redacted]				rt of NF 17
NF 19	Maintain Security Log	M	[redacted]				tra Costs
NF 20	Resilient to Cyber Threats	M	[redacted]				Extra Costs
NF 21	Allow 3 System Administrators	M	[redacted]				Extra Costs
NF 22	Administrators amend/approve Users	M	[redacted]				rt of NF 21
NF 23	Back up data	M	[redacted]				tra Costs
NF 24	Back up data to 2 Locations	M	[redacted]				rt of NF 23

NF 25	Failures do not cause loss of data	M	[redacted]luded in Fixed Price
NF 26	Operational >95%	M	Included in Fixed Price
NF 27	Return to Operational State 48Hours	M	Included in Fixed Price
NF 28	Minimize use of Licensed/Proprietary Software	D	Included in Fixed Price
NF 29	Minimal Maintenance	D	Included in Fixed Price
NF 30	Hosted on Cloud or Local Server	M	Included in Fixed Price
NF 31	Data capable of migration	M	Included in Fixed Price
NF 32	Include Obligations	M	Included in Fixed Price
NF 33	Support FOI Requests	M	[redacted]luded with F7 & F29
NF 34	Follow Gov Digital Service Process	D	
F 1	Accessible at 3 Sites	M	Included in Fixed Price
F 2	Accessible at other locations within UK	D	Included in Fixed Price
F 3	Import Submitter Data	M	[redacted]tra Costs
F 4	Duty holders can submit data into SIMRS	D	Extra Costs
F 5	Streamline Submitter Input	D	Extra Costs
F 6	Approved Users Can Input Data	M	Extra Costs
F 7	Users can add/update report templates	M	Extra Costs
F 8	System Must Perform Completeness Checks	M	Extra Costs
F 9	Perform Validation Checks	M	[redacted]rt of F8
F 10	Automatically Perform Completeness/Validation	D	Part of F8
F 11	Users can Edit Stored Information	D	Part of F6
F 12	Produce Code 10 Reports	M	[redacted]d CODE 10 XML files
F 13	Capable of Sending Reports to IAEA	D	Extra Costs
F 14	Produce Custom Reports	M	Part of F7
F 15	Euratom consistent Nomenclature	M	Extra Costs
F 16	Translate Info from Euratom 302/2005 to Code 10	M	Part of F14
F 17	Allow human Checking Approval	M	Extra Costs
F 18	Produce Reports in Variety of Formats	M	Will do Code10, XML, PDF

F 19	Submit to IAEA via State Declaration Portal	M	[redacted]
F 20	Store Inventory, Technical Characteristics, Facility Attach	D	Extra Costs
F 21	Store Accountancy Information for UK MBAs	M	Extra Costs
F 22	Store Protected Copy of Submissions	M	[redacted]luded in Fixed Price
F 23	Change Log	M	[redacted]ra Costs
F 24	Change control process assuring no info lost/deleted	M	[redacted]t of F23
F 25	Import Data in current format	M	[redacted]ra Costs
F 26	Store General safeguards files	D	Extra Costs
F 27	Store schedule Info	D	Extra Costs
F 28	Store Inspection Reports & Related Info	D	Extra Costs
F 29	System should be searchable	D	Extra Costs
F 30	Receive, Store & Submit Reports Supporting NCAs	D	Extra Costs
F 31	Immigrate Data from EU	M	Extra Costs
F 32	Store Protected Copies of All Reports	M	[redacted]luded in Fixed Price
F 33	Store Notifications sent to Users	D	[redacted]ra costs
F 34	Send notifications	D	[redacted]luded in Fixed Price
F 35	Notify Users when Data is Submitted	D	[redacted]ra Costs
F 36	Notify Users when IAEA Reports are Generated/Submitted	D	Extra Costs
F 37	Notify of Deadlines	D	[redacted]ra Costs
F 38	Notify users of results of Completeness Checks	D	[redacted]ra Costs
F 39	Notify users of results of Verification Checks	D	[redacted]t of F35
F 40	Encrypt Data/Reports Sent Externally	D	[redacted]ra Costs
	Project Management		[redacted]ra Costs
	Travel/Meetings		[redacted]ra Costs
	Documentation		[redacted]ra Costs

	Developer	Project Manager	Programmer	AXIS 12	**Total Cost**
Total Hours	[redacted]				
Rate $/hour	[redacted]				
Rate £/hour	[redacted]				
Labor Price £	[redacted]				
Travel £					
Fixed Price £					
Estimated Price					

NAC Travel

Trip	Location	Travel-ers	Days	Per Diem	Lodging	Extras	Airfare	Total	
1	Bootle	[redacted]	[redacted]			[redacted]	[redacted]	[redacted]	
2	Bootle	[redacted]	[redacted]			[redacted]	[redacted]	[redacted]	
3	Bootle	[redacted]	[redacted]			[redacted]	[redacted]	[redacted]	
4	Bootle	[redacted]	[redacted]			[redacted]	[redacted]	[redacted]	
5	Bootle	[redacted]	[redacted]			[redacted]	[redacted]	[redacted]	
	Total							[redacted]	

Trip	Axis 12 Travel	Travel-ers	Days	Per Diem	Lodging	Extras	Airfare	Total	
1	Bootle	[redacted]	[redacted]			[redacted]	[redacted]	[redacted]	
2	Bootle	[redacted]	[redacted]			[redacted]	[redacted]	[redacted]	
3	Bootle	[redacted]	[redacted]			[redacted]	[redacted]	[redacted]	
4	Bootle	[redacted]	[redacted]			[redacted]	[redacted]	[redacted]	
5	Bootle	[redacted]	[redacted]			[redacted]	[redacted]	[redacted]	
	Total							[redacted]	

Exchange Rate $/£ [redacted]

Appendix B
Data Migration Plan

TABLE OF CONTENTS

History of Revisions

Issue Date	Revision Number	Affected Sections	Description
	0	Pages 1 through	Initial release

1.0 INTRODUCTION

Data migration is the process of taking data from a legacy system database, mapping the legacy and new database data points, importing data into the new database and verifying the accuracy and completeness of the import. This process will identify all transformations needed, any datatype conversions and missing reference information that needs to be added but deactivated. Testing of the migration will be iterative. The migration steps will be performed and enhanced several times during testing.

1.1 Purpose

This document outlines a strategy for migrating legacy data from the Euratom SSAC to UK's SIMRS. Information on the legacy data will be documented and the data that will be carried over to the new database will be identified. The final migration activities will be performed at the beginning of January 2019. Status of migration will be documented in monthly written status reports.

1.2 Scope

The scope of this document is to lay out a strategy for migrating legacy data from the Euratom SSAC system to UK's SIMRS.

2.0 SYSTEM OVERVIEW

At this time, it is assumed that the accountancy data related to UK's nuclear facilities will be the only data migrated to the SIMRS. Data such as inventory change reports, material balance reports, physical inventory listings, obligation balances, State book inventories, IAEA data and all images of data submittals from UK facilities to the IAEA are expected to be included. The format in which data will be received is unknown at this time.

System	Technical/Functional Contact	Comments
Euratom	TBA	

3.0 MIGRATION PLANNING

Migration of legacy data is a key activity in this project. Future data is built on top of past reconciled data. Therefore, it is crucial to plan, develop and test migrated data for correctness and accuracy.

Key activities involved in data migration:

Analyzing – review data from the legacy system and decide what data needs to be migrated

Examining – review the data from the legacy system and determine if any data needs transformation

Transforming – transform the data into a form and/or format as required for import into SIMRS

Cleaning – clean up any inconsistencies and/or errors in the transformed datasets.

Loading – execute data load routines to load data into SIMRS

3.1 Responsibilities

The following are a list of activities and individuals responsible for carrying out the activity.

Activity	Responsible Party
Retrieve legacy data from the Euratom system. Determine the format of the data files and content.	ONR
Configure migration tool	Axis/NAC
Data Mapping	Axis/NAC with assistance from ONR
Create data conversion routines	Axis/NAC
Clean up any data inconsistencies	Axis/NAC with assistance from ONR
Data Import	Axis/NAC
Validation, testing and reconciliation	Axis/NAC/ONR

3.2 Roles

Roles	Responsibilities	Name
Data owner	The data owner will be responsible for final review and approval of the migration	
Technical Lead	The Technical Lead is responsible for overall technical aspects of data migration	
Legacy Data Providers	The legacy data provider is responsible for providing the agreed upon data in the format specified	

3.3 Data Types

Configuration Data – During the setup for the data migration, there are settings that may need to be set to accommodate the legacy data. Any type of configuration data identified shall be loaded first.

Setup Data – Setup data can be thought of as Reference data (i.e. Country Codes, Facility Codes, MBA Codes and KMP Codes). The total volume of data will determine whether this data is loaded manually or automated.

Master Data – This data is considered to be the essential part of the legacy data. Master data can be thought of as Accountancy data and/or IAEA data.

3.4 Migration Items

Data	Source	Destination	Migration Tool	Volume	Responsibility

3.5 Process

A data migration database and application will be setup for migration testing. A copy of all data retrieved from the Euratom SSAC system will be loaded into this test environment. Once the data migration has successfully run to completion, the Data Owner will test, verify and approve the data migration. The approval allows migration to occur on the Parallel Application/Database Server. If there are any issues found during the testing and verification, the Data owner and Technical Lead will correct the issues by adjusting the migration tool and/or scripts. After the adjustments, the next iteration begins.

3.6 Upload Order

The order in which data is loaded is important. The order will be:
1. Configuration Data
2. Setup Data
3. Master Data

4.0 MIGRATION CYCLE

4.1 Cycle 1 (Sample Data)

Upload Master Data

1. A list of Sample Master Data will be provided later.

Test/Verify (Sample Data) – Execute migration test script:

1. Visual Data Inspection
2. Run Reports
3. Process data

Review (Sample Data) - Verify quality of data, migration tool settings, data migration strategy

1. Update data cleaning routines
2. Adjust migration tools and/or scripts
3. Update Reference data if needed

After review, it must be determined whether Cycle 1 should be repeated or results indicate that Cycle 2 can start.

4.2 Cycle 2

Upload Master Data

1. A list of Master Data to load will be provided later once the legacy data from the Euratom system has been examined.

Test/Verify – Execute migration test script:

1. Visual Data inspection

2. Run Reports
3. Process data

Review (Sample Data) - Verify quality of data, migration tool setting, data migration strategy

1. Update data cleaning routines
2. Adjust migration tools and/or scripts
3. Update Reference data if needed

After review, it must be determined whether Cycle 2 should be repeated. If the results are acceptable, a signed acceptance for approval to migrate the data onto the Parallel Test Environment is required. If the results are not acceptable, this cycle shall be repeated.

4.3 Deployment Phase

The following data migration activities shall be executed before Parallel testing begins:

- Execute routines, processes and steps from last accepted data migration cycle in the Parallel Testing environment.
- Validate by running reports.

4.4 Final Data Migration

Once data has been migrated in the Parallel Testing environment and parallel testing has started, there will be no more data migration cycles. The Parallel Testing environment will become the Production environment.

4.5 Sign-off

Migration in the Parallel Testing environment cannot occur until the Data Owner signs the data migration acceptance notification.

5.0 PROJECT RISKS AND ASSUMPTIONS

5.1 Risks

- History reference data is not included in dataset from Euratom. This is a risk to the project schedule due to possible need to make numerous inquiries about historical reference codes
- ONR liaison may not be familiar with history data from the 80's and earlier
- Data migration acceptance terms are not clear and concise

5.2 Assumptions

- There are enough UK Accountancy data historians who can assist with resolving inconsistent data.
- The application will be setup and configured properly before data migration begins.
- Hosting location has been decided months before Parallel Testing is scheduled to start.

Appendix A1 Data Mapping

The charts below outline table and data field mappings. This information will be provided later.

Appendix B1 Migration Script/Tool Setting

Migration Scripts/Tools and Setting will be provided later.

Appendix C1 Data Validation Process

Acceptable methods for the Data Owner to test and verify data migration will be provided later.

Appendix D1 Extraction and Transformation Process

This information will be provided later.

Appendix C
Business Specification Document

TABLE OF CONTENTS

History of Revisions

Issue Date	Revision Number	Affected Sections	Description
	0	Pages 1 through	Initial release

1.0 INTRODUCTION

1.1 Acronyms

EC	European Commission
IAEA	International Atomic Energy Agency
INFCIRC	Information Circular
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
ONR	Office for Nuclear Regulation
SIMRS	Safeguards Information Management and Reporting System
UK	United Kingdom

1.2 Definitions

Accounting Period	A defined period of time where by performance reports may be extracted.
Accounting Records	A set of data kept at each Facility showing the quantity of each type of Nuclear Material present, its distribution with the Facility and any changes affecting it.
Activity Date	The date when an increase, decrease or change in form of nuclear material in a material balance area.
Batch	A portion of nuclear material handled as a unit for accounting purposes at a key measurement point and for which the composition and quantity are defined by a single set of specifications or measurements.
Batch Identification	A unique reference identity assigned to a Batch of nuclear material handled as a unit for accounting purposes.
Book Inventory	The algebraic sum of the most recent Physical Inventory of a Material Balance Area and of all Inventory Changes that have occurred since that Physical Inventory was taken.
Facility	A reactor, a critical facility, a conversion plant, a fabrication plant, a reprocessing plant, an isotope separation plant or a separate storage installation; or any

	location where nuclear material in amounts greater than one effective kilogram is customarily used.
Inventory Change	Inventory change means an increase and decrease, in terms of batches, of nuclear material in a Material Balance Area.
Material Balance Period	Refers to the time between two consecutive physical inventory takings. A Material Balance Period start at 00:00 on the day after a PIT and ends at 24:00 on the date of the subsequent PIT.
Number of Items	The total number of discrete items in a Batch.
Stakeholder	Individual or organization having an interest in a system that meet their needs and expectations.

1.3 References

- Commission Regulation (Euratom) No 302/2005 of 8 February 2005 on the application of Euratom safeguards
- Commission Regulation of 15 December 2005 on guidelines for the application of Regulation (Euratom) No 302/2005 on the application of Euratom safeguards
- Invitation to Tender for a Safeguards Information Management and Reporting System(SIMRS) Annex A – Requirements
- Invitation to Tender for a Safeguards Information Management and Reporting System(SIMRS) SIMRS Supplementary Pack 1
- IAEA Nuclear Material Accounting Handbook, Services Series 15

1.4 Project Summary

1.4.1 Objectives

The objective of this project is to

- Develop, deploy and operate a system to store, maintain and report information on UK facility nuclear material accountancy data;
- Automate the process of verifying and validating correctness and completeness of submitted data

- Create a useful tool for meeting international obligations and reporting
- Implement the new system in a way that has little to no impact on data submitters (duty holders)

1.4.2 Background

The Office for Nuclear Regulation (ONR) is the regulator of an estimated 36 nuclear licensed sites within the United Kingdom (UK). These sites include decommissioned, operating, under construction and planned nuclear reactors and nuclear processing, manufacturing, reprocessing and storage facilities.

ONR responsibilities include implementing nuclear safeguards. Nuclear safeguards activities employ measures to prevent diversion, track and verify compliance with domestic laws and regulations and international agreements and obligations. As one of the States that has signed a Non-Proliferation of Nuclear Weapons (NPT) Treaty, the UK must ensure that none of its nuclear material at civil nuclear sites are used in the manufacturing of nuclear weapons. The NPT requires the UK to apply nuclear safeguards and permits the International Atomic Energy Agency to audit and inspect selected sites with the UK. The UK also performs inspections of its sites to review whether the sites are in compliance with their UK nuclear license, laws and regulations.

To meet UK's nuclear safeguards commitments and obligations, ONR must collect information from its nuclear sites. This information includes but is not limited to monthly reports of nuclear material activities (Inventory Change Reports), annual inventory of nuclear material on site (Physical Inventory Listing) and annual material balance report (Material Balance Report). The collected information is verified and analyzed before it is used in reports to fulfill UK reporting obligations. Other obligations include IAEA Inventory Change Reports (ICRs), IAEA Physical Inventory Change (PIL), IAEA Material Balance Report (MBR), Obligation Country Reports, etc.

The collection and reporting of this type of information is currently being handled through the European Commission (EC). Who, what, how and when to report can be found in the "Commission Regulation (Euratom) No 302/2005 of 8 February 2005 on the application of Euratom safeguards". This arrangement will expire 29th of March 2019 when the UK will need to have its own system. The UK system, Safeguards Information Management Reporting System (SIMRS), will mimic the Euratom system to make the transition for UK sites as transparent as possible.

Certain agreements for nuclear cooperation entered into with U.K. trading partners require the separate tracking and reporting of nuclear materials provided by, processed in or irradiated in reactors with equipment supplied by these countries. Nuclear material that meets these requirements is obligated to that country or countries.

To meet the obligations of the safeguards and bilateral agreements, the UK has enacted laws and regulations that govern the possession, use and reporting of fissile and source nuclear material within the UK. The government entity assigned to enforce the laws and regulations is the Office for Nuclear Regulation (ONR). ONR is responsible for ensuring facilities are adhering to their safeguards obligations

1.4.3 Problem Statement

Currently, nuclear safeguards are being managed by the European Union. The UK is in the process of existing from the (EU), On the 29th of March 2019, the UK will be responsible for carrying out UK's nuclear safeguards commitments. The UK does not currently have a system in place to carry-on this mission. If the UK does not have a safeguards management system in place by March 29, 2019, the UK could have a loss of confidence in the UK's ability to maintain safeguards, and the need to manually track nuclear materials in the UK. This would increase costs and be prone to errors.

A solution is needed to assist the UK in meeting the State, IAEA and International trading partners' commitments.

1.5 Scope

The scope of this document is to layout the business needs of the stakeholders. The requirements listed in this document should not contains "wants" or "likes". The requirements should link to the overall objectives and goals of the stakeholders.

2.0 STAKEHOLDERS

Individual/Organization
Office for Nuclear Regulation
UK Nuclear Licensed Facilities
Procurement Department
IAEA
Trading Partner Countries

2.1 High Level Objectives

The objectives of the stakeholder are:

- Effectively apply nuclear safeguards in the UK
- Meet UK, Bilateral and IAEA reporting commitments
- Accurately collect, verify and report in a timely matter
- Attain a cost effective tool to assist UK in the application of nuclear safeguards

3.0 SYSTEM PERSPECTIVE

3.1 Assumptions

- The requirements in this document are business “needs” and do not include “wants” or “likes”.
- The requirements in this document do not contain future business “needs”.

3.2 Constraints

- Significant changes and/or modification of requirements will result in scope creep and delay delivery.
- All stakeholders must be in agreement with the business requirements to deliver a product that meets everyone’s need.

4.0 BUSINESS REQUIREMENTS

The remainder of this Appendix C has been redacted for publication in Contracts Finder.

Appendix D
Technical Design Document

TABLE OF CONTENTS

History of Revisions

Issue Date	Revision Number	Affected Sections	Description
	0	Pages 1 through	Initial release

1.0 INTRODUCTION

The Office for Nuclear Regulation (ONR) is the regulator of an estimated 36 nuclear licensed sites within the United Kingdom (UK). These sites include decommissioned, operating, under construction and planned nuclear reactors and nuclear processing, manufacturing, reprocessing and storage facilities.
ONR responsibilities include implementing nuclear safeguards. Nuclear safeguards activities employ measures to prevent diversion, track and verify compliance with domestic laws and regulations and international agreements and obligations. As one of the States that has signed a Non-Proliferation of Nuclear Weapons (NPT) Treaty, the UK must ensure that none of its nuclear material at civil nuclear sites are used in the manufacturing of nuclear weapons. The NPT requires the UK to apply nuclear safeguards and permits the International Atomic Energy Agency to audit and inspect selected sites with the UK. The UK also performs inspections of its sites to review whether the sites are in compliance with their UK nuclear license, laws and regulations.
Certain agreements for nuclear cooperation entered into with U.K. trading partners require the separate tracking and reporting of nuclear materials provided by, processed in or irradiated in reactors with equipment supplied by these countries. Nuclear material that meets these requirements is obligated to that country or countries.
To meet UK's nuclear safeguards commitments and obligations, ONR must collect information from its nuclear sites. This information includes but is not limited to monthly reports of nuclear material activities (Inventory Change Reports), annual inventory of nuclear material on site (Physical Inventory Listing) and annual material balance report (Material Balance Report). The collected information is verified and analyzed before it is used in reports to fulfil UK reporting obligations. Other obligations include IAEA Inventory Change Reports (ICRs), IAEA Physical Inventory Change (PIL), IAEA Material Balance Report (MBR), Obligation Country Reports, etc.
The collection and reporting of this type of information is currently being handled through the European Commission (EC). Who, what, how and when to report can be found in the "Commission Regulation (Euratom) No 302/2005 of 8 February 2005 on the application of Euratom safeguards". This arrangement will expire 29th of March 2019 when the UK will need to have its own system. The UK system, Safeguards Information Management Reporting System (SIMRS), will mimic the Euratom system to make the transition for UK sites as transparent as possible.

1.1 Purpose

This document outlines an approach to designing a SIMRS for ONR. It attempts to set standards and create a consistent approach to the design and development of the system. This document will be reviewed and updated as needed during each iteration to keep it consistent with design and development approach changes.

1.2 Scope

This scope of this document is to layout a high-level design concept and design approach for developing SIMRS.

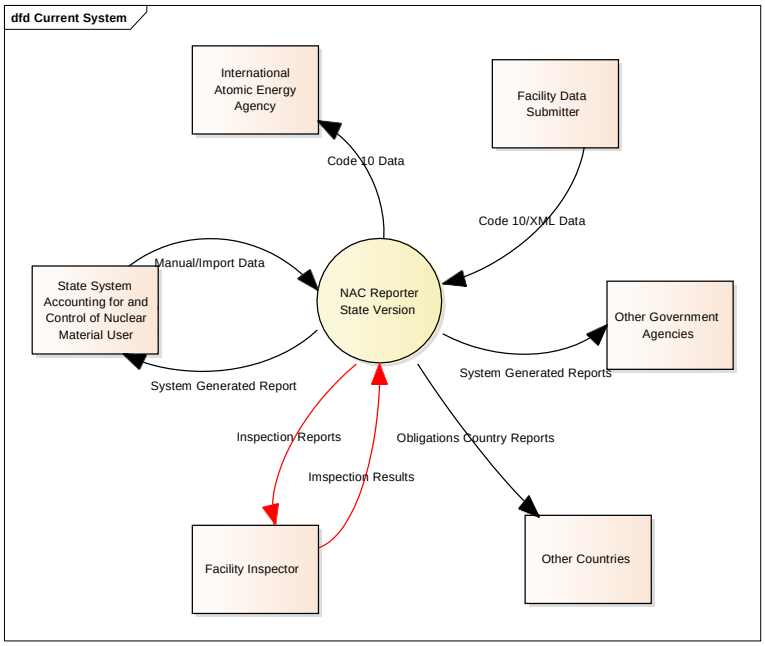
2.0 CURRENT SYSTEM

The Nuclear Accounting and Compliance (NAC) Reporter State version is an electronic State System of Accounting for and Control of Nuclear Material (SSAC) application. This application's design was based on IAEA requirements (IAEA Nuclear Material Accounting Handbook, Code 10 Fixed and Code 10 Labelled) plus the capability to handle obligations accounting and to automate functions such as:

- Data validation
- Data completeness
- Compatibility checks/validation (i.e. LOF shipper and receiver documents are compared)

- Batch standard report generation (i.e. data processing error report)
- Generate book inventories
- Generate book material balances
- Automate reconciliation
- Automate freezing (closing) error free and reconciled data

The system will interact with various entities and have information flowing to and from internal and external sources. The following diagram is a Context Diagram of the current system. The flows in the colour RED indicate that feature is under construction.
The NAC Reporter software was also designed to be readily modified to take into account any special or



unique requirements of a particular country or site. NAC Reporter can be used "as-is" or enhanced to meet ONR's needs.

2.1 User Community Description

- **SSAC Nuclear Analyst** – main responsibilities are:
  - liaise between the facility (MBA contact) and SSAC
  - manually input/import data
  - process data submittals
  - verify correctness and accuracy of data
  - generate internal and external reports (i.e. data process error reports)
  - generate IAEA Code 10 data and submit
  - reconcile system books with report inventories
- **Facility (MBA) Data Submitter** – main responsibilities are:
  - Submit data in a timely matter
  - Submit violation free and accurate data
  - Submit data in proper and approved format
- **Inspector** – main responsibilities are (in the process of being added):
  - Enter results of an inspection
  - Update previous reports with Action Item updates

  - Print inspection reports
- **IAEA** (Indirect User)
  - Accept submitted Code 10 data
  - Request information for a site inspection
- **Other Countries** (indirect user)
  - Receive bilateral reports and/or information

2.2 Technical Architecture

The NAC Reporter State version is an Commercial-Off-The-Shelf (COTS) software designed with the expectation of being enhanced to include a country's individual needs and/or requirements. The application can batch process a series of dataset submittals or manually process them one by one. The application captures and maintains data at the IAEA data level. Batches are accounted for at the MBA level. The rationale behind designing the data structure to the IAEA data level is that the majority of nuclear States closely follow IAEA guideline when establishing their SSAC Programme. This provides a good foundation to build on when tailoring the application to meet a customer's requirements and/or needs.
Major components of the application are:

- Administration –
  - Add/Edit users,
  - Add/Edit Roles,
  - Define Roles,
  - Assign menu options to Roles,
  - Indicate user activities to log,
  - Review application log,
  - Review activity log,
  - Control which dataset a user can see
- Reference Information –
  - Define Code 10 Label Format,
  - Add/Edit Concise Notes Indicator,
  - Add/Edit Continuation Codes,
  - Add/Edit Countries Codes,
  - Add/Edit Facility Codes,
  - Add/Edit Material Balance Area Codes,
  - Add/Edit Element/Isotope,
  - Add/Edit Key Measurement Points,
  - Add/Edit Measurement Basis,
  - Add/Edit Material Descriptions,
  - Add/Edit Obligations Country Report Setup,
  - Add/Edit Type of Inventory Change Codes,
  - Add/Edit Data Violation (Error) Messages,
  - Add/Edit Data Submitter/Government/Report Recipient Contact Information,
  - Add/Edit Assign Contacts to MBA
- Code 10 Data –
  - Add/Edit/View/Remove/Print/Validate Reported ICRs/PILs/MBRs,
  - Associate Imported PDF, Word, Excel and etc. documents to Reported ICRs/PILs/MBRs,
  - Export ICRs/PILs/MBRs to Code 10 or XML Formatted File,
  - Add/Edit/View/Remove/Print/Validate/Compare Reported LOF Transfers,
  - Associate Imported PDF, Word, Excel and etc. documents to Reported LOF Transfers,

  - Export LOF to XML Formatted File,
  - General Ledger
- Data Processing –
  - Import ICRs/PILs/MBRs/LOF Transfers in Approved Formats,
  - Download Imported/Exported Stored Files,
  - Perform Data Processing Runs
- Reports –
  - Generate a variety of standard reports
  - Review, approve and download generated standard reports
  - Create/update batch report profiles
- Reconciliation Facilitator –
  - Create a dataset comparison environment,
  - Review Results of Comparison,
  - Cleanup Environments

2.3 Application Architecture

The application is Windows Web-based with a Microsoft SQL Server database. It can be installed in a 1 to 3 tier environment. Most customers install the application in a 1 or 2 tier environment. The application is accessible through a web browser. Due to the sensitivity of the data maintained by the application, customers generally choose to install in an Extranet network environment. Below are the current system architecture requirements

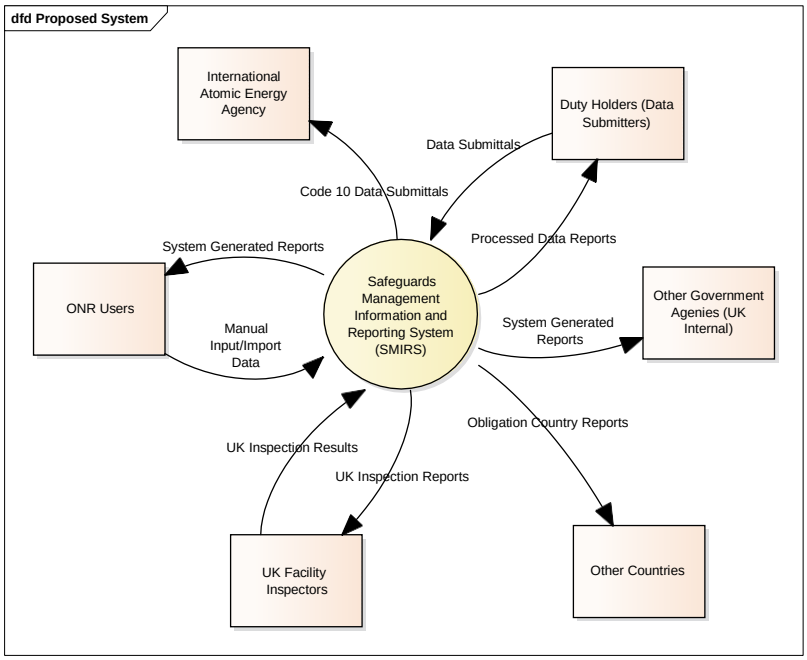
- Windows Server 2012 R2, X64 (or newer version)
- Microsoft SQL Server 2014 (or newer version)
- Windows 7 (or newer version)
- Internet Information Services (IIS) 7.5 (or newer version)
- IT support with administrative rights to install the software

Below are the development tools used to build the application

- Microsoft Visual Studios 2013 (Visual Basic)
- Microsoft SQL Server 2014
- DevExpress ASP.Net 17.2

3.0 PROPOSED SYSTEM

NAC Reporter will be significantly enhanced/updated with the required functionalities to meet ONR's system expectation. The current system has the basic processes and components expected to be a part of SIMRS. Reporter will need to be updated to capture additional data outlined in the "Commission Regulation (Euratom) No 302/2005 of 8 February 2005 on the application of Euratom safeguards". Database tables and processes will need to be added to properly convert the UK table structured data to the IAEA table structure that already exists. The change in the main dataset affect all of the standard reports. Reports will have to be updated to list the UK table structures and not the IAEA current table structures.
The system will interact with various entities and have information flowing to and from internal and external sources. The following diagram is a Context Diagram of the proposed system.



3.1 Project Purpose

A result of Brexit by the 29th of March 2019, the EC SSAC System will no longer maintain nuclear material data related to UK nuclear licensed facilities. The UK government has committed to a domestic nuclear safeguards regime which will be robust and as comprehensive as to the Euratom standards. To meet this goal, UK's ONR must have their own SSAC electronic system built, tested and operating by the March deadline. The new system must use the same Euratom and IAEA nomenclature and procedures in order to make the change transparent to UK duty holders submitting facility (MBA) data.

3.2 Project Objectives

- SIMRS must be operational by the 29th of March 2019
- The duty holder interface with the new system shall be unchanged
- SIMRS shall be able to process and verify correctness and completeness of data submittals
- Convert UK table structured data into IAEA table structured data
- Create error free Code 10 data for submittal to IAEA
- Maintain UK inspection results
- Be a useful tool in UK's nuclear safeguards compliance efforts

3.3 System Scope

The scope of SIMRS encompasses the following:

- Collecting, processing and validating MBA reported data
- Convert MBA data to IAEA nomenclature for submittal to the IAEA
- Secure information in the application to only allow authorized users to have access
- Provide a user-friendly and familiar user interface
- Have little to no impact on submitters (duty holders)
- Retain historical and future data for no less than 30 years

- Provide functions that allow the UK to meet its international data obligations

3.4 User Community Description

- **ONR Nuclear Analyst** – main responsibilities are:
  - be a liaison between the facility (MBA contact) and ONR
  - manually input/import data
  - process data submittals
  - verify correctness and accuracy of data
  - generate internal and external reports (i.e. data process error report)
  - generate IAEA Code 10 data and submit
  - reconcile system books with report inventories
- **Duty Holder** – main responsibilities are:
  - Submit data in a timely matter
  - Submit violation free and accurate data
  - Submit data in proper and approved formats
- **Inspector** – main responsibilities are:
  - Enter results of an inspection
  - Update previous reports with Action Item updates
  - Print inspection reports
- **IAEA** (Indirect User)
  - Accept Code 10 data to be submitted
  - Request information for a site inspection
- **Other Countries** (indirect user)
  - Receive bilateral reports and/or information

3.5 Technical Architecture

The State version of NAC Reporter will be enhanced to include the functions and data required by ONR. NAC Reporter was created with the idea that most countries have additional data requirements that are not related to IAEA data. Therefore, NAC Reporter will be updated to capture data in the Euratom format. Screens, reports, validation checks, reference tables, process runs, IAEA data generator and State book generator will be updated to interact with the new dataset.
Major components of the application will be similar to those listed under the Current System section:

- Administration –
  - Add/Edit user,
  - Add/Edit Roles,
  - Define Roles,
  - Assign menu options to Roles,
  - Indicate user activities to log,
  - Review application log,
  - Review activity log,
  - Control which dataset a user can see
- Reference Information –
  - Define Code 10 Label Format,
  - Add/Edit Concise Notes Indicator
  - Add/Edit Countries Codes,
  - Add/Edit Facility Codes,

  - Add/Edit Material Balance Area Codes,
  - Add/Edit Element/Isotope,
  - Add/Edit Key Measurement Points,
  - Add/Edit Measurement Basis,
  - Add/Edit IAEA and Euratom Material Descriptions,
  - Add/Edit Obligations Codes
  - Add/Edit Obligations Country Report Setup,
  - Add/Edit Type of Inventory Change Codes,
  - Add/Edit Data Violation (Error) Messages,
  - Add/Edit Duty Holder/Government/Report Recipient Contact Information,
  - Add/Edit Assign Contacts to MBA
- Facility Data –
  - Add/Edit/View/Remove/Print/Validate Reported Euratom ICRs/PILs/MBRs,
  - Associate Imported PDF, Word, Excel and etc. documents to Reported Euratom ICRs/PILs/MBRs,
  - Export Euratom ICRs/PILs/MBRs to Code 10 or XML Formatted File,
  - Review and Approve IAEA data Submittals
  - Add/Edit/View/Remove/Print/Validate/Compare Reported LOF Transfers,
  - Associate Imported PDF, Word, Excel and etc. documents to Reported LOF Transfers,
  - Export LOF to XML Formatted File
- Data Processing –
  - Import ICRs/PILs/MBRs/LOF Transfers in Approved Formats,
  - Download Imported/Exported Stored Files,
  - Perform Data Processing Runs
- Reports –
  - Generate a variety of standard reports
  - Review, approve and download generated standard reports
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  - Clean up Environments

3.6 Application Architecture

The application will be Windows Web-based with a Microsoft SQL Server database. It can be installed in a 1 to 3 tier environment. Most customers install the application in a 1 or 2 tier environment. The application is accessible through a web browser. Due to the sensitivity of the data maintained by the application, customers generally choose to install in an Extranet network environment.

Below are the system architecture requirements

- Windows Server 2012 R2, X64 (or newer version)
- Microsoft SQL Server 2014 (or newer version)
- Windows 7 (or newer version)
- Internet Information Services (IIS) 7.5 (or newer version)
- IT support with administrative rights to install the software

Below are the development tools used to enhance the current application

- Microsoft Visual Studios 2013 (Visual Basic)
- Microsoft SQL Server 2014
- DevExpress ASP.Net 17.2
- ElDos

4.0 DATABASE SCHEMA

4.1 Logical Database Model

The logical database model depicts a database schema from the customer's view point. It shows how the customer would group data points and how those groups of data interact.

The remainder of this Section 4 has been redacted for publication in Contracts Finder.

5.0 PROCESS FLOW AND OWNERSHIP

The following diagram depicts the major project process flows and ownership.