

# **October 2019 SAPHIRE 8 Software Quality Assurance; Maintenance and General Support Status Report**

James K Knudsen, S. Ted Wood

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Current activities and progress related to the  
SAPHIRE 8 Quality Assurance Program;  
Maintenance and General Support

By James K Knudsen, S. Ted Wood

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# Chapter 1 Introduction

## Background

The Software Quality Assurance (SQA) engineer position was created in fiscal year (FY) 2011 to better maintain and improve the quality of the System Analysis Program for Hands-on Integrated Reliability Evaluations (SAPHIRE) 8 development program. The SQA program originated under Nuclear Regulatory Commission (NRC) Job Code Number (JCN) V6059 which had a period of performance from August 1, 2010, through July 31, 2015. The SQA program then transitioned to NRC Interagency Agreement (IAA) NRC-HQ-60-15-D-0010 which had a period of performance from August 1, 2015, through July 31, 2017. The SQA program is now covered under NRC IAA NRC-HQ-60-17-T-0006 SAPHIRE 8 Code Maintenance and Quality Assurance (QA) Activities with a period of performance from July 1, 2017, through June 30, 2022.

This letter report highlights the SQA tasks that concentrated on the continued operation of the implemented framework of the SQA program along with the maintenance and general support activities of SAPHIRE for the duration of June 2019 – October 2019.

This report is divided into two distinct parts: 1) SQA activities and 2) Maintenance and General Support activities. This letter report documents the accomplishments and recommendations for each of the main tasks (SQA activities and Maintenance and General Support).

The SQA activities is divided into four subtasks and are listed below as set forth in NRC-HQ-60-17-T-0006:

- Reviews, Tests, and Code Walkthroughs.
- Oversight on SAPHIRE Quality Assurance (QA) Activities.
- Support Nuclear Regulatory Commission (NRC) Presentations and Meetings.
- SAPHIRE Improvements to support new Standardized Plant Analysis Risk (SPAR) Model features being developed including those for use in Level 2 and Level 3 PRA analyses.

The Maintenance and General Support activities is broken into two subtasks and are listed below as set forth in NRC-HQ-60-17-T-0006:

- Bug Fixes and Maintenance Activities.
- General Support Activities

# Chapter 2 Discussion

## Subtask 1.1 Reviews, Tests, and Code Walkthroughs

### Description

The activities of the SQA member in this subtask include, but are not limited to:

- Perform or assist in peer reviews or code walkthroughs.
- Review test results and perform tests.
  - Tests performed may be static, functional, or acceptance testing as determined by the SQA member.
  - Determine if commercial software is available to assist in performing these tests, and if so shall request that the NRC Contracting Officer's Representative (COR) approve its purchase.
- Perform Preliminary Design Review (PDR) and Critical Design Review (CDR) activities.
  - Write formal documentation on SAPHIRE PDRs and CDRs describing what these reviews are and how and when these reviews will be done.
  - Coordinate SAPHIRE PDR and CDR activities.
  - Document these reviews, tests and code walkthroughs.

### Accomplishments

The SAPHIRE website was monitored between June 2019 and October 2019 to identify important software fixes and improvements. During the website monitoring, the latest issues identified in Version 8.2.0 were discussed with the programming staff. The issues reproducible were fixed and will be in the next release, Version 8.2.1. Work still needs to be performed on fixing the other identified issues and these fixes will also be included in the next release, Version 8.2.1.

During the period between June 2019 to October 2019, work was performed on bug tracking and trending as part of the software metrics. The software metrics based on bug tracking and trending helps improve the quality of SAPHIRE. This tracking process is used to organize and prioritize maintenance activities for future SAPHIRE releases to ensure important code errors were addressed and fixed. The code errors are categorized in one of three different levels (i.e., high, medium, or low) along with the type of issue (e.g., calculation bug or user interface bug). Information about the software metrics is discussed and plots are provided in the report "October 2019 Software Quality Assurance Oversight Status Report," which is included in this transmittal.

The SQA member reviewed modules for standards compliance. There were no formal reports created

for these reviews.

## **Recommendations**

If new enhancements are requested for SAPHIRE, the SQA member should be present for design reviews and help in the development of the design documentation. The SQA member should review the preliminary design reviews (PDRs) and critical design reviews (CDRs) when each phase of the design feature moves on to the next phase: PDR to final design, CDR to implementation.

Peer-reviews and code walkthroughs will continue to be performed prior to the official release of new versions of SAPHIRE. The peer-review and manual code walkthroughs are required to avoid missing any potential code errors introduced during programming operations. All pre-releases need to be reviewed by the SQA member, NRC personnel and INL personnel working on the SPAR model project. The SQA member has a formal checklist that is used to verify multiple manual operations to try and identify any potential errors prior to release of SAPHIRE. The checklist is a living document and new tests will be added on an as needed basis.

The bug tracking system on the SAPHIRE website is an important tool to help improve the software quality of SAPHIRE. This bug tracking system allows registered SAPHIRE users to communicate issues (bugs or desired improvements) they encounter when using the software. The system allows users to examine issues that were previously identified and how they were resolved. When issues are identified by users or INL staff, they need to be documented in the bug tracking system. Training SAPHIRE users and INL staff to document and review any issues is vital to the improvement to SAPHIRE. Improvements of SAPHIRE, a mature software product, primarily comes from its use and notation of its weaknesses. The bug tracking system also keeps a complete list of issues that have been identified and fixed along with future possible enhancements.

## **Subtask 1.2 Provide Oversight on SAPHIRE 8 QA Activities**

### **Description**

The SQA member shall provide oversight on SQA activities, including but not limited to the following:

- Maintaining and implementing SAPHIRE 8 Software Quality Assurance Plan consistent with the requirements of NUREG/BR-0167, "Software Quality Assurance Program and Guidelines."
- Ensuring the revision control system (RCS) is up to date and contains all important documentation and files.
- Writing a document on what the RCS is and list its contents.
- Maintaining and updating software developer tools and documents that may include but are not limited to the following:
  - Data dictionary
  - Software metrics to improve software quality
  - Coding guidelines
  - Developer procedures and standards

- Reviewing and updating SAPHIRE QA documentation, accounting for relations between documentation. Include the following documentation (as well as others as applicable):
  - Acceptance Test Plan
  - Configuration Management Plan
  - QA Plan
  - Project Plan
  - Requirements Traceability Matrix (RTM)
  - RTM software package reports
  - System Test Plan
  - Change Design and Testing Procedures
  - Software Verification and Validation (SV&V) Plan
  - Significance Determination Process (SDP) Interface training manual
  - SAPHIRE 8, “New Features and Capabilities Overview”
- Supporting an annual NRC audit of the SQA implementation against requirements of NUREG/BR-0167, “Software Quality Assurance Program and Guidelines.”
- Implementing SQA improvements at the request of the NRC Alternate (ALT) Contracting Officer’s Representative (COR) and approval by the NRC COR.

## **Accomplishments**

The SQA member reviewed the different quality assurance reports to make sure they are current and then placed them on the RCS for storage and record keeping. The SQA member reviewed the RCS to ensure it is up to date with the latest versions of the quality assurance documents.

Minor updates have been performed on the QA documents since June 2019. The “SAPHIRE Version 8 Software Verification and Validation Plan Volume 2” was updated to incorporate the work performed on updating the RTM. This document was placed back in the RCS.

The RTM has been updated to make sure the new features have been added and cross-checked with required tests. The inclusion of new manual tests has been added based on the latest versions of SAPHIRE. No new additional automated tests were added, but additional automated tests may be added to verify the newly added features meet the requirements. This was completed prior to the end of the FY-19. The cross referencing ensures all new and old features are properly being tested and documented.

## **Recommendations**

The SQA member will continue to monitor and maintain the RCS and the QA documents that are located on the RCS. The SQA will also continue to monitor the code files in the RCS for meeting standards and RCS usage. The SQA will make sure the new tests become part of the automatic testing suite and verify the results to make sure they are correct prior to checking against the future versions of SAPHIRE.

The current automatic tests need to include more of the latest versions of the SPAR models since the complexity of the models have increased along with new features in SAPHIRE. Currently, the new features are tested with the appropriate model. However, the tests will eventually migrate towards using the latest versions of the SPAR models along with the standard set of models. This process will start during FY-20 provided resources remain available.

### **Subtask 1.3 Support NRC Presentations and Meetings**

#### **Description**

Provide support for the NRC presentations and meetings at the request of the NRC ALT COR and approval by the NRC COR.

#### **Accomplishments**

Teleconferences were held each month to discuss work that has been performed on both the SAPHIRE software and the SPAR models. These teleconferences allowed for discussions on SPAR model use and enhancements along with potential features to be added to SAPHIRE. These calls are important to make sure the NRC customers of the SPAR models and SAPHIRE are fully aware of any updates to the SPAR models and SAPHIRE.

#### **Recommendations**

The SQA will continue to maintain all reports and other important information in an accurate and readily available format that can be provided to the NRC COR and NRC ALT COR. The SQA will also ensure the Idaho National Laboratory (INL) Project Manager (PM) and the development team are available to transmit this information or provide additional comments to the NRC COR or NRC ALT COR when requested.

The INL PM will continue to provide support to the monthly SAPHIRE/SPAR model teleconferences and quarterly webinars. These teleconferences and webinars are an important avenue to discuss SPAR model updates, SAPHIRE enhancements along with information to help inform the NRC SPAR model users.

The monthly meetings and webinars are very important to all SAPHIRE and SPAR users along with the development team to disseminate work performed and work to be performed in each arena. This information will help all parties understand what to expect when using SAPHIRE and the SPAR model along with future impacts.

### **Subtask 1.4 SAPHIRE Improvements to Support New SPAR Model Features Being Developed Including Those for Use in Level 2 and Level 3 PRA Analyses**

#### **Description**

Monthly reviews of SAPHIRE improvements with the SPAR model development team.

Shakedown testing of pre-release improved versions by INL expert users to test features of the program that cannot be tested in the automated test suite.

Review of design specifications and SQA maintenance and documentation of associated design reviews.



## **Accomplishments**

The SPAR model team and SAPHIRE development team were in continuous discussions on issues identified during the SPAR model development along with any potential needs. If software issues were identified, they were added to the SAPHIRE website which tracks the identified issues. The SAPHIRE programming team then addressed the issues and documented them upon completion. The SAPHIRE team informs the SPAR modelers of the fix for verification. The fixed issues will then be part of the next released version of SAPHIRE and will be documented in the official release documentation.

If new features were requested, they were documented on the SAPHIRE website and discussed with the SAPHIRE project team. The SAPHIRE project team then discussed the enhancements with the NRC COR and Alternate COR to prioritize the new features prior to implementation into SAPHIRE. Once agreement has been established, the development of the PDR and CDR is implemented to track the new features.

## **Recommendations**

The review meetings between the SPAR model team and SAPHIRE program team will continue to ensure SAPHIRE meets the needs of the SPAR modelers. The discussions will help improve the software's capabilities and user interface.

# Chapter 3 Discussion

## Task 2. SAPHIRE Code Maintenance and General Support

Task 2 covers maintenance of the code and provides support to NRC users as needed.

### Subtask 2.1 Bug Fixes and Maintenance Activities

#### Description

The tasks include, but not limited to:

- Correcting programming errors identified.
  - Applicable SQA procedures shall be followed.
  - Programming errors that are corrected shall be documented.
- Providing general code maintenance, such as maintaining code functionality (e.g., data input, printing, user-interface features, etc.).
- Review and improve legacy code, as appropriate, to make the code more maintainable.
- Maintain the SAPHIRE Risk Application Program Interface (API) as appropriate.
- Maintaining SAPHIRE help documentation.

#### Accomplishments

INL programmers continue to make improvements to the SAPHIRE software to meet the growing need of the user base. The primary users for testing and using the multiple applications of SAPHIRE are the Standardized Plant Analysis Risk (SPAR) model users and the Vogtle L3 project team. These groups provide the most feedback on issues identified with SAPHIRE to help make it more robust.

SAPHIRE Version 8.2.0 was officially released in August 2019. This new version required a schema change in order to extend the number of characters from 24 to 48 and to allow for Unicode characters.

Issues were identified in this new version of SAPHIRE from users, both SPAR model and external users and were documented on the SAPHIRE website. Some of the issues have been fixed and the remaining issues will be fixed and be part of the next released version 8.2.1.

#### Recommendations

As more features are added to SAPHIRE, it is important that the manual testing continues to expand in

order to exercise these new features along with fixes. This manual testing needs to be as complete as possible to ensure software issues, if identified, are fixed prior to the new release. Part of the manual testing is to develop a complete model from start to finish and make sure all of the features and applications are included and tested (e.g., flag set development and convolution correction).

The automated testing suite needs to be updated to include more of the SPAR 8.50 models. The SAPHIRE models and the software are becoming more complex; therefore, the automated tests need be adjusted to ensure proper testing of the features. Prior to adding these models, the results will be verified via manual checks and against previous versions of SAPHIRE. This work is planned to start during FY-20 providing resources are available.

User documents need to be produced to detail any new features added to SAPHIRE. The user documents will provide additional information about the new features and how they are utilized. The new features have design documents that can be used as a starting point. Once the user documents have been developed and approved, they will be made available to all SAPHIRE Users.

## **Subtask 2.2 General Support Activities**

### **Description**

This subtask provides general support for NRC SAPHIRE users including, but not limited to:

- Providing incremental builds of SAPHIRE for NRC staff review.
  - Make a new SAPHIRE build available to SAPHIRE users at the request of the NRC Alternate (ALT) Contracting Officer's Representative (COR) and approved by the NRC COR.
  - Make incremental builds available on the SAPHIRE website at the request of the NRC ALT COR and approval by the NRC COR.
  - Provide documentation describing each new build of SAPHIRE that is made available for general release on the SAPHIRE website. The documentation shall include the SAPHIRE revision number, a summary of the coding errors that have been resolved, and new software features.
- Performing the necessary activities related to configuration/maintenance of the SAPHIRE web site (<https://saphire.inl.gov>) where SAPHIRE software and SPAR models are stored for access by NRC users.
- Updating the SAPHIRE web site with the most current versions of the SAPHIRE software and SPAR models at the direction of the NRC ALT COR.
- Performing general project-management activities for this project.
- Maintain and update the SAPHIRE Users Group and Standardized Plant Analysis Risk (SPAR) model distribution websites at the direction of the NRC ALT COR.
- Maintain and update as needed the SAPHIRE Users Group website Security Plan.
- Maintain and Review User's Access to the SAPHIRE website.

### **Accomplishments**

The SAPHIRE website was updated based on the direction of the NRC COR and the ALT COR to add and remove users from the website. Other SAPHIRE website maintenance was performed to make sure that it is operational for NRC users to download SAPHIRE and SPAR models. Also, the website was maintained

to ensure the security plan is up to date and incorporated.

The Safety Portal was maintained and updated to ensure it remains operational to share large files between the NRC and INL. The one time download option developed and incorporated into SAPHIRE Version 8.2.0 using the Safety Portal was also maintained to make sure this feature functions properly. This feature allows SAPHIRE users to zip a model and share it with other SAPHIRE users who have Safety Portal accounts.

New SAPHIRE User Group members were added and a listing of these new members along with former SAPHIRE Users Group members as of October 21, 2019, is provided in Table 1. Table 2 provides account login details from June 19, 2019 to October 21, 2019.

## **Recommendations**

The SAPHIRE website is the central location for the NRC and INL users to obtain the latest version of SAPHIRE and the SPAR models. The website provides a medium to report issues identified with the software or SPAR models. Therefore, maintaining the website to ensure its functionality and availability is important.

Continual monitoring and updating the SAPHIRE website to add and remove new users will continue to be performed. This process is important to the growth and use of SAPHIRE both internal to the NRC and external to the NRC. As more SAPHIRE users provide feedback on problems and desired features, SAPHIRE will continue to become more stable and powerful. Keeping track of the current SAPHIRE users is important for traceability. This monitoring will provide the NRC with information about the user group population both internal and external.

The Safety Portal is another important part of this project and therefore, continued work on maintaining it and updating the user interface and functionality is very important. These updates to the user interface ensure the continued ease to transfer files between INL/NRC, NRC/NRC, etc. The use of the Safety Portal in other areas can be advantageous. These uses are the development of the archive and share function as well as the one-time use download link. The archive and share function will allow SAPHIRE models to be archived and placed on the Safety Portal with only select users able to download the project. The one time use download link will help the NRC when transferring SPAR models to industry. The one-time link alleviates the need to develop compact discs containing the SPAR models. This link will allow INL or NRC to send the SPAR model to a non-INL or non-NRC person with a specific password for download and then the link will deactivate.

Table 1. SAPHIRE Users Group Members (current and former).

# Users	Account Type	Has NDA	Account Disable Date	Description	Self Admin
4	U.S.	Yes	Jan-21	NuScale Power, Inc.	No
5	U.S.	Yes	Oct-20	Boeing - Huntsville	No
2	U.S.	Yes	Oct-20	Enercon	No
1	U.S.	Yes	Aug-20	Naval Undersea Warfare Center Division Newport	No
50	INL	Yes	Aug-20	The INL SAPHIRE User's Group	No
600	NRC	No	Aug-20	Nuclear Regulatory Commission	No
20	U.S.	Yes	Jul-20	INL Non-SPAR Account	Yes
5	U.S.	Yes	Jul-20	MARS2020-RIUWG	No
1	U.S.	Yes	May-20	Sterling Heights Associates LLC	No
5	U.S.	Yes	May-20	Missile Defense Agency	No
1	U.S.	Yes	May-20	Northrop Grumman - Missile Defense Agency	No
1	Non-U.S.	Yes	Apr-20	Nuclear Regulation Authority (NRA, Japan)	No
1	U.S.	Yes	Mar-20	FM Global	No
1	U.S.	Yes	Jan-20	MTechnology, Inc.	No
15	U.S.	Yes	Jan-20	ERIN Engineering and Research, Inc. (Jensen Hughes)	No
1	U.S.	Yes	Nov-19	Westinghouse Columbia Fuel Fabrication Facility	No
1	Non-U.S.	Yes	Nov-19	South African National Nuclear Regulator (NNR)	No
1	U.S.	Yes	Oct-19	NASA - Jet Propulsion Lab	No
1	U.S.	Yes	Oct-19	Meton Analysis, Inc.	No
2	U.S.	Yes	Oct-19	NASA Johnson Space Center	No
1	U.S.	Yes	Sep-19	Florida Power and Light / Nextera	No
1	U.S.	Yes	Sep-19	NASA - Glenn Research Center (1)	No
1	U.S.	Yes	Sep-19	SHINE Medical Technologies	No
3	U.S.	Yes	Sep-19	Baker Hughes - GE Company	No
1	Non-U.S.	Yes	Sep-19	Energy Safety Group LLC (Ukraine)	No
1	Non-U.S.	Yes	Jul-19	Panstwowa Agencja Atomistyki (PAA)	No
1	Non-U.S.	Yes	Jun-19	NT Engineering, LLC	No

1	U.S.	Yes	<i>Jun-19</i>	Southern Nuclear Company (SNC)	No
1	U.S.	Yes	<i>Jun-19</i>	PSEG	No
1	U.S.	Yes	<i>May-19</i>	USAF 45th Space Wing	No
1	U.S.	Yes	<i>May-19</i>	Tennessee Valley Authority (TVA)	No
1	U.S.	Yes	<i>May-19</i>	Pacific Gas and Electric Company	No
1	U.S.	Yes	<i>Apr-19</i>	DTE Energy - Fermi NPP	No
1	Non-U.S.	Yes	<i>Apr-19</i>	University of Stuttgart (Germany) Institute of Nuclear Technology Energy Systems (IKE)	No
1	U.S.	Yes	<i>Feb-19</i>	Wolf Creek Nuclear Operating Corporation (WCNOC)	No
1	U.S.	Yes	<i>Feb-19</i>	Electric Power Research Institute (EPRI)	No
4	U.S.	Yes	<i>Feb-19</i>	Palisades Nuclear	No
8	U.S.	Yes	<i>Jan-19</i>	Energy Research Inc.	No
1	U.S.	Yes	<i>Dec-18</i>	Creative Systems International	No
1	Non-U.S.	Yes	<i>Nov-18</i>	State Scientific and Technical Center for Nuclear and Radiation Safety	No
1	Non-U.S.	Yes	<i>Nov-18</i>	Ghana Atomic Energy Commission (GAEC)	No
1	Non-U.S.	Yes	<i>Nov-18</i>	Consejo de Seguridad Nuclear	No
1	U.S.	Yes	<i>Sep-18</i>	Naval Sea Systems Command (NAVSEA)	No
1	U.S.	Yes	<i>Sep-18</i>	TerraPower LLC	No
2	U.S.	Yes	<i>Jun-18</i>	Idaho State University - Mike Calley	No
1	U.S.	Yes	<i>Jun-18</i>	Callaway Energy Center	No
1	U.S.	Yes	<i>May-18</i>	Thomas Murray Acute Management Strategies, LLC	No
2	Non-U.S.	Yes	<i>May-18</i>	GPA Engineering Pty. Ltd	No
1	U.S.	Yes	<i>May-18</i>	Sandia National Laboratories - Risk & Reliability Analysis Department	No
1	U.S.	Yes	<i>Apr-18</i>	Naval Postgraduate School (NPS)	No
2	Non-U.S.	Yes	<i>Apr-18</i>	National Tsing Hua University	No
1	U.S.	Yes	<i>Apr-18</i>	Comanche Peak Nuclear Power Plant	No
1	U.S.	Yes	<i>Apr-18</i>	Nebraska Public Power District	No
1	U.S.	Yes	<i>Mar-18</i>	MITRE Corporation	No
1	U.S.	Yes	<i>Jan-18</i>	TSI / NTT Data Services	No
1	U.S.	Yes	<i>Jan-18</i>	Anadarko Petroleum Corporation	No

1	Non-U.S.	Yes	<i>Dec-17</i>	Korean Institute for Nuclear Nonproliferation and Control (KINAC)	No
2	U.S.	Yes	<i>Nov-17</i>	Bureau of Safety and Environmental Enforcement (BSEE)	No
1	U.S.	Yes	<i>Oct-17</i>	NASA Glenn Research Center	No
1	U.S.	Yes	<i>Oct-17</i>	South Texas Nuclear Operating Company	No
1	Non-U.S.	Yes	<i>Oct-17</i>	FS-Micro Corporation	No
1	U.S.	Yes	<i>Sep-17</i>	Duke Energy	No
1	U.S.	Yes	<i>Sep-17</i>	Entergy Nuclear Operations, Inc. Pilgrim Nuclear Power Station	No
1	U.S.	Yes	<i>Sep-17</i>	Southern Nuclear Operating Company	No
1	U.S.	Yes	<i>Sep-17</i>	Entergy / Indian Point	No
1	U.S.	Yes	<i>Aug-17</i>	Arizona Public Service Company	No
1	U.S.	Yes	<i>Aug-17</i>	Xcel Energy	No
1	U.S.	Yes	<i>Aug-17</i>	Insitu, Inc. - SEIT Systems Safety & Airworthiness	No
1	U.S.	Yes	<i>Jul-17</i>	Arkansas Nuclear One / Entergy	No
1	U.S.	Yes	<i>Jun-17</i>	Sandia National Laboratory - Systems Analysis and Research	No
1	U.S.	Yes	<i>Jun-17</i>	University of Utah- Civil Engineering	No
3	U.S.	Yes	<i>Jun-17</i>	Los Alamos National Laboratory - LANL	No
1	U.S.	Yes	<i>May-17</i>	Air Force Wright Patterson Air Force Base (WPAFB)	No
1	U.S.	Yes	<i>May-17</i>	Southwest Research Institute (SwRI)	No
1	U.S.	Yes	<i>Apr-17</i>	Science and Technology Corporation	No
1	U.S.	Yes	<i>Apr-17</i>	NASA-JSC Johnson Space Center	No
1	U.S.	Yes	<i>Apr-17</i>	Joint Warfare Analysis Center (JWAC)	No
2	U.S.	Yes	<i>Mar-17</i>	John Hopkins University/Applied Physics Laboratory	No
100	NASA	No	<i>Feb-17</i>	NASA headquarters - Dr. Homayoon Dezfuli e-mail hdezfuli@nasa.gov	Yes
1	U.S.	Yes	<i>Feb-17</i>	Ed Krantz Consulting	No
25	NRC Limited	No	<i>Dec-16</i>	NRC Limited (no models access)	No
1	U.S.	Yes	<i>Nov-16</i>	Defense Nuclear Facilities Safety Board (DNFSB)	No
2	U.S.	Yes	<i>Oct-16</i>	Columbia Helicopters	No
1	U.S.	Yes	<i>Oct-16</i>	SEM Consulting LLC	No
1	U.S.	Yes	<i>Oct-16</i>	GAR Consulting	No

2	Non-U.S.	Yes	<i>Oct-16</i>	Mexican Regulatory Agency - Head of Risk Management Comision Nacional de Seguridad Nuclear y Salvaguardias (CNSNS)	No
2	Non-U.S.	Yes	<i>Oct-16</i>	Global Assett Solutions Pty Ltd	No
1	Non-U.S.	Yes	<i>Sep-16</i>	European Commission Joint Research Centre (JRC)	No
1	Non-U.S.	Yes	<i>Sep-16</i>	AGH University	No
1	U.S.	Yes	<i>Sep-16</i>	Entergy Nuclear Operations, Inc. Fitzpatrick	No
1	U.S.	Yes	<i>Aug-16</i>	Applied Research Associates (ARA)	No
1	Non-U.S.	Yes	<i>Aug-16</i>	University of Sao Paulo	No
1	U.S.	Yes	<i>Jul-16</i>	Sandia National Laboratories Weapons Security Engineering (SNL-WSE)	No
1	U.S.	Yes	<i>Jul-16</i>	CMA Technologies	No
1	U.S.	Yes	<i>May-16</i>	A I Solutions	No
1	U.S.	No	<i>May-16</i>	Univesiti Teknologi Malaysia - UTM	No
1	U.S.	Yes	<i>Apr-16</i>	Applied Research Associates (ARA)	No
3	U.S.	Yes	<i>Apr-16</i>	Columbia Generating Station Energy Northwest	No
1	U.S.	Yes	<i>Apr-16</i>	Stanford Linear Accelerator Center (SLAC)	No
1	Special NRC Cont.	No	<i>Apr-16</i>	IESS (Innovative Engineering & Safety Solutions, LLC) Subcontractor to ISL	No
3	Non-U.S.	Yes	<i>Mar-16</i>	INVAP SE, Argentina	No
1	Non-U.S.	Yes	<i>Mar-16</i>	Turkish Atomic Energy Authority (TAEK)	No
1	U.S.	Yes	<i>Feb-16</i>	Sandia Laboratory - Liao	No
1	U.S.	Yes	<i>Jan-16</i>	Westinghouse Electric Company	No
1	U.S.	Yes	<i>Dec-15</i>	Lockheed Martin	No
1	U.S.	Yes	<i>Oct-15</i>	Analytical Mechanics Associates (AMA) - NASA Ames support	No
1	U.S.	Yes	<i>Sep-15</i>	Entergy Nuclear Operations, Inc. River Bend	No
1	U.S.	Yes	<i>Sep-15</i>	JBD Consulting	No
1	U.S.	Yes	<i>Sep-15</i>	PEMY Consulting	No
2	U.S.	Yes	<i>Aug-15</i>	Sandia Nation Laboratory (SNL-SAD)	No
2	U.S.	Yes	<i>Jun-15</i>	University of Maryland	No
1	U.S.	Yes	<i>May-15</i>	NIST National Bureau of Standards Reactor (NBSR)	No
1	U.S.	Yes	<i>May-15</i>	Sandia National Laboratories - Wind Energy Technologies	No



1	U.S.	Yes	May-15	OCEANEERING SPACE SYSTEMS	No
1	Non-U.S.	Yes	May-15	CSIRO Computational Informatics	No
1	U.S.	Yes	Apr-15	Nuclear Safety Associates	No
1	U.S.	Yes	Mar-15	Florida Power & Light (FPL)	No
1	U.S.	Yes	Mar-15	Global Engineering Services (GES) Lyondell Basell	No
3	Non-U.S.	Yes	Mar-15	Scientific and Technical Centre, Ukraine	No
2	U.S.	Yes	Feb-15	MIT	No
1	U.S.	Yes	Feb-15	American Electric Power (AEP) D.C. Cook	No
1	U.S.	Yes	Dec-14	Sandia National Laboratory - System Test and Hardware	No
1	U.S.	Yes	Dec-14	ASCA Inc.	No
1	U.S.	Yes	Nov-14	Sandia National Laboratory Risk & Reliability Analysis group (SNL-RRA)	No
2	U.S.	Yes	Nov-14	Bechtel Power Corporation	No
1	U.S.	Yes	Sep-14	Rolls-Royce (PKMJ Technical Services Inc.)	No
1	U.S.	Yes	Aug-14	DOE's National Nuclear Security Administration (DOE/NNSA)	No
9	Non-U.S.	Yes	Jul-14	Korea Institute of Nuclear Safety (KINS)	No
1	U.S.	Yes	Jul-14	NASA Goddard Applied Engineering (NASA-GSFC-AETD)	No
1	U.S.	Yes	May-14	Los Alamos National Laboratory (LANL)	No
1	U.S.	Yes	May-14	NASA Langley Research Center	No
1	U.S.	Yes	May-14	US Air Force Kirtland Air Force Base	No
3	U.S.	Yes	Apr-14	Boeing - Colorado Springs	No
7	U.S.	Yes	Apr-14	Northrup Grumman	No
7	U.S.	Yes	Apr-14	ARES Corporation	No
5	U.S.	Yes	Apr-14	Raytheon Missile Systems	No
9	U.S.	Yes	Apr-14	Orbital Sciences Corporation	No
1	U.S.	Yes	Feb-14	Naval Surface Warfare Center Crane Division (NSWC Crane)	No
1	U.S.	Yes	Jan-14	Federal Aviation Administration (FAA)	No
15	Special NRC Cont.	Yes	Dec-13	ISL Inc. Rockville with SPAR access	No
1	U.S.	Yes	Nov-13	Jerricho Solutions Inc.	No
1	Non-U.S.	Yes	Nov-13	Federal Authority for Nuclear Regulation (FANR)	No

1	U.S.	Yes	<i>Oct-13</i>	Argonne National Laboratory	No
1	U.S.	Yes	<i>Oct-13</i>	ARES Technical Services Corp.	No
1	U.S.	Yes	<i>Aug-13</i>	Savannah River Nuclear Solutions, LLC	No
4	U.S.	Yes	<i>Aug-13</i>	Pacific Northwest National Laboratory	No
9	Non-U.S.	Yes	<i>Jul-13</i>	Korea Atomic Energy Research Institute	No
7	Non-U.S.	Yes	<i>Jul-13</i>	Korea Hydro & Nuclear Power Co.	No
3	Non-U.S.	Yes	<i>Jun-13</i>	KEPCO Engineering and Construction	No
8	U.S.	Yes	<i>Jun-13</i>	PPL Susquehanna, LLC	No
4	U.S.	Yes	<i>Jun-13</i>	Brookhaven Science Associates, LLC	No
1	U.S.	Yes	<i>Mar-13</i>	Orbital Technologies Corporation (Orbitec)	No
4	U.S.	Yes	<i>Mar-13</i>	PSEG Nuclear, LLC	No
5	U.S.	Yes	<i>Mar-13</i>	Sierra Nevada Corporation	No
6	U.S.	Yes	<i>Nov-12</i>	South Carolina Electric & Gas Co.	No
5	Non-U.S.	Yes	<i>Nov-12</i>	Rivne Nuclear Power Plant	No
6	Non-U.S.	Yes	<i>Nov-12</i>	Zaporozhye Nuclear Power Plant	No
5	Non-U.S.	Yes	<i>Sep-12</i>	Canadian Nuclear Safety Commission	No
3	U.S.	Yes	<i>Sep-12</i>	ISL Inc. New York Non-SPAR account	No
1	U.S.	Yes	<i>Jul-12</i>	U.S. Department of Transportation	No
4	Non-U.S.	Yes	<i>Jul-12</i>	Energorisk, Ltd.	No
3	Non-U.S.	Yes	<i>Jul-12</i>	Institute of Nuclear Energy Research	No
1	U.S.	Yes	<i>May-12</i>	Sandia National Laboratories	No
1	U.S.	Yes	<i>May-12</i>	IESS (Innovative Engineering and Safety Solutions) Non-NRC Special Account User	No
1	U.S.	No	<i>May-12</i>	PPG Industries, Inc.	No
1	Non-U.S.	No	<i>Apr-12</i>	Ferrocarril Metropolità de Barcelona, s.a.	No
1	U.S.	No	<i>Apr-12</i>	TIWALA Services	No
1	U.S.	Yes	<i>Apr-12</i>	L-3 Communications	No
2	U.S.	No	<i>Mar-12</i>	XE Corporation	No
1	U.S.	No	<i>Mar-12</i>	Aerospace Corporation	No
1	U.S.	Yes	<i>Mar-12</i>	Applied Research Associates, Inc.	No
1	Non-U.S.	Yes	<i>Mar-12</i>	Hendsa Technology Pty. Ltd.	No

1	U.S.	Yes	<i>Feb-12</i>	Dominion Resources Services (DRS)	No
1	U.S.	Yes	<i>Oct-11</i>	First Energy Nuclear Operating Company	No
1	U.S.	Yes	<i>Oct-11</i>	ERIN Engineering	No
1	U.S.	Yes	<i>Aug-11</i>	Entergy Services, Inc.	No
1	U.S.	Yes	<i>Aug-11</i>	Florida Power & Light	No
1	U.S.	Yes	<i>Jul-11</i>	Naval Surface Warfare Center	No
1	U.S.	Yes	<i>Jul-11</i>	Pantex Site Office / Department of Energy	No
1	U.S.	No	<i>May-10</i>	Ciba Specialty Chemicals	No
1	U.S.	No	<i>Mar-10</i>	AREVA NP, Inc	No
1	U.S.	No	<i>Feb-10</i>	The Boeing Company - Saint Louis	No
1	U.S.	No	<i>Feb-10</i>	Florida Power & Light	No
2	U.S.	No	<i>Jan-10</i>	Wyle Labs	No

Table 2. Login accounts.

Date of Last Login	Login Count	User	Email	Org
2019-Oct-21 07:14 PM	750	Knudsen, Jim	James.Knudsen@inl.gov	The INL SAPPHIRE User's Group
2019-Oct-21 02:27 PM	3	Kolcum, Greg	Gregory.Kolcum@nrc.gov	Nuclear Regulatory Commission
2019-Oct-21 01:49 PM	203	Gonzalez, Michelle	michelle.gonzalez@nrc.gov	Nuclear Regulatory Commission
2019-Oct-21 12:03 PM	44	Sant, Robert	Robert.Sant@inl.gov	The INL SAPPHIRE User's Group
2019-Oct-21 09:19 AM	224	Wood, Jeffery J.	Jeffery.Wood@nrc.gov	Nuclear Regulatory Commission
2019-Oct-21 07:31 AM	3	Haeg, Lucas	Lucas.Haeg@nrc.gov	Nuclear Regulatory Commission
2019-Oct-21 07:04 AM	4	Croon, Greg	Gregory.Croon@nrc.gov	Nuclear Regulatory Commission
2019-Oct-21 06:57 AM	4	Bousquet, Earl	Earl.Bousquet@nrc.gov	Nuclear Regulatory Commission
2019-Oct-21 04:56 AM	1	Felts, Russell	Russell.Felts@nrc.gov	Nuclear Regulatory Commission
2019-Oct-18 01:38 PM	154	Kozak, Laura	Laura.Kozak@nrc.gov	Nuclear Regulatory Commission
2019-Oct-18 10:44 AM	16	Tobin, Margaret	Margaret.Tobin@nrc.gov	Nuclear Regulatory Commission
2019-Oct-18 10:21 AM	1191	Buell, Robert	Robert.Buell@inl.gov	The INL SAPPHIRE User's Group
2019-Oct-18 09:34 AM	367	Hunter, Chris	Christopher.Hunter@nrc.gov	Nuclear Regulatory Commission
2019-Oct-17 08:52 AM	483	Zeek, Doug	Douglas.Zeek@inl.gov	The INL SAPPHIRE User's Group
2019-Oct-17 06:04 AM	176	Deese, Rick	rick.deese@nrc.gov	Nuclear Regulatory Commission
2019-Oct-16 09:46 AM	4	Dickson, Elijah	Elijah.Dickson@nrc.gov	Nuclear Regulatory Commission
2019-Oct-15 12:18 PM	37	Alferink, Steven	Steven.Alferink@nrc.gov	Nuclear Regulatory Commission
2019-Oct-14 10:49 AM	15	Youngblood, Bob	robert.youngblood@inl.gov	The INL SAPPHIRE User's Group
2019-Oct-11 11:23 AM	41	Schwab, Alexander	Alexander.Schwab@nrc.gov	Nuclear Regulatory Commission
2019-Oct-10 11:55 AM	221	Freeman, Scott	Scott.Freeman@nrc.gov	Nuclear Regulatory Commission
2019-Oct-10 07:24 AM	127	Leech, Matthew	Matthew.Leech@nrc.gov	Nuclear Regulatory Commission
2019-Oct-08 09:13 AM	131	Tetter, Keith	Keith.Tetter@nrc.gov	Nuclear Regulatory Commission
2019-Oct-08 09:13 AM	156	Arner, Frank	Frank.Arner@nrc.gov	Nuclear Regulatory Commission
2019-Oct-07 01:19 PM	98	Hanna, John	John.Hanna@nrc.gov	Nuclear Regulatory Commission
2019-Oct-07 09:52 AM	43	Helton, Donald	Donald.Helton@nrc.gov	Nuclear Regulatory Commission
2019-Oct-06 06:45 PM	22	Rosebrook, Andy	Andrew.Rosebrook@nrc.gov	Nuclear Regulatory Commission

2019-Oct-04 10:19 AM	27	Sandal, Shane	Shane.Sandal@nrc.gov	Nuclear Regulatory Commission
2019-Oct-03 10:25 AM	62	Vasavada, Shilp	Shilp.Vasavada@nrc.gov	Nuclear Regulatory Commission
2019-Oct-03 08:52 AM	1	Schappaugh, Jeff	jschappaugh@jensenhughes.com	ERIN Engineering and Research, Inc. (Jensen Hughes)
2019-Oct-02 02:11 PM	4	Shaw, Erik	eshaw@jensenhughes.com	ERIN Engineering and Research, Inc. (Jensen Hughes)
2019-Oct-02 08:30 AM	26	DeJesus, Jonathan	jonathan.dejesus@nrc.gov	Nuclear Regulatory Commission
2019-Oct-02 08:09 AM	77	Ma, Zhegang	Zhegang.Ma@inl.gov	The INL SAPHIRE User's Group
2019-Oct-02 06:14 AM	3	Facemire, John	jfacemire@jensenhughes.com	ERIN Engineering and Research, Inc. (Jensen Hughes)
2019-Oct-02 06:06 AM	10	Torres, Edgardo	Edgardo.Torres@nrc.gov	Nuclear Regulatory Commission
2019-Oct-01 03:43 PM	2	Money, Douglas	dmoney@jensenhughes.com	ERIN Engineering and Research, Inc. (Jensen Hughes)
2019-Oct-01 01:31 PM	2	Hufnal, Jared	jhufnal@jensenhughes.com	ERIN Engineering and Research, Inc. (Jensen Hughes)
2019-Sep-30 01:14 PM	108	Ng, Ching	Ching.Ng@nrc.gov	Nuclear Regulatory Commission
2019-Sep-30 08:52 AM	4	Boyce, Jordan	Jordan.Boyce@inl.gov	The INL SAPHIRE User's Group
2019-Sep-27 06:24 AM	80	Kichline, Michelle	Michelle.Kichline@nrc.gov	Nuclear Regulatory Commission
2019-Sep-26 12:12 AM	3	Thabethe, Sibongiseni	SThabethe@nnr.co.za	South African National Nuclear Regulator (NNR)
2019-Sep-25 08:54 AM	4	Faris, Robert	farisd@westinghouse.com	Westinghouse Columbia Fuel Fabrication Facility
2019-Sep-19 11:42 AM	210	Sancaktar, Selim	Selim.Sancaktar@nrc.gov	Nuclear Regulatory Commission
2019-Sep-19 11:23 AM	26	Zoulis, Antonios	Antonios.Zoulis@nrc.gov	Nuclear Regulatory Commission
2019-Sep-18 01:01 PM	76	Mitman, Jeff	Jeffrey.Mitman@nrc.gov	Nuclear Regulatory Commission
2019-Sep-18 06:41 AM	8	Gran, Zachary	Zachary.Gran@nrc.gov	Nuclear Regulatory Commission
2019-Sep-17 11:01 AM	48	Spore, Candace	Candace.Spore@nrc.gov	Nuclear Regulatory Commission
2019-Sep-17 08:25 AM	21	St. Peters, Courtney	Courtney.Stpeters@nrc.gov	Nuclear Regulatory Commission
2019-Sep-16 10:00 AM	2	Miller, Eric	Eric.Miller@nrc.gov	Nuclear Regulatory Commission
2019-Sep-16 07:13 AM	77	Cahill, Christopher	Christopher.Cahill@nrc.gov	Nuclear Regulatory Commission
2019-Sep-13 08:23 AM	10	Wagner, Brian	Brian.Wagner@nrc.gov	Nuclear Regulatory Commission
2019-Sep-10 08:28 AM	39	Dennis, Suzanne	Suzanne.Dennis@nrc.gov	Nuclear Regulatory Commission
2019-Sep-09 12:29 PM	14	Draxton, Mark	Mark.Draxton@nrc.gov	Nuclear Regulatory Commission

2019-Sep-09 09:46 AM	16	McKown, Lou	Louis.Mckown@nrc.gov	Nuclear Regulatory Commission
2019-Sep-06 01:23 PM	26	Matos, Craig	CMatos@jensenhughes.com	ERIN Engineering and Research, Inc. (Jensen Hughes)
2019-Sep-06 09:55 AM	5	Kuritzky, Alan	Alan.Kuritzky@nrc.gov	Nuclear Regulatory Commission
2019-Sep-05 11:36 AM	48	Calley, Mike	Michael.Calley@inl.gov	The INL SAPHIRE User's Group
2019-Sep-05 05:22 AM	2	Ellegood, John	John.Ellegood@nrc.gov	Nuclear Regulatory Commission
2019-Sep-04 08:50 AM	9	Campbell, Brant	Brant.Campbell@inl.gov	The INL SAPHIRE User's Group
2019-Sep-03 03:23 PM	50	Wang, Zeechung (Gary)	zeechung.wang@nrc.gov	Nuclear Regulatory Commission
2019-Sep-03 02:33 PM	10	Wu, De	De.Wu@nrc.gov	Nuclear Regulatory Commission
2019-Sep-03 02:18 PM	4	Parent, Jason	Jason.Parent@nrc.gov	Nuclear Regulatory Commission
2019-Sep-03 12:35 PM	1	Carneal, Jason	Jason.Carneal@nrc.gov	Nuclear Regulatory Commission
2019-Sep-03 10:58 AM	1	Sigmon, Rebecca	Rebecca.Sigmon@nrc.gov	Nuclear Regulatory Commission
2019-Sep-03 10:21 AM	1	Hernandez, Raul	Raul.Hernandez@nrc.gov	Nuclear Regulatory Commission
2019-Sep-03 09:26 AM	4	Kodali, Hari	Hari.Kodali@nrc.gov	Nuclear Regulatory Commission
2019-Aug-30 05:13 AM	5	Marksberry, Don	Don.Marksberry@nrc.gov	Nuclear Regulatory Commission
2019-Aug-29 08:37 AM	3	Finney, Patrick	Patrick.Finney@nrc.gov	Nuclear Regulatory Commission
2019-Aug-28 09:36 AM	6	Bywater, Russell	Russell.Bywater@nrc.gov	Nuclear Regulatory Commission
2019-Aug-28 09:02 AM	4	Fuller, Justin	Justin.Fuller@nrc.gov	Nuclear Regulatory Commission
2019-Aug-28 08:25 AM	4	Lawrence, Svetlana	llawrence@enercon.com	Enercon
2019-Aug-27 12:21 PM	164	Circle, Jeff	Jeff.Circle@nrc.gov	Nuclear Regulatory Commission
2019-Aug-27 09:05 AM	4	Neuhausen, Alissa	Alissa.Neuhausen@nrc.gov	Nuclear Regulatory Commission
2019-Aug-27 07:37 AM	233	MacDonald, George	George.MacDonald@nrc.gov	Nuclear Regulatory Commission
2019-Aug-23 09:08 AM	1	Toth, Matthew	Matthew.Toth@nrc.gov	Nuclear Regulatory Commission
2019-Aug-23 08:59 AM	1	Deschaine, Wesley	Wesley.Deschaine@nrc.gov	Nuclear Regulatory Commission
2019-Aug-22 08:20 PM	12	Goel, Vijay	Vijay.Goel@nrc.gov	Nuclear Regulatory Commission
2019-Aug-22 01:20 PM	2	Smith, Cassandra	Cassandra.Smith@nrc.gov	Nuclear Regulatory Commission
2019-Aug-22 08:46 AM	18	Fanelli, Theodore	Theodore.Fanelli@nrc.gov	Nuclear Regulatory Commission
2019-Aug-22 08:07 AM	10	Childs, Natasha	Natasha.Childs@nrc.gov	Nuclear Regulatory Commission
2019-Aug-21 07:34 PM	26	Ueda, Haruaki	haruaki_ueda@nsr.go.jp	Nuclear Regulation Authority (NRA, Japan)

2019-Aug-21 12:44 PM	58	Fairfax, Steve	fairfax@mtechnology.net	MTechnology, Inc.
2019-Aug-21 08:26 AM	2	Stephen, Thomas	Thomas.Stephen@nrc.gov	Nuclear Regulatory Commission
2019-Aug-21 05:31 AM	11	Meier, Peter	Peter.Meier@nrc.gov	Nuclear Regulatory Commission
2019-Aug-20 03:10 PM	2	Paulos, Todd	Todd.Paulos@jpl.nasa.gov	NASA - Jet Propulsion Lab
2019-Aug-20 02:15 PM	3	Railsback, Jan	jan@metonanalysis.com	Meton Analysis, Inc.
2019-Aug-20 11:24 AM	32	Nakanishi, Tony	Tony.Nakanishi@nrc.gov	Nuclear Regulatory Commission
2019-Aug-16 12:47 PM	111	Loveless, David	David.Loveless@nrc.gov	Nuclear Regulatory Commission
2019-Aug-15 11:27 AM	21	Riggs, Eric	Eric.Riggs@nrc.gov	Nuclear Regulatory Commission
2019-Aug-15 09:39 AM	2	Olvera, John	john.olvera@shinemed.com	SHINE Medical Technologies
2019-Aug-14 02:02 PM	189	Wood, Ted	Ted.Wood@inl.gov	The INL SAPHIRE User's Group
2019-Aug-14 09:52 AM	1	Fernandez, Juan	Juan.Fernandez@nrc.gov	Nuclear Regulatory Commission
2019-Aug-14 09:09 AM	1	Henry, Corey	Corey.Henry@nrc.gov	Nuclear Regulatory Commission
2019-Aug-13 02:38 PM	14	Marden, James	jarden@arescorporation.com	Boeing - Huntsville
2019-Aug-12 11:18 AM	12	Werkheiser, David	David.Werkheiser@nrc.gov	Nuclear Regulatory Commission
2019-Aug-12 10:52 AM	24	Henry, Dan	Daniel.Henry@inl.gov	The INL SAPHIRE User's Group
2019-Aug-08 11:43 AM	6	Averett, Mark	mark.averett@fpl.com	Florida Power and Light / Nextera
2019-Aug-08 11:39 AM	45	Doyle, Jeremiah	jdoyle@nuscalepower.com	NuScale Power, Inc.
2019-Aug-08 11:23 AM	2	Coffman, Zach	zachary.coffman@nrc.gov	Nuclear Regulatory Commission
2019-Aug-08 04:57 AM	7	Humberstone, Matthew	Matthew.Humberstone@nrc.gov	Nuclear Regulatory Commission
2019-Aug-07 04:55 PM	6	Sunde, Nik	nik.sunde@orbitalatk.com	Boeing - Huntsville
2019-Aug-07 12:57 PM	10	Gonzalez, Felix	Felix.Gonzalez@nrc.gov	Nuclear Regulatory Commission
2019-Aug-07 11:41 AM	52	Yeilding, Dale	Dale.Yeilding@nrc.gov	Nuclear Regulatory Commission
2019-Aug-07 10:15 AM	17	Speer, Chris	Chris.Speer@nrc.gov	Nuclear Regulatory Commission
2019-Aug-07 09:33 AM	2	Haley, Brandon	bhaley@nuscalepower.com	NuScale Power, Inc.
2019-Aug-07 08:23 AM	27	Driver, Adrienne	Adrienne.Driver@nrc.gov	Nuclear Regulatory Commission
2019-Aug-07 07:48 AM	14	Kumana, Rayo	Rayomand.Kumana@nrc.gov	Nuclear Regulatory Commission
2019-Aug-07 07:04 AM	22	Gilbertson, Anders	Anders.Gilbertson@nrc.gov	Nuclear Regulatory Commission
2019-Aug-07 05:45 AM	3	Kim, Yoonik	Yoonik.Kim@fmglobal.com	FM Global

2019-Aug-07 05:14 AM	2	Choate, Eric	eric.d.choate@nasa.gov	NASA - Glenn Research Center (1)
2019-Aug-07 12:35 AM	2	Polianskiy, Mikhail	polianskiy@e-s-group.com.ua	Energy Safety Group LLC (Ukraine)
2019-Aug-06 08:20 PM	8	Wolfgang, Robert	rwolfgang@jensenhughes.com	ERIN Engineering and Research, Inc. (Jensen Hughes)
2019-Jul-29 09:59 AM	2	Hardage, David	David.Hardage@nrc.gov	Nuclear Regulatory Commission
2019-Jul-26 08:39 AM	1	Hollcraft, Zachary	Zachary.Hollcraft@nrc.gov	Nuclear Regulatory Commission
2019-Jul-25 08:23 AM	7	Scott, Christian	Christian.Scott@nrc.gov	Nuclear Regulatory Commission
2019-Jul-23 11:30 AM	4	Hunt, Christopher	Christopher.Hunt@nrc.gov	Nuclear Regulatory Commission
2019-Jul-22 10:06 AM	45	Biro, Mihaela	Mihaela.Biro@nrc.gov	Nuclear Regulatory Commission
2019-Jul-18 10:19 AM	140	Kvarfordt, Kellie	kellie.kvarfordt@inl.gov	The INL SAPHIRE User's Group
2019-Jul-15 05:19 AM	2	Vettori, Robert	Robert.Vettori@nrc.gov	Nuclear Regulatory Commission
2019-Jul-14 01:31 PM	14	Leschek, Walter	Walter.Leschek@nrc.gov	Nuclear Regulatory Commission
2019-Jul-11 09:45 AM	13	Schussler, Jason	Jason.Schussler@nrc.gov	Nuclear Regulatory Commission
2019-Jul-10 07:10 AM	12	Nelson, Alexis	Alexis.Nelson@nrc.gov	Nuclear Regulatory Commission
2019-Jul-09 02:52 PM	1	Rogers, James	jim.rogers@nasa.gov	MARS2020-RIUWG
2019-Jul-03 09:37 AM	27	Vedros, Kurt	kurt.vedros@inl.gov	The INL SAPHIRE User's Group
2019-Jun-27 11:55 AM	9	Hilsmeier, Todd	Todd.Hilsmeier@nrc.gov	Nuclear Regulatory Commission
2019-Jun-20 03:02 PM	36	Montecalvo, Michael	Michael.Montecalvo@nrc.gov	Nuclear Regulatory Commission
2019-Jun-19 09:06 AM	10	Morrissey, Thomas	Thomas.Morrissey@nrc.gov	Nuclear Regulatory Commission