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**ADVANCING INFCIRC/908: BUILDING INTERNATIONAL PARTNERSHIPS TO  
MITIGATE INSIDER THREATS**

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**ABSTRACT**

Insiders pose a significant threat to nuclear and other radioactive materials, as they generally possess access rights which, together with their authority and knowledge, grant them far greater opportunity than outsiders to bypass dedicated nuclear and radiological security elements. In 2016, recognizing the international community's need to address the insider threat, the United States sponsored IAEA Information Circular 908 (INFCIRC/908) – Joint Statement on Mitigating Insider Threats. INFCIRC/908 consists of two key pillars: (1) commitment to support the IAEA to develop and implement an advanced, practitioner-level training course on insider threat mitigation; and (2) implementation of measures to mitigate insider risk by taking a risk-informed, graded approach. As of this writing, INFCIRC/908 is supported by thirty-one Member States and INTERPOL as subscribers.

Since publication of INFCIRC/908, the United States and Belgium have hosted an International Symposium and launched an International Working Group. Both efforts were designed to build awareness of and acknowledge that the insider threat is credible and that adversarial insiders pose a serious threat. The vision of the Advancing INFCIRC/908 International Working Group is to serve as an international community of practice to advance the global state of insider threat mitigation for nuclear and other radioactive materials security. This paper describes progress made by the International Working Group since its inception including current membership, formation of Focus Groups, and outreach to the broader community.

**INTRODUCTION**

The U.S. Department of Energy's National Nuclear Security Administration (NNSA) and the Belgian Federal Agency for Nuclear Control (FANC), in cooperation with the International Atomic Energy Agency (IAEA), convened the inaugural International Symposium on Insider Threat Mitigation in Brussels, Belgium during 12-14 March 2019. The purpose of the Symposium was to support INFCIRC/908 and develop and foster an integrated insider threat mitigation strategy for the nuclear security domain.

The Symposium was attended by over 200 participants from fifty-two countries around the globe. Regulators, operators, security professionals, academics, industry representatives, and

practitioners came together to foster a common understanding of the key elements of effective insider threat mitigation and promote good practices and lessons learned among the nuclear and other radioactive materials communities. At the end of three days, symposium participants agreed on two efforts to continue the progress made during the Symposium (U.S. DOE and FANC, 2019). These efforts were: (1) establish an Advancing INFCIRC/908 International Working Group; and (2) host a side event at the IAEA International Nuclear Security Conference in 2020.

## **FROM IDEAS TO ACTION**

The decision to develop and launch an international working group led to a variety of questions. How would we organize and set collective goals? Which countries would be willing and able to serve as active members of the group? Who would manage the work and most important, could this effort have a real and lasting impact on nuclear and other radioactive materials security?

As conveners of the Symposium, FANC and NNSA strengthened strategic collaboration by holding regular meetings both in-person and via conference calls. Throughout 2019 we determined the scope of the International Working Group (IWG), developed a governance model, and prepared for the ICONS side event (U.S. DOE and FANC, 2020). Each of these activities supported and facilitated cooperation and served to sustain bilateral engagement between the two countries.

The IWG is an international community of practice that provides a unique forum to share best practices and other resources to advance the global state of insider threat mitigation for nuclear and other radioactive materials security. Five goals anchor the IWG's work. These include: (1) Share challenges, best practices, and resources; (2) Explore key issues in insider threat mitigation; (3) Promote implementation of insider threat mitigation programs and adoption of best practices, consistent with IAEA guidance; (4) Showcase INFCIRC/908 commitments through outreach efforts; and, (5) Encourage additional subscribers to INFCIRC/908.

A governance operating framework helps organize the IWG's operational, management, and reporting processes and are documented in the IWG Terms of Reference (IWG, 2020). The IWG was formally announced at the 2020 IAEA International Conference of Nuclear Security in February 2020, where we also had the pleasure to announce two new signatories to the INFCIRC/908. Ukraine and France. The IWG is co-chaired by Belgium and the United States. As co-chairs, Belgium and the United States lead the IWG Steering Committee (SC). The SC is composed of the co-chairs plus nine countries from around the world that have endorsed INFCIRC/908. Current SC member states include Canada, Chile, Finland, Hungary, Israel, Japan, Malaysia, Morocco, and Nigeria (See Figure 1).

In addition to each SC member state being a subscriber to INFCIRC/908 with firsthand experience mitigating insider threats, the SC is purposefully diverse. Members represent different perspectives. They are geographically, politically, and culturally different; manage/secure a variety of materials (e.g., nuclear, and other radioactive materials); and have a range of facility types (e.g., nuclear power plants, research reactors, medical isotope production facilities). Furthermore, SC

members are action-oriented and can commit time to the work of the IWG and are willing to become advocates of INFCIRC/908 and its achievements.



*Figure 1. INFCIRC/908 Subscribers and IWG Steering Committee Members (in boxes). Subscribers current as of July 2021.*

Members of the SC actively participate in development of the IWG strategy and lead its implementation. Each SC member is encouraged to serve as a co-chair of one of five Focus Groups (FG). Initial FG topics were inherited from the 2019 Symposium and currently include (1) National Policy and Regulatory Frameworks, (2) Security Culture, (3) Cybersecurity, (4) Trustworthiness and Reliability, and (5) Physical Protection and Technical Measures (U.S. DOE and FANC, 2019).

## **BUILDING PARTNERSHIPS IN A PANDEMIC**

During announcement of the IWG at the 2020 IAEA International Conference of Nuclear Security, the co-chairs proposed an initial in-person meeting of the full SC in June 2020. Very soon after the launch of the IWG it became clear that this meeting would not take place, due to the COVID-19 pandemic and travel restrictions. The IWG was forced to shift direction.

Considering other ways to engage in dialog and advance the IWG, we made the decision to rapidly transition an in-person event into a series of virtual meetings. We faced many challenges, including multiple time zones, availability and agency access to collaboration platforms, and extreme concerns brought on by a global pandemic (e.g., social, political, economic, and public

health concerns) which limited participation. Fortunately, because of the engagement, enthusiasm, and commitment of the SC members, we conducted four virtual SC meetings since last fall (i.e., 28 October 2020, 27 January 2021, 25 March 2021, and 22 April 2021).

During the first SC meeting and the beginning of our close cooperation, the IAEA and INTERPOL were present to learn about the scope and goals of the IWG. The meeting also served to endorse IWG partnership and collaboration with the two organizations. The IWG will not replicate the work that is already being done by other agencies, but instead provide practical tools to complement the work of other organizations. To strengthen the relationships, the SC will also provide quarterly updates to both organisations, to ensure strategic alignment in materials development. The second meeting of the SC considered a path forward for the group, where members discussed how to achieve the objectives of INFCIRC/908, including making an impact on mitigating insider threats within the nuclear community, challenges and opportunities presented by an evolving threat landscape, and how to advance the five topics presented at the 2019 Symposium.

All SC meetings are organized in a two-hour framework using the Microsoft Teams collaboration platform. Each meeting had a clear agenda, scope, and consensus building decision model to keep the IWG efforts moving forward. Communication and follow-up by e-mail was key to the success of the start of this IWG. The use of online polling questions – using Mentimeter in-between meetings – ensured every SC member was heard and had a voice in the decision-making process. Input was also requested by SC members to organize the online meetings and define our path forward.

During the fall and winter of 2020, the SC members finalized the Terms of Reference for the IWG in general, worked on ideas to further promote the work that is being done, and stress the importance of the topic of insider threat mitigation (IWG, 2020b). We looked at ways to work together to identify opportunities to engage a larger audience at regional and international events. Additionally, the SC began discussions on the importance of an insider threat mitigation lexicon. As the international nuclear security community is diverse, a common language of key terminology will facilitate dialog and understanding. During pandemic-related extended telework, we have also had the opportunity to reflect on the changing reality of nuclear security which also presents new challenges to mitigate risks posed by internal and external threats.

The IWG provides a unique international forum to exchange experiences, share good practices, and advance international awareness and implementation of insider threat mitigation measures. The IWG recognizes that nuclear and other radioactive materials facilities are diverse, with a range of financial and human resources, and distinct challenges which demand scalable solutions and graded recommendations. Presently the SC priority is directed at launching the five FGs – National Policy & Regulatory Frameworks; Cybersecurity; Physical Protection & Technical Measures; Trustworthiness & Reliability; and Security Culture.

The FGs, led by SC members, are facilitating discussion of experiences (good and bad) and challenges to find common ground across differences within their respective countries (e.g.,

materials and facility type, regional and cultural influences). All SC members participate in one of these FGs but may support others based upon interest. FG co-chairs may recommend consultation and collaboration with other FGs where common interests align, e.g., the role of national legislation in the development of trustworthiness and reliability programs. This spring the SC members have focused on extant challenges and opportunities present within the five FG topical areas. The FGs will conduct in-depth analysis and develop innovative products to showcase challenges, best practices, and resources. Each FG will bring subject-matter experts from different countries together with experts from private and public organisations and academia when topics of investigation warrant extended collaboration.

As a diverse community of practice, the IWG will have a more comprehensive understanding on advances in the field of insider threat mitigation, including insight and awareness of concerns at both the micro- and macro-scales (i.e., local, regional, international). The IWG provides a great platform to share new ideas and approaches, disseminate best practices and guidance, and explore gaps and vulnerabilities to nuclear security. The SC will create opportunities for advocacy, develop practical tools, and work with other international organizations to transition resources to the broader community. Through such efforts the IWG will have a real and lasting impact on nuclear and other radioactive materials security.

SC members selected their FG of interest in early 2021 and through consensus, determined the National Policy and Regulatory Framework FG will serve as a foundation for all other FG activities. Close cooperation will be necessary and promoted. While each FG will work independently, there are opportunities and interaction between FGs. During the first year, the Cybersecurity and Physical Protection & Technical Measures FGs will work together, as will the Security Culture and Trustworthiness & Reliability FGs. Each team will begin dialog on common challenges and will identify opportunities to advance the current state of practice in the respective domains.

Additionally, the SC members are actively investigating the use of case studies to anchor conversations and identify specific areas which require development of practical tools. Case studies are stories (real or fictional) that are used as a teaching tool to show the application of a theory or concept. Case studies may be developed independently by each FG, or a single and multi-faceted case study could be used by all. In the latter example, each FG would identify ways in which their domain could contribute in a specific way (e.g., development of training or awareness materials to improve cyber hygiene in a case study which had an unintentional insider threat component).

## **COMMUNITY OUTREACH**

Engaging and working with the broader nuclear and other radioactive materials community is a critical part of creating effective and sustainable strategies to drive change. To best understand root causes of the insider threat and potential barriers to change, we must understand system challenges at local, regional, and international levels to include those stemming from related industries and the evolving digital and physical threat landscape.

The IWG has developed a four-tiered approach to expand our reach and build capacity to lead change (See Figure 2). In February 2021, the IWG published the inaugural issue of an annual newsletter. The newsletter highlighted progress towards meeting INFCIRC/908 objectives, new subscribers, and upcoming events (IWG, 2021). In addition to being posted on the IWG website (<https://insiderthreatmitigation.org>), the newsletter was distributed to all IAEA Member States, Belgian and U.S. interagency partners, INTERPOL, the Nuclear Security Working Group, and the European Nuclear Security Regulators Association.



**Figure 2. International Working Group Outreach Strategy.**

To showcase the work of the IWG we held a FG launch event on June 29, 2021. Current INFCIRC/908 subscribers and special guests were invited to learn about updates on the IWG and FG activities. SC members provided summaries of each FG, including priorities over the next year, and details on product/tool development and ongoing activities. At conclusion of the event, the IWG solicited the names and contact information for subject matter experts to participate in FG activities.

The IWG plans to conduct outreach at local, regional, and international events. Each opportunity provides the chance to share information and establish a community of practice. As the IWG matures, we will continue to solicit input from current and future INFCIRC/908 subscribers, international organizations, industry, and academia.

## **BUILDING CAPACITY TO MITIGATE INSIDER THREATS**

The IWG was created to support INFCIRC/908. INFCIRC/908 consists of two key pillars: (1) commitment to support the IAEA to develop and implement an advanced, practitioner-level training course on insider threat mitigation; and (2) implementation of measures to mitigate insider risk by taking a risk-informed, graded approach. All efforts of the IWG therefore are aligned with these two commitments.

The FGs and participating subject matter experts will contribute to international, regional, and local networks to increase awareness of insider threats and the tools, techniques, and approaches available to mitigate such threats. Moreover, the SC contributes to ongoing dialog on the development of training tools for use during the IAEA's Advanced, Practitioner-level Training Course on Insider Threat Mitigation.

The work of the IWG and the different FGs are anchored around five goals, as was already mentioned. Reflecting on these goals, it is important to note that they are all implicit in the IWG outreach strategy. Since the International Symposium in 2019, three additional Member States have subscribed to INFCIRC/908, Ukraine, France, and Slovenia. A website has been developed to promote the work of the IWG, <https://www.insiderthreatmitigation.org>. The website contains guidance documents, information on past and upcoming events, and serves as a platform to showcase the successes of INFCIRC/908. Materials and tools created by the FGs will be made available on the website and are intended for use by the international community of practice. In addition, to foster consensus, the IWG will develop a lexicon of concepts and ideas germane to the discipline of insider threat mitigation. This will be a living, evolving document to encourage dialog and debate.

## CONCLUSIONS

The IWG was created as an outcome of the 2019 International Symposium. Following formal announcement at ICONS 2020, the IWG's SC successfully formed despite the many complications presented by a global pandemic. Quarterly meetings are conducted with the IAEA and INTERPOL to exchange ideas and discuss opportunities to deepen our partnership.

Following the FG launch event in June 2021, the IWG is making progress with recruitment of subject matter experts to support the development of case studies, model regulations, and other activities. We anticipate showcasing some of this work in the April 2022 Advanced, Practitioner-level Course on Insider Threat Mitigation in Brussels, Belgium. We will re-engage the community on a large scale through a Triennial Symposium currently planned for fall or winter 2022. This next symposium will again showcase the support to INFCIRC/908, provide an update of IWG activities, and bring subject matter experts together to address how new or evolving threats pose unique challenges to global nuclear security.

Reflecting over the past eighteen months, we are profoundly grateful that the SC members and the international community were able to quickly pivot and adapt to new ways of communicating and cooperating. Despite a global pandemic and travel restrictions, we endured. With collective determination we adjusted our way of working on multilateral engagements in a virtual environment. Most importantly, we've laid the groundwork for an international community of practice focused on mitigation of insider threats to nuclear and other radioactive materials while in use, storage, and transit.

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