

## **Session 16: Lessons Learned from FRMAC Participation in Ingestion Pathway Exercises**

RaJah Mena ([menarm@nv.doe.gov](mailto:menarm@nv.doe.gov); 702-295-8641), Alexis Reed ([reedal@nv.doe.gov](mailto:reedal@nv.doe.gov); 702-295-8689), Kevin Keyes ([kevin.keyes@dhs.gov](mailto:kevin.keyes@dhs.gov); 770-220-5378)

### **Abstract:**

The Federal Emergency Management Agency requires the execution of a graded ingestion pathway exercise in each state maintaining a nuclear power plant every six years. It has been found for most states (especially in states with multiple power plant stations) that the local planners and players in these exercises have never participated in one of these exercises due to worker turnover or other reasons. The Remote Sensing Laboratory on behalf of the Department of Energy participates in an average of 5-10 of these exercises each year, utilizing a small number of dedicated personnel. This session will cover a summary of lessons learned and best practices from these exercises allowing time for panel discussion with audience members. The goal of the authors is to assist future exercise planners to conduct the best possible exercise by utilizing their experience in what works and what doesn't. State and utility planners with an upcoming exercise are strongly suggested to attend as well as anyone who has participated in an IPX recently.

### **Biographical Sketch of RaJah Mena:**

RaJah Mena is a scientist for the Consequence Management section at the Remote Sensing Laboratory – Nellis in Las Vegas, Nevada. She has worked in the field of health physics for a number of years since completing her degree at the University of Nevada Las Vegas in Health Physics. RaJah has assisted with the planning and executing of numerous ingestion pathway exercises as well as in Department of Energy Full Scale Exercises and drills for the Federal Radiological Monitoring and Assessment Center (FRMAC). RaJah also holds three duty positions within the FRMAC including Bridgeline Coordinator for the Consequence Management Home Team (CMHT), Field Monitoring Specialist, and Aerial Measurement Survey Mission Scientist as well holding the position of working group chair of the CMHT.

### **Biographical Sketch of Alexis Reed:**

Alexis Reed is a scientist for the Consequence Management section at the Remote Sensing Laboratory – Nellis in Las Vegas, Nevada. She completed a B.S. in Radiological Health Engineering, an M.S. in Health Physics, and a Ph.D. in Nuclear Engineering, all from Texas A&M University in College Station, Texas. Alexis is a member of the Health and Safety and Assessment Working Groups within the FRMAC. In addition to planning and executing ingestion pathway exercises, Alexis serves as a Consequence Management Assessment Scientist, Aerial Measuring Systems Mission Scientist, and Search Response Team Technical Mission Leader within the FRMAC.

### **Biographical Sketch of Kevin Keyes:**

Mr. Keyes has over thirty years of experience in the operation, training and evaluation of personnel in the Nuclear Power industry. He was originally trained in the US Navy nuclear power program, and spent eight years on board nuclear submarines and at nuclear prototype facilities supervising, operating, and maintaining nuclear power plants. He spent four years with General Electric as a certified Senior Reactor Operator Instructor. He spent the next thirteen years as a drill scenario development and training consultant, writing, and evaluating over 60 power plant drills and exercises at several different nuclear power plants. He has been in the FEMA REP program for the last seven years and is currently serving as the FEMA Region IV Radiological Emergency Preparedness (REP) Northern Section Chief for the states of North Carolina, Tennessee, and Mississippi. During his time in the REP program he has been involved in the evaluation of five Ingestion Pathway Exercises.