



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001**

(FSME-14-071, July, Training, G-205)

July 14, 2014

ALL AGREEMENT STATES

ACCEPTANCE TO THE ROOT CAUSE WORKSHOP (G-205) (FSME-14-071)

**Purpose:** To provide the list of students selected for the U.S. Nuclear Regulatory Commission's (NRC) Root Cause Workshop (G-205).

**Background:** The NRC provides the list of students and instructions to the States to help ensure that States with candidates on waiting lists will have an opportunity to fill vacated slots that may open up after this notification letter has been sent.

**Discussion:** Enclosure 1 is the list of students from the States selected to attend the September 15-19, 2014, Root Cause Workshop (G-205) in Chattanooga, Tennessee. Please provide the list of students and instructions (Enclosure 2) to each individual from your program that has been accepted to this class. Also included for your information is a tentative schedule for the course (Enclosure 3). Students attending this course will be paid travel and per diem by the NRC. Please inform us of any cancellations 30 days prior to the course start date. This will allow us to ensure that States with candidates on the waiting list have an opportunity to fill vacated slots that may open up after the course acceptance letters have been transmitted.

If you have any questions regarding this correspondence, please contact me at 301-415-3340 or the individual named below:

POINT OF CONTACT: Marcia J. Casby INTERNET: [ASTrainingandtravel.Resource@nrc.gov](mailto:ASTrainingandtravel.Resource@nrc.gov)  
TELEPHONE: (301) 415-6525

**/RA Duncan White/**

Laura A. Dudes, Director  
Division of Materials Safety and State Agreements  
Office of Federal and State Materials  
and Environmental Management Programs

Enclosures:

1. List of students
2. Instructions for students
3. Tentative Schedule

ROOT CAUSE WORKSHOP (G-205)  
September 15-19, 2014  
CHATTANOOGA, TN

STATE	PARTICIPANT
ARKANSAS	Kayla Avery
CALIFORNIA	Alan Rook
KANSAS	Aaron Short
NEW JERSEY	Sarah Staab
NEVADA	Sneha Ravikumar

## INSTRUCTIONS TO STUDENTS

**ACCEPTANCE:** This is to advise you that individuals listed in Enclosure 1 have been accepted for participation in the training course (G-205) Root Cause Workshop. This course is scheduled to be presented September 15-19, 2014, at the U.S. Nuclear Regulatory Commission Technical Training Center (TTC). The TTC is located at 5746 Marlin Road, Suite 200, Osborne Office Center (near Eastgate Shopping Center) Chattanooga, Tennessee 37411-5677. The facility's telephone number is (423) 855-6500.

**COURSE:** This course will be conducted beginning at 8:00 a.m. and end at 4:30 p.m. each day except for Friday, September 19, 2014, when the class is scheduled to end at 2:00 pm.

**LODGING AND TRAVEL:** Please plan to arrive on Sunday, September 14, 2014, and depart on Friday, September 19, 2014. Students must make their own lodging and travel arrangements. If traveling by air, please contact Carlson Travel at 1-800-453-8396 for airline reservations, and indicate that the travel is "Invitational" for the NRC. Please complete the new Travel Application Form, located at <http://nrc-stp.ornl.gov/training.html> and submit to Marcia Casby ([AStrainingandtravel.Resource@nrc.gov](mailto:AStrainingandtravel.Resource@nrc.gov)) by August 4. If you have any questions regarding the travel form, please contact Marcia Casby at 301-415-6525. Individuals should request the Federal government rate at the hotels. The per diem for Chattanooga, Tennessee is 95/56/151. This means that lodging/meals/not to exceed the total. No rental cars will be authorized for travel. Students will be reimbursed for transportation between the airport and hotel, and between the hotel and the training center. Students staying at the same hotel are encouraged to coordinate with each other to arrange transportation between the hotel and the training center. If you plan to drive, the Federal mileage reimbursement is 56 cents per mile.

**DIRECT DEPOSIT:** We are very pleased to be offering Direct Deposit for travel reimbursements. If you prefer this method, please complete the form located on our website and link provided here, [Direct Deposit Form](#). Follow the instructions on the form, and return to Mary Matheson at [Mary.Matheson@nrc.gov](mailto:Mary.Matheson@nrc.gov). Once you have signed up for Direct Deposit, you are in the system and will not need to complete a new form unless your banking information changes. When it is time to complete your voucher for reimbursement, in the address box enter "Enrolled for Direct Deposit." If you have any questions regarding direct deposit, please contact Mary Matheson at 301-415-8748.

Below are a few suggestions for lodging:

**Residence Inn Chattanooga**  
2340 Center Street  
Chattanooga, TN 37421  
Phone: 1-423-468-7700

**Embassy Suites Chattanooga/  
Hamilton Place**  
2321 Lifestyle Way  
Chattanooga, TN 37421  
Phone: 1-423-602-5100

**Hampton Inn**  
2014 Hamilton Place Boulevard  
Chattanooga, TN 37421  
Phone: 1-423-602-7840

**G-205 Root Cause /Incident Investigation Workshop**  
**Tentative Course Outline**  
**September 15-19 2014**

	Day 1	Day 2	Day 3	Day 4	Day 5
<b>8:00 am-12:00pm</b>	<ul style="list-style-type: none"> <li>1-Welcome</li> <li>2-Initiating the RCA: Significant Operational Event <ul style="list-style-type: none"> <li>o NRC Investigation Process</li> <li>o Integrating Safety Culture</li> </ul> </li> <li>3-RCA Techniques <ul style="list-style-type: none"> <li>■ Fault tree analysis (FTA)</li> <li>■ Event and causal factor analysis (ECFA)</li> <li>■ Barrier analysis</li> <li>■ Management Oversight and Risk Tree analysis (MORT)</li> <li>■ Critical Incident Technique</li> <li>■ The 5-Whys technique</li> <li>■ Pareto analysis</li> </ul> </li> <li>4-Event And Causal Factor Analysis <ul style="list-style-type: none"> <li>o Overview</li> <li>o Fundamentals</li> <li>o Start and Stop Rules</li> <li>o Procedure for ECFA</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Knowledge Check – Review of previous day's material</li> <li>5-Fact Finding Techniques <ul style="list-style-type: none"> <li>o Document/record review</li> <li>o Interviewing</li> <li>o Active Listening</li> </ul> </li> <li>6-Fault tree analysis <ul style="list-style-type: none"> <li>o Basic Concepts</li> <li>o Fundamentals</li> <li>o Developing the Fault Tree <ul style="list-style-type: none"> <li>■ Fault Tree Diagrams</li> <li>■ Gates and Events</li> </ul> </li> <li>o Class Example and Walkthrough</li> </ul> </li> <li>7-Pareto Analysis <ul style="list-style-type: none"> <li>o Overview</li> <li>o Advantages</li> <li>o Application</li> </ul> </li> <li>8-The Five-Whys <ul style="list-style-type: none"> <li>o Problem statements</li> <li>o Answering the questions</li> <li>o Problem resolution</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Knowledge Check – Review of previous day's material</li> <li>9-The Critical Incident Technique <ul style="list-style-type: none"> <li>o Application</li> <li>o Five Steps</li> <li>o Evaluation</li> </ul> </li> <li>10-Barrier Analysis <ul style="list-style-type: none"> <li>o Hazard-Barrier-Target</li> <li>o Barriers and Controls</li> <li>o Procedure for Barrier Analysis</li> </ul> </li> <li>11-Management and Oversight Risk Tree <ul style="list-style-type: none"> <li>o Introduction <ul style="list-style-type: none"> <li>■ What is MORT</li> <li>■ Overview Of The MORT Method</li> </ul> </li> <li>o General Approach <ul style="list-style-type: none"> <li>■ Conventions of the MORT Diagram</li> <li>■ MORT Structure</li> <li>■ Provisional Assumed Risks</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Knowledge Check – Review of previous day's material</li> <li>Management and Oversight Risk Tree, Cont'd <ul style="list-style-type: none"> <li>o Application of MORT to Investigations</li> </ul> </li> <li>Procedure for MORT Analysis <ul style="list-style-type: none"> <li>o Mini-Mort <ul style="list-style-type: none"> <li>■ Overview</li> <li>■ Symbols</li> </ul> </li> <li>o Mort Question Set</li> </ul> </li> <li>12-Advanced Interviewing <ul style="list-style-type: none"> <li>o Asking questions to get the right answers</li> <li>o Applying "The Cognitive Interview Process" to recreate the event</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Knowledge Check – Review of previous day's material</li> <li>13-Case Study Summary Prepare for Out Brief – 1 hour <ul style="list-style-type: none"> <li>o Presentations</li> <li>o 30 minutes to present</li> <li>o 15 minute "Mgmt review" <ul style="list-style-type: none"> <li>• 10 min Findings Q&amp;A</li> <li>• 5 min. Share one improvement takeaway</li> </ul> </li> </ul> </li> </ul>
<b>Lunch</b>					
<b>1:00 pm-4:30pm</b>	<p>Case Study Assignment and Team Formation.</p> <ul style="list-style-type: none"> <li>Teaming – Forming, Storming, Norming, Performing</li> <li>Define Communication</li> <li>Establish Team roles</li> </ul> <p>Case Study Assignment –</p> <ul style="list-style-type: none"> <li>Review the case study against NRC procedures and AIT Charter.</li> <li>Develop an action plan.</li> <li>Apply ECFA+</li> </ul>	<p>Team Case Study Assignment:</p> <ul style="list-style-type: none"> <li>Document review and data collection</li> <li>Apply RCA techniques: FTA, Pareto, 5 Whys, ECFA+</li> <li>Identify information gaps and how to fill them</li> <li>Documents you want to review</li> <li>Individuals you need to interview</li> <li>Develop questions to "close the loops"</li> </ul>	<p>Team Case Study Assignment:</p> <ul style="list-style-type: none"> <li>Document review and data collection</li> <li>Apply RCA techniques: CIT, H-B-T, MORT, FTA, Pareto, 5 Whys, ECFA+</li> <li>Conduct initial interviews</li> </ul>	<p>Team Case Study Assignment: Applying MORT and Barrier Analysis to the RCA and Finalizing the Report</p> <ul style="list-style-type: none"> <li>Conduct interviews</li> <li>Demonstrate use of MORT chart</li> <li>Demonstrate use of two other RCA techniques</li> </ul> <p>Prepare draft "Out-Brief" presentation</p>	<p>Team Case Study Assignment: Document review and data collection</p> <ul style="list-style-type: none"> <li>Apply RCA techniques: Mini-MORT, CIT, H-B-T, MORT, FTA, Pareto, 5 Whys, ECFA+</li> <li>Conduct Follow-up interviews</li> <li>Finalize report</li> </ul> <p>Prepare 30 min "Out-Brief" presentation</p> <p><b>FRIDAY - COURSE ENDS AT 2:00 PM</b></p>