



What Do We Do?

— a quarterly look at the incredibly diverse field of risk analysis —

Vernon Guthrie

What is your job title?

Guthrie: I am a senior risk/reliability engineer at ABS Consulting, a company focused on providing services, training, and software that support risk solutions for public, energy, and commercial clients. ABS Consulting has a long history in the risk analysis field, and many readers may recognize us as either PLG, EQE International, or JBF Associates, companies that were assimilated into ABS Consulting.

How is risk analysis a part of your job?

Guthrie: Almost everything I have done during my 30-year career has involved performing qualitative and/or quantitative risk analyses. People come to me in need of effective and efficient risk solutions. Providing these solutions involves understanding the challenges they are facing and the decisions they are making. Based on this understanding, I then seek to determine the risk-related information that will support their decision making. Knowing the required information, I can then identify the risk analysis tools that will most efficiently provide that information.

This approach to risk analysis means that I do not focus on the methods and tools at hand, but rather on the information needed to support the risk solutions. Thus, much of my career has involved modifying or developing risk analysis methods and tools for agencies such as the Department of Energy, the Nuclear Regulatory Commission, the Food and Drug Administration, and the Department of Homeland Security and for companies in the petrochemical and nuclear industries. Modifying or developing risk analysis methods and tools requires starting with a very detailed understanding of the most accurate approach for modeling the situation being addressed. Necessary assumptions are then made to simplify the model into a practical application tool while not violating the precision and certainty requirements for the results.

Providing the needed information efficiently also involves substantial communication with decision makers and other stakeholders. This communication is vital to my understanding of the context in which the risk analysis information will be used and in helping them understand the meaning and context of the risk information I am providing. In addition, this communication often highlights the need for other nonrisk-related information to support the decision process.

Other aspects of my job include (1) reviewing risk analysis projects being performed by other risk analysts, as well as mentoring less-experienced risk analysts, and (2) teaching qualitative and quantitative risk analysis methods through short courses offered by ABS Consulting.

I also perform incident investigations and root cause analyses to identify the failures or errors that caused an undesired event and the management system weaknesses that contributed to the event.

How did you decide to pursue this career?

Guthrie: My undergraduate degree was in nuclear engineering at Mississippi State University. I then pursued a master's de-

gree in nuclear engineering at the University of Tennessee, where I had the opportunity to focus my course work and thesis on probabilistic risk assessment under Dr. Jerry B. Fussell (who founded JBF Associates). The methods development work I performed as part of my thesis sparked an interest that has continued throughout my career.

What got you to where you are in the field of risk analysis today?

Guthrie: I began my career working at the Department of Energy's Oak Ridge, Tennessee, facilities as a risk analyst, and after about five years I joined JBF Associates/ABS Consulting as a risk consultant. These roles have allowed me to perform risk analyses that support a diverse set of challenging risk-related decisions, with most assessments requiring at least some modification to existing analysis methods or

tools. I have also had the opportunity to work with talented risk analysis experts, many of whom were fellow graduate students at the University of Tennessee and who were not shy in calling out any deficiencies in my work.

What is the most interesting/exciting part of your job?

Guthrie: Developing new methods to address some of the most challenging risk-related issues, while working with highly experienced and gifted risk analysis experts. I also enjoy teaching and mentoring.

What would you recommend to those entering the field of risk analysis interested in a job like yours?

Guthrie: Look for a situation where you can (1) obtain extensive training in the fundamentals of risk analysis and (2) be mentored for several years in the application of these skills. Several universities offer relevant course work, including the University of Tennessee where I recently assisted in teaching a graduate risk and reliability course. You also want to obtain diverse practical experience supporting real, risk-informed decisions that must be made in a timely manner.

How has membership/involvement in the Society for Risk Analysis (SRA) helped you in your work?

Guthrie: Sharing challenges and solutions with other risk analysis experts in many fields has been both extremely beneficial and enjoyable. Having a booth at the SRA conference allowed me to meet a large number of SRA members from varied backgrounds, and participating in the workshops prior to the annual conferences has provided in-depth information on topics of interest and opportunities to meet others who have similar interests. I find that while the undesired events being assessed are often quite different, the fundamental modeling challenges and solutions are often very similar.

Is there anything else you would like to add?

Guthrie: While there have been a few years when I was not an SRA member, I initially joined the SRA as a charter member. 

