

Field Safety in Uncontrolled Environments

A Process-Based Guidebook

By Stephen R. Oliveri & Kevin Bohacs

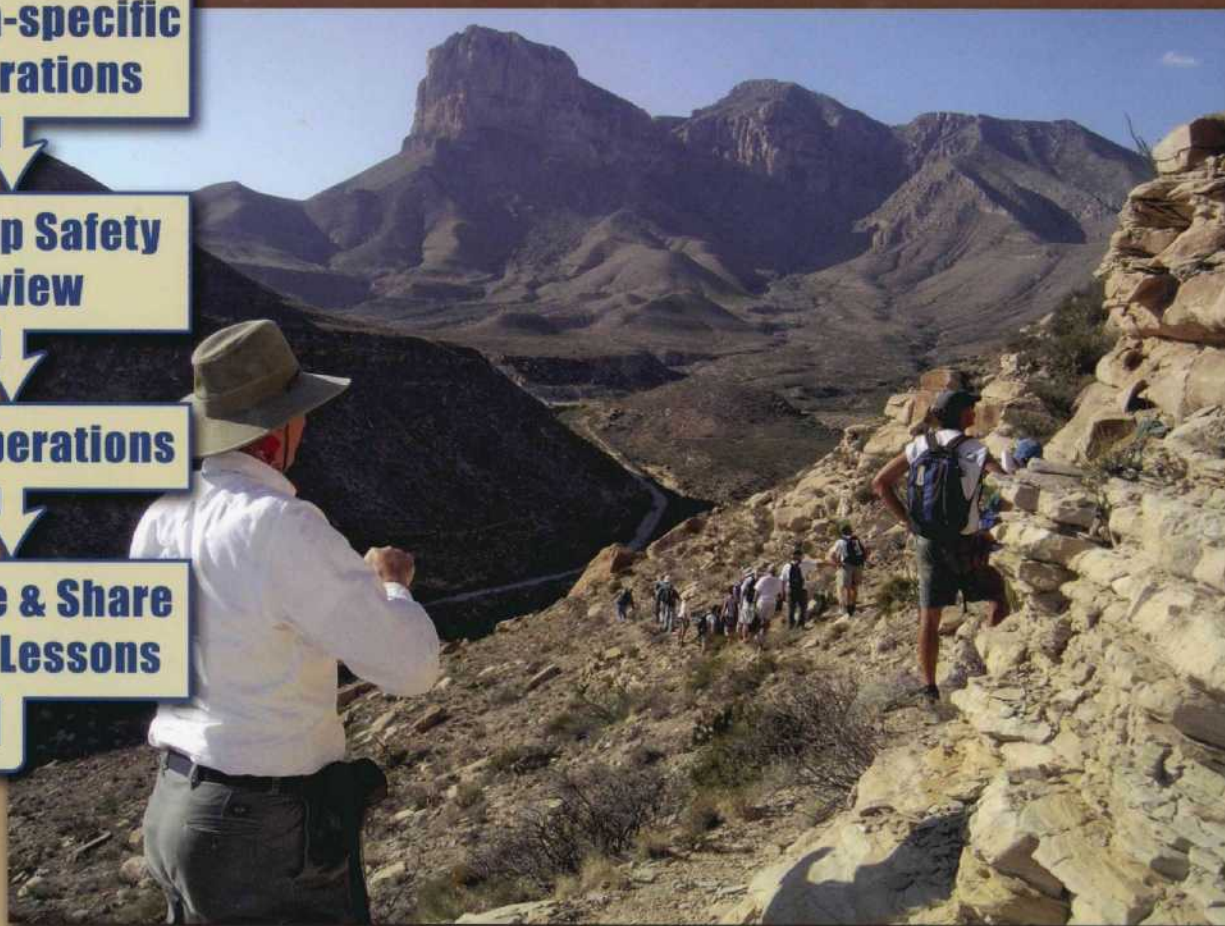
Base Risk Assessment

Session-specific Preparations

Pre-Trip Safety Review

Field Operations

Capture & Share Safety Lessons



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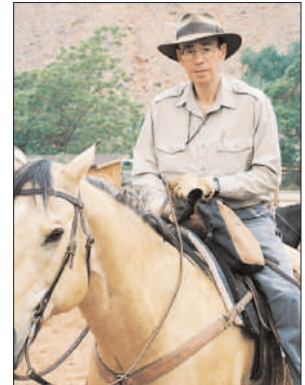
Stephen R. Oliveri is a safety and risk management professional who has been instrumental in the development of safety and operations integrity systems worldwide. He has worked as a safety, field safety, and operations professional for 30 years in the oil industry. He has been a teacher, scoutmaster, coach, and official at various stages of his life and continues to participate in a variety of safety and health-related activities. He has been on the board of directors for Texas youth sports and is currently the vice president of the Texas Association of Sports Officials (TASO)—Rice Belt Chapter.

Oliveri joined Exxon Production Research Company in 1985 after nine successful years of field exploration with Gulf Oil Corporation. He has managed field operations in more than eight foreign countries and has developed safety manuals for both laboratories and field programs. He has received numerous safety leadership awards, chaired safety and operations integrity evaluation teams, and is a consultant for a variety of safety and risk assessment programs.

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Bohacs was graduated from the University of Connecticut with a B.Sc. (honors) in Geology and earned a Sc.D. in Experimental Sedimentology from M.I.T. He joined Exxon Production Research Company in 1981 and has conducted fieldwork and training on six continents and in more than twenty countries. He has received numerous outstanding instructor awards and is a fellow of the Geological Society of America and a national fellow of the Explorers Club.

His wife, Susan Mitterling, works with him on many training and testing exercises—and always comes up with the most challenging mock disaster scenarios.



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Dedications

Stephen R. Oliveri

To my parents Anthony and Patricia Oliveri, who instilled in me a passion for knowledge and the desire to protect my fellow man and the surrounding environment. These values have proved to be the driving force behind the science of field safety;

To Jody Murello, who introduced me to the wonderful world of geology and taught me to work hard and observe my surroundings;

And to my wife, Linda, whose undying support has inspired me to new heights.

Kevin Bohacs

To Dr. Richard O'Leary, who taught me how to provide first aid in the great north woods;

To Lloyd Duff, who taught me how to teach first aid in the great north woods;

To Blair Sutherland, David Sutherland, James Russell, Gary Schmitz, and Ross Ogden, with whom I taught first aid over the years;

And to my wife, Susan, whom I met teaching first aid, and whom made it all worthwhile.

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A Process-Based Guidebook



Preface

Field activities are normally safe (typically safer than home), but accidents do happen, and when they happen, it can be devastating.

Consequences are potentially so serious that we must do something about it, and we can take measures to reduce the risk of a serious accident significantly. It is, however, difficult sometimes to get excited about safety preparations and prevention—in many ways it is like buying insurance: we know we need to have it, but we hope that we never need to use it. Similarly with field safety preparations, it may be hard to be motivated about something you never want to use. But also like insurance, for a relatively small investment beforehand, we can reap great benefits later.

We have found many other benefits from systematically addressing field safety issues: it makes fieldwork and schools more effective by sharpening the focus on the key technical and learning objectives. It builds the confidence of new instructors and trip leaders. Field experiences are more rewarding for students who can focus on observation and learning. It heightens safety awareness in everyday life. Fieldwork goes more smoothly and efficiently from pre-trip thought, discussions, planning, and preparation.

The field safety preparations take some time initially, but become low maintenance for subsequent sessions. As it is practiced, the process becomes almost second nature and part of the normal course of doing business—like packing lunches for the field or filling vehicles with fuel.

Ultimately, field safety is the right thing to do, ethically, technically, and financially. “No technical/business objective is so important that it will be pursued through the sacrifice of safety” is a prime tenet of ExxonMobil’s (and many other companies’) safety programs. Nothing is more precious and irreplaceable than life—all other considerations are secondary. Additionally, safe operations are technically sound because no learning or scientific advance will occur if someone gets hurt. Accidents may jeopardize an entire scientific or academic program and have resulted in loss of access to numerous important field sites. Safety also makes good financial sense because organizations have a lot invested in their members. Their training, experience, productivity, and potential are all valuable assets that can be lost through unsafe

conduct. Academic organizations literally are investing in the future of our science through their students. Accidents threaten these investments and it is financially sound to expend time and money to protect them. Hence, an effective safety program is important for our people, our organizations, and our science.

The field safety program elaborated in this manual is straightforward, widely applicable, and scalable to the wide range of field activities, from short roadside stops to month-long backcountry expeditions. Its 5 steps apply to all field activities, identifying the roles and responsibilities that must be addressed in pre-trip preparations, field operations, and post-trip follow-up. The level of detailed effort required, however, is dictated by the level of hazards that might be encountered and the size of the group participating (leading groups of more than 5 or so people requires different approaches than being in the field with only yourself and a partner). For example, a typical one-week field school in the western U.S.A. takes about 16 hours of preparation time at first, and then about 4 hours preparation for subsequent sessions. For a week of fieldwork, the safety preparations take about 4 hours for the first visit, and then less than 2 hours for successive visits.

Pre-trip preparations begin with identifying hazards that might be encountered and assessing their risks. This information is shared with all participants and used to plan prevention, mitigation, and emergency-response measures. These measures include obtaining safety equipment and supplies, identifying emergency response resources for each field location, and training participants in defensive driving, first aid, and other safety courses as needed. Simple preparations such as having the right phone number to call save valuable time in case of an emergency.

In the field, all trips begin with a short briefing that covers the technical and learning objectives of the activity, as well as general safety information (such as what each participant is to do in case of an accident). More specific safety briefings are given at the start of each day and at each field stop (these last less than 5 minutes). For field stops, there are specific standard operating procedures for “normal” activities (hiking, boating, and swimming) that provide strategies for

control of the group, avoiding hazards, and monitoring for unsafe behavior. A designated participant records field experiences and safety recommendations in a Safety Log. In case of injury or serious illness, an emergency response plan names who will provide first aid, call for help, and take charge of the rest of the group.

Post-trip follow-up draws upon the Safety Log to capture safety lessons learned in the field and shares them with other groups as well as fine tune plans for future activities. This feedback loop enhances and upgrades safe operations continuously based on local experience and conditions. Such customization makes it easier for an organization to make safety an integral part of their basic conduct.

We hope that your organization will adopt some version of this program and have written this manual both as an overview of the process and as a template for your own program. We have included digital versions of the text, checklists, and forms so that you can customize them easily for your organization. We must emphasize, though, that developing an effective field safety program requires more than inserting your organization's name on the forms—the discussions, debates, and research that go into customizing the methodology and making it part of your organization's culture are far more important than anything written down on paper. Such efforts are well rewarded in a higher level of confidence and safety in field operations. We wish you the best in your safety endeavors.