



ZONGE INTERNATIONAL, INC.

SAFETY – HAZARD AND ENVIRONMENTAL MANUAL

Employee Name: _____

The following Manual has been prepared for all Zonge International employees as a guideline to follow for all Manufacturing and Field activities. Rules are subject to change and addition at any given time. We welcome all comments and suggestions from employees in making our organization a safe working environment.

Comments may be submitted to:
Mr. Norman Carlson, Chief Geophysicist, Director of Safety

Zonge International is a “S” Corporation
Tax ID #86-0354288
NAICS PRIMARY NUMBER: 541360
SIC PRIMARY CODE NUMBER: 1382

Established in 1972
Incorporated in 1978



To: Zonge International Personnel Department

Re: Zonge International, Inc.
Safety – Hazard and Environmental Manual

To Whom It May Concern,

I have **received and read** my copy of the Safety – Hazard and Environmental Manual. I understand that I am to contact my supervisor and/or the Safety Manager at any time should I have problems, questions, suggestions or concerns. I further understand that I will report all job related accidents or illnesses immediately.

Employee Signature

Date

Supervisor Signature

Date

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A- - Safety Manual: Receipt

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NOTE: Shaded entries indicate forms that require signatures.

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NOTE: Shaded entries indicate forms that require signatures.

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FORMS

- Z01 Employee Safety Information Form
- Z03 Notice of Safety Infraction
- Z04 Report on Near-Miss or Unsafe Act
- Z05 Accident/Incident Report
- Z06 Health and Safety Plan Acknowledgement of Review

NOTE: Shaded entries indicate forms that require signatures.

- | | |
|--------------------------------|------------------------------|
| Z11..Equipment Inventory Sheet | <i>MOB DEMOB.pdf</i> |
| Z12 Daily Vehicle Check Sheet | <i>Daily Check Sheet.pdf</i> |
| Z13 Daily Safety Meeting | <i>Daily Safety.pdf</i> |
| Z14 Daily ProductionReport | <i>ProductionReport.pdf</i> |

NOTE: Use PDF forms. Do not use printed copies of these forms.

SAFETY – HAZARD AND ENVIRONMENTAL MANUAL



ZONGE SAFETY POLICY

1. As Chief Geophysicist, Director of Safety, I want you to know that it will be our policy to do everything possible to maintain a safe working record at the Tucson main office and at all field offices.
2. Work is never so important or urgent that we can not do it safely.
3. Safety of all personnel, both in the office and in the field, is of utmost importance and I ask all of you for your full cooperation in making this safety policy work.
4. We will comply with all health and safety laws.
5. Safe production is efficient production that benefits all of us both physically and financially.
6. Management and all employees will be responsible for preventing accidents through safe working habits and maintaining field and office equipment in safe working condition.
7. This accident prevention policy is based on the idea that the **EMPLOYEE** is directly responsible not only for **HIS/HER** safety but also that of fellow employees.
8. Every employee's safety record will be considered in his/her review of overall work performance, as safety is an essential part of the employee's work ability.

NORMAN R. CARLSON
CHIEF GEOPHYSICIST, DIRECTOR OF SAFETY

A STATEMENT OF POLICY ON EMPLOYEE SAFETY

SAFETY of employees shall be the first consideration in the performance of all work. Safety cannot be compromised. Every reasonable method and or procedure to keep our employees safe will be utilized.

In order to carry out our Safety Program, the Management and all supervisors will be responsible for the following:


1. Provide employees with vehicles, tools, and equipment which are safe and in good working condition.
2. Instruct employees how to perform their work safely.
3. Continually provide safety instructions on all new equipment.
4. Strive for improved safety methods, equipment and working techniques and adopting these as part of our safety program.
5. Provide each employee with protective equipment needed to perform the job safely.

It will be the responsibility of all employees to make the policy effective by:

1. Observing all Company safety rules.
2. Keeping all work areas free of unnecessary hazards both in the field and in the office.
3. Wearing and using all safety equipment as required by the Company.
4. Keeping good work habits and attitudes to help protect other employees and themselves.
5. **THINK** before you **ACT**. Safety First.

GENERAL SAFETY RULES

1. Whenever you are involved in an accident that results in personal injury or damage to company property, no matter how small, the accident must be reported. **Get first aid immediately.**
2. You **must** report **immediately** any condition or practice that you believe may cause injury or damage to personnel and/or equipment.
3. **Do not** operate any equipment that you believe to be in an unsafe working condition.
4. Be sure to use **all safety and personal protective equipment** when required.
5. **Obey** all company rules, governmental regulations, signs and markings regarding safety. Be aware of those that **apply to you**. If you are not sure, **Ask**.
6. When lifting any item use the approved lifting techniques:
 - A. Tuck your pelvis by tightening your stomach muscles.
 - B. Bend at your knees instead of at the waist to keep balance.
 - C. “Hug” the load you are lifting as close to your body as possible, as you straighten your legs to a standing position.
 - D. Avoid twisting your body. Make sure your feet, knees, and torso are pointed in the same direction when lifting, moving, or setting a load down.
 - E. **Do not** attempt to lift heavy loads by yourself; **get help**.
7. Avoid distracting others when working, horseplay is prohibited.
8. **Always** use the right tools and equipment for the job. Use them safely and only when authorized.
9. Return all tools, equipment, material, etc. to their proper places.
- 10. The use of drugs and/or intoxicating beverages is prohibited at all times.**

Accident Prevention	
<p>Accidents are the result of unsafe acts or unsafe conditions, or both Whatever the reasons, we want to eliminate them to keep you safe And you can help!</p> <p>Unsafe conditions are physical hazards such as missing machine guards, exposed electrical circuits, damaged equipment, slippery floors, improper storage of material, lack of supervision, and adequate training.</p> <p>Unsafe acts are the things people do that are obviously just not safe. Some examples are:</p> <ul style="list-style-type: none"> - Horseplay - Not using PPE (<i>section E06</i>) - Running - Using damaged tools - Not lifting properly - Violating safety rules  <p>Accidents can result in injury or death to you or another employee. That's why it's important to immediately report any unsafe conditions to your supervisor.</p> <p>Excuses some people use: That's the way I always do it ... I can take shortcut because I'm experienced ... I was just trying to fix it ... I thought I knew how ... I was in a hurry ... Doing it safely takes too much time ... I didn't know it was loaded ...</p> <p style="text-align: center;">Accidents are preventable</p>	<p>Smart Safety Rules</p> <p>Do it the way you have been trained – follow all specific safety rules</p> <p>Report all unsafe acts or unsafe conditions immediately</p> <p>Encourage others to work safely</p> <p>Check & use the correct Personal Protective Equipment for the specific hazard</p> <p>Ask for help when you need it</p> <p>Ask questions when you are not sure</p> <p>Report any injuries immediately</p> <p>Lock & Tag all equipment before adjusting or doing maintenance</p> <p>Inspect ladders before using</p> <p>Don't use chemicals unless you have been specifically trained on the hazards and protection steps</p> <p>Don't create trip hazards – keep your work area neat & clean</p>

EMERGENCY PHONE NUMBERS

REMEMBER, IN CASE OF AN EMERGENCY DIAL 911

Tucson, Arizona

Poison Control	(520) 626-6016
OSHA	(602) 542-5795
Fire Department	(520) 791-4511
University Medical Center	(520) 694-0111
Tucson Medical Center	(520) 327-5461
See attached list for all Hospital and Urgent care Centers	
Tucson Department of Emergency Management	(520) 791-4512
Tucson Department of Environmental Protection	(520) 791-4014

Denver, Colorado

Poison Control	(800) 332-3073
OSHA	(303) 937-6112
Fire Department	(303) 989-4307
See attached list for all Hospital and Urgent Care Centers	
Department of Emergency Management	(303) 987-7190
Department of Environmental Protection	(303) 312-6312

Reno, Nevada

Poison Control (Oregon handles NW Nevada)	(503) 494-8968
OSHA	(775) 824-4600
Fire Department	(775) 353-2255
See attached list for Hospital and Urgent Care Centers	
Department of Emergency Management	(775) 353-2358
Department of Environmental Protection	(775) 687-4670

Portland, Oregon

Poison Control (Regional Poison Control, OHSU)	(503) 494-8968
OSHA	(503) 231-2017
Fire Department (Tualatin Valley Fire & Rescue)	(503) 649-8577
See attached list for all Hospital and Urgent Care Centers	
Department of Emergency Management	(503) 259-1183
Department of Environmental Protection (OR Operations Office)	(503) 326-3250

**In Case of An Occupational Injury/Illness Go To:
Concentra Medical Centers**

See attached listing for an office near you

On the job injuries should be reported as soon as possible to your supervisor. Notify Bernice Bennett at the main office. She handles all workers compensation claims. Employees may contact Bernice direct should a Supervisor not be available.

(520) 327-5501
(520) 888-4167 Home
(520) 393-9935 Cell

**If there is a MEDICAL EMERGENCY seek help
IMMEDIATELY AT THE NEAREST MEDICAL FACILITY**

Zonge Workman Compensation Carrier (All offices)

St. Paul Travelers
P.O. Box 29047
Phoenix, AZ 85038

(800) 447-0618

MEDICAL QUICK REFERENCE SHEET

TUCSON, ARIZONA

HOSPITALS

Carondelet St. Joseph's Hospital
350 North Wilmot Road
Tucson, AZ 85711-2602
(520) 296-3211

Carondelet St. Mary's Hospital
1601 West St. Mary's Road
Tucson, AZ 85745
(520) 622-5833

Kindred Hospital of Tucson
355 N. Wilmot Road
Tucson, AZ 85711-2601
(520) 584-4500

Northwest Medical Center
6200 North La Cholla Blvd.
Tucson, AZ 85741-3529
(520) 742-9000

Southern Arizona VA Healthcare System
For use by Veteran Administration members only
3601 South Sixth Avenue
Tucson, AZ 85723-0001
(520) 629-1821

Tucson Heart Hospital
4888 North Stone Avenue
Tucson, AZ 85704-5749
(520) 696-2328

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URGENT CARE CENTERS

NextCare Urgent Care
Pinnacle Emergency Medical
6238 East Pima Street
Tucson, AZ 85712
(520) 290-0022

Northwest Medical Center –
Marana Urgent Care
8333 North Silverbell Road
Tucson, AZ 85743
(520) 202-7700

Northwest Medical Center –
INA Shannon Urgent Care
2945 West Ina road
Tucson, AZ 85741
(520) 219-6616

Urgent Care Associates
1622 North Swan
Tucson, AZ 85712
(520) 795-8888

Urgent Care Associates
9348 East Rita Road
Tucson, AZ 85747
(520) 382-8000

PHARMACIES

Albertsons
Apothecary Shop of Tucson
Bashas Drugs
Clinic Pharmacy
Costco Pharmacy

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TUCSON, ARIZONA *(continued)*

HOSPITALS

Tucson Medical Center
5301 East Grant Road
Tucson, Az 85712-2805
(520) 327-5461

University Medical Center
1501 North Campbell Avenue
Tucson, AZ 85724-0001
(520) 694-0111

PHARMACIES

CVS Pharmacy
Dannys Pharmacy
Eckerd Drug Stores
El Rio Health Center Pharmacy
El Rio Northwest Pharmacy
El Rio West Pharmacy
Fry's Food and Drug
K-Mart Pharmacy
Safescript Pharmacy
Safeway Pharmacy
Sam's Pharmacy
Target Pharmacy
Walmart Pharmacy
Walgreens Pharmacy
Wilmot Center Pharmacy

MEDICAL QUICK REFERENCE SHEET

RENO, NEVADA

HOSPITALS

Renown Regional Medical Center
1155 Mill Street
Reno, NV 89502
(775) 982-4100

Renown South Meadows Medical Center
10101 Double R. Blvd.
Reno, NV 89521-5931
(775) 982-7000

St. Mary's Hospital
235 W. 6th St.
Reno, NV
(775) 770-3188

VA Sierra Nevada Health Care System
*(for use by
Veteran Administration members only)*
1000 Locust Street
Reno, NV 89502-2597
(775) 786-7200

URGENT CARE CENTERS

St. Mary's Urgent Care
6770 S. McCarran Blvd., Suite 100
Reno, NV
(775) 770-3254

Washoe Family & Urgent Care
975 Ryland St., Suite 100
Reno, NV
(775) 482-5210

PHARMACIES

Arlington Clinical Pharmacy
Campus Pharmacy
Costco Pharmacy
CVS Pharmacy
Dons Pharmacy
Hales Pharmacy
Kmart Pharmacy
Longs Drug Store
Pax RX
Professional Center Pharmacy
Raley's Pharmacy
Rite Aid Pharmacy
Safeway Pharmacy
Sak N' Save Pharmacy
Sam's Pharmacy
Save-On Pharmacy
Scolari's Pharmacy
Smith's Food & Drug
Target Pharmacy
Wal-Mart Pharmacy
Walgreens
Washoe Medical Center Pharmacy

Arc Med Center
82 E. Glendale Ave
Sparks, NV 89431
(775) 331-3361

North Valley Urgent Care
10555 Stead Blvd. #10
Reno, NV
(775) 853-9959

MEDICAL QUICK REFERENCE SHEET

DENVER, COLORADO

HOSPITALS

Kindred Hospital of Denver
1920 High Street
Denver, CO 80218-1007
(303) 320-5871

Nat'l Jewish Medical & Research Center
1400 Jackson Street
Denver, CO 80206-2761

Porter Adventist Hospital
2525 South Downing Street
Denver, CO 80210-5817
(303) 778-1955

Presbyterian - St. Luke's Medical Center
1719 East 19th Avenue
Denver, CO 80218-1235
(303) 839-6000

Rose Medical Center
4567 9th Avenue
Denver, CO 80220-3908
(303) 320-2121

Select Specialty Hospital - Denver
1719 E. 19th Avenue
Denver, CO 80218-1235
(303) 563-3700

Select Specialty Hospital - Denver South
2525 South Downing Street, 3rd Floor
Denver, CO 80210-5817
(303) 715-7373

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URGENT CARE CENTERS

Denver Urgent Care LLC
1 Broadway, Bldg. A, Suite 100
Denver, CO 80203

Fallon Health, PC
3600 East Alameda Avenue
Denver, CO 80209
(303) 462-2273

NextCare Urgent Care
7305 East 35th Avenue Unit 170
Denver, CO 80238
(800) 639-8227

PHARMACIES

Albertsons
Apothecare Pharmacy
Asia Pharmacy
Capitol Heights Pharmacy
Cherry Creek Pharmacy
Colorado Pharmacy
Cornell Pharmacy
Golden Phcy & Medical Supply
Huan Pharmacy
King Scoopers
K-Mart Pharmacy
Midtown Pharmacy
Pharmacare Pharmacy
Raleigh Professional Pharmacy
Rite Aid Pharmacy
Rose Building Pharmacy
Rose Medical Plaza Pharmacy
Safeway Pharmacy
Sam's Pharmacy

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DENVER, COLORADO *(continued)*

HOSPITALS

St. Anthony Central Hospital
4231 W. 16th Avenue
Denver, CO 80204-1335
(303) 629-3511

St. Joseph Hospital
1835 Franklin Street
Denver, CO 80218-1126
(303) 837-7111

University of Colorado Hospital
4200 East 9th Avenue
Denver, CO 80262-0001
(303) 399-1211

PHARMACIES

Target Pharmacy
Todds Harvard Park Pharmacy
Wal-Mart Pharmacy
Walgreens
Windsor Gardens Drug

MEDICAL QUICK REFERENCE SHEET

PORTLAND, OREGON

HOSPITALS

Providence St. Vincent Medical Center
9205 SW Barnes Road
Portland, OR 97225
(503) 216-1234

Oregon Health and Science University
2181 SW Sam Jackson Park Road
Portland, OR 97201-3098
(503) 494-8311

Legacy Good Samaritan Hospital
1015 NW 22nd Avenue
Portland, OR 97210-3099
(503) 413-7711

Providence Portland Medical Center
4805 NE Glisan Street
Portland, OR 97213-2967
(503) 215-5526

URGENT CARE CENTERS

PMG Scholls Immediate Care
12442 SW Scholls Ferry Rd
Tigard, OR 97223
(503) 216-9265

The Portland Clinic - Tigard
9250 SW Hall Blvd.
Tigard, OR 97223
(503) 293-0161

Doctors Immediate Care - Tigard
9735 SW Shady Lane
Tigard, OR 97223
(877) 731-3328

PHARMACIES

Albertsons
Beaverton Pharmacy
Bi-Mart
Costco
Fred Meyer
Rite-Aid
Safeway
Target
Walgreens

CONCENTRA MEDICAL CENTERS WITH URGENT CARE

From: <http://maps.concentra.com/CorporateV3/>

TUCSON, ARIZONA

3402 E Broadway Blvd.

Tucson, AZ 85716

Phone: (520) 881-0050

Fax: (520) 795-8815

After-hours: (520) 881-0050

Urgent Care

8:00 am - 5:00 pm (Mon. - Fri.)

Occupational Medicine

8:00 am - 5:00 pm (Mon. - Fri.)

4600 S Park Avenue

Suite 5

Tucson, AZ 85714

Phone: (520) 889-9574

Fax: (520) 889-5072

After-hours: (520) 889-9574

Urgent Care

8:00 am - 8:00 pm (Mon. - Fri.)

8:00 am - 4:00 pm (Sat. - Sun.)

Occupational Medicine

7:00 am - 8:00 pm (Mon. - Fri.)

8:00 am - 4:00 pm (Sat.)

2005 W Ruthrauff Road

Suite 111

Tucson, AZ 85705

Phone: (520) 293-7250

Fax: (520) 293-7234

After-hours: (520) 293-7250

Urgent Care

8:00 am - 5:00 pm (Mon. - Fri.)

Occupational Medicine

8:00 am - 5:00 pm (Mon. - Fri.)

RENO, NEVADA

255 Glendale Ave

Ste. 12

Sparks, NV 89431

Phone: (775) 356-8181

Fax: (775) 332-8060

After-hours: (775) 356-8181

Urgent Care

7:00 am - 6:00 pm (Mon. - Fri.)

9:00 am - 1:00 pm (Sat.)

Occupational Medicine

7:00 am - 6:00 pm (Mon. - Fri.)

9:00 am - 1:00 pm (Sat.)

1530 E 6th Street

Reno, NV 89512

Phone: (775) 322-5757

Fax: (775) 322-5776

Urgent Care

8:00 am - 5:00 pm (Mon. - Fri.)

Occupational Medicine

8:00 am - 5:00 pm (Mon. - Fri.)

CONCENTRA MEDICAL CENTERS WITH URGENT CARE

LAKESWOOD, COLORADO

770 Simms Street
Suite 100
Golden, CO 80401
Phone: (303) 239-6060
Fax: (303) 239-6046
After-hours: (303) 370-0454

Urgent Care
8:00 am - 5:00 pm (Mon. - Fri.)

Occupational Medicine
8:00 am - 5:00 pm (Mon. - Fri.)

1212 S Broadway
Suite 150
Denver, CO 80210
Phone: (303) 777-2777
Fax: (303) 871-0218
After-hours: (303) 370-0454

Urgent Care
7:00 am - 5:00 pm (Mon. - Fri.)

Occupational Medicine
7:00 am - 5:00 pm (Mon. - Fri.)

1730 Blake Street
Suite 100
Denver, CO 80202
Phone: (303) 296-2273
Fax: (303) 296-8330
After-hours: (303) 370-0454

Urgent Care
10:00 am - 8:00 pm (Mon. - Fri.)
9:00 am - 1:00 pm (Sat. - Sun. – Hol)
Occupational Medicine
8:00 am - 8:00 pm (Mon. - Fri.)
9:00 am - 1:00 pm (Sat. - Sun.)

20 W Dry Creek Circle
Suite 100
Littleton, CO 80120
Phone: (303) 798-1009
Fax: (303) 798-1324
After-hours: (303) 370-0454

Urgent Care
8:00 am - 5:00 pm (Mon. - Fri.)

Occupational Medicine
8:00 am - 5:00 pm (Mon. - Fri.)

CONCENTRA MEDICAL CENTERS WITH URGENT CARE

BEAVERTON, OREGON

Lake Oswego

6405 SW Rosewood

Suite B

Lake Oswego, OR 97035

Phone: (503) 675-7603

Fax: (503) 675-7611

Urgent Care

7:00 am - 6:00 pm (Mon. - Fri.)

Tanasbourne

2225 NW Towncenter Drive

Beaverton, OR 97006

Phone: (503) 726-1021

Fax: (503) 726-1039

Urgent Care

7:00 am - 7:00 pm (Mon. - Fri.)

8:00 am – 5:00 pm (Sat)

10:00 am - 5:00 pm (Sun)

ZONGE INTERNATIONAL, INC. OFFICES

Website: www.zonge.com

Phone: (800) 523-9913 (USA & Canada)

Arizona

Headquarters: Scott Urquhart, President, Managing Geophysicist

3322 E. Fort Lowell Road, Tucson, AZ 85716

Phone: (520) 327-5501 - Fax: (520) 325-1588

E-mail: scott.urquhart@zonge.com

Alaska

Private Office: Scott MacInnes, Ph.D., Senior Geophysicist

37029 Denise Lake Drive, Soldotna, AK 99669

Phone: (907) 262-5072 Fax: (907) 262-5072

E-mail: scott.macinnes@zonge.com

Colorado

Office: Phil Sirles, Managing Geophysicist

7721 West 6th Ave., Suite G, Lakewood, CO 80214

Phone: (720) 962-4444 Fax: (720) 962-0417

E-mail: phil.sirles@zonge.com

Nevada

Office: Chester (Chet) S. Lide, Managing Geophysicist

9595 Prototype Court, Reno, NV 89521

Phone: (775) 355-7707 Fax: (775) 355-9144

E-mail: chet.lide@zonge.com

Oregon

Office: J. B. Shawver, Managing Geophysicist

Parkside Business Center, 8366 SW Nimbus Ave, Beaverton, OR 97008

Phone: (503) 992-6723 Fax: (503) 746-7094

E-mail: jb.shawver@zonge.com

ZONGE MANAGEMENT STAFF

Tucson, Arizona

Scott Urquhart	Managing Geophysicist, President
Norman Carlson	Chief Geophysicist, Safety Coordinator
Emmett Van Reed	Program Geophysicist, Mexico Operations
Wayne Glembin	Chief Financial Officer
Kent Pace	Senior Accountant
Bernice Bennett	Office Manager, Safety Compliance, H.R.
Antonio Torres	Manufacturing Manager
David Baum	R&D Manager
Bill Graves	R&D Design Engineer, Software

Lakewood, Colorado

Philip Sirles	Managing Geophysicist
David Butler	Program Geophysicist
Todd Meglich	Senior Geophysicist

Reno, Nevada

Chester Lide	Managing Geophysicist
Kambiz Moezzi	Sr. Field Operations Coordinator
Joy Linebarger	Office Manager

Soldotna, Alaska

Scott MacInnes, Ph.D.	Senior Geophysicist
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Beaverton, Oregon

J.B. Shawver	Managing Geophysicist
Rowland French	Program Geophysicist
Suzanne Malick	Office Administrator

MANAGEMENT / SUPERVISOR RESPONSIBILITIES

The Safety of our employees, clients and the general public will be the first consideration in the performance of our work. Safety cannot be compromised. Every reasonable method and procedure to keep our employees safe will be utilized.

In order to carry out our Safety Policy Program the management and all supervisors will be responsible for the following:

- Providing each employee with a copy of this document and making sure that any questions regarding the safety program are addressed.
- Ensuring that all workers are familiar with and follow the Company Safety Program including working with hazardous materials and safe job site work procedures.
- Providing instructions on how to use personal protective equipment and first aid supplies.
- Ensuring that all of our employees are equipped with the correct tools, equipment and materials to do their job as safely as possible.
- Overseeing administration of MSHA, OSHA, HazWoper, First Aid, CPR, Driver's Safety and ATV classes, as well as any task-specific training requirements.
- Evaluating all work areas to eliminate or minimize hazards.
- Allocating time with field crew chiefs before commencing on any field job to address and identify potential risks to the crew and environment.
- Striving for improved safety methods, equipment and working techniques and adopting these as part of our safety program.
- Recognizing and addressing repeated and or serious safety violations.

EMPLOYEE'S RESPONSIBILITIES

For your protection and the protection of others, it is the responsibility of all employees to comply with all safety rules and guidelines set out by the company. Striving for improved safety methods, working techniques and equipment and adopting them as part of our safety program will benefit everyone.

Ask for clarification on health/safety issues that you are unclear on.

Report all accidents and work related illnesses, regardless of how small, immediately. Puncture wounds, cuts and scratches can become infected later on and need medical attention.

Every employee has the right to say "No" when he/she feels that a task they have been asked to do is not safe or that they feel they have not been adequately trained to safely perform their job.

- Keep good work habits and attitudes to help protect other employees and yourself.
- Treat all fellow employees, clients and visitors with respect.
- All employees are responsible for informing supervisors and co-workers of any severe allergies or medical conditions that they have that may need attention while working for Zonge. Advise co-workers of symptoms to be aware of, provide their written consent to know how to administer medication in the event you are unable to do so yourself. Always keep adequate amounts of your medicines on your person at all times.
- Make sure you are wearing approved hardhats when working in a location where you might be injured from falling objects or flying debris.
- Wear safety goggles to protect your eyes from particles and face shields when welding, soldering, sanding, using grinders, rock picks and working in dusty areas.
- Wear hearing protection whenever you are exposed to loud noise (*section G04*).
- Wear appropriate gloves and shoes/boots for the type of work you are doing. Break in new boots before the field season to prevent blisters.
- Wear appropriate facemasks/respirators when working around chemicals and dust to protect your respiratory systems.
- Use an insect repellent preferably containing DEET to protect yourself from insect bites when working in the field.
- It is your responsibility to wear sunglasses, hats and sunscreen and appropriate clothing when working in the field to protect yourself from ultra violet sun rays.
- Always walk-do not run, watch where you are going.
- Horseplay and practical jokes are not allowed.

COMPANY VEHICLES

Use of Company vehicles:

- Before using a truck we require the crew chief or designated driver check the vehicle for the basic operations such as brakes, headlights, turn signals, brake lights, seat belts, condition of fan belts, etc., as well as cleanliness of the interior and exterior. Check list forms are available for everyone to use.
- All vehicles must be signed OUT and IN by a Zonge International employee.
- Company vehicles are to be used for company business only. (See below).
- Company vehicles may be used for limited personal business with permission.
- No Company vehicle shall be driven while under the influence of alcohol or any controlled substance. **Zonge has 0.00 percent legal limit drug and alcohol tolerance.**
- A DUI conviction while driving a company vehicle is grounds for termination.
- Company vehicles are a lifeline for most of our jobs. We must have vehicles in good working order and responsible drivers.
- When using company vehicles, please remember that they are provided for you to use, not abuse. When traveling in particularly brushy or rough terrain where the risk of vehicle damage is likely, please exercise common sense and appropriate judgment. If faced with a situation where vehicle damage may likely occur, ask yourself if you would feel comfortable operating your personal vehicle there. If the answer is no, then why would you risk damaging a company vehicle?
- Crew Chiefs will ultimately be held responsible and accountable for vehicle damages that may occur during a job. If vehicles are returned from a job with damage resulting from poor judgment or negligence, the crew chief may be subject to forfeiture of a portion of, or all production bonus monies associated with that job. As an employee-owned company, the burden of vehicle and equipment repair costs is borne by everyone in the organization.

EMERGENCY RESPONSE PLAN

EMERGENCY RESPONSE PLAN

A. TYPES OF EMERGENCIES CONSIDERED WORK RELATED;

- Any physical injury
- Minor Accidents (slips, falls, strains).
- Medical Problems (heat stress, heart attack).
- Serious Injuries (cave-ins, head injuries, electric shock).

Chemical Exposure Related:

- Burns from Inhalation of Chemicals.
- Symptoms of Over-Exposure.
- Suspected Over-Exposure.

Environmental / Other Hazards

- Spills and Release of Hazardous Materials (air, soil, water).
- Adverse Chemical Reactions/Threat of Releases.
- Fire and Explosion.
- Discovery of Hazardous Material/Radioactive Material.

B. ON-SITE RESPONSIBLE PERSON:

1. An on-site Emergency Response Coordinator **must be** designated and documented in Crew Chief notes.
2. This person is responsible for:
 - Preparation/review of emergency response plan.
 - Training of site personnel.
 - Designation of an alternate.
 - Taking charge in an emergency.
 - Notification of off-site emergency response contacts.

C. EMERGENCY SIGNAL

An emergency signal should be designated at each site. For example, three blasts on a vehicle horn. This signal should be sounded by anyone witnessing an emergency. Field radios, if they are being used, are another effective means to alert others to an emergency condition. Use whatever available methods will reach crew members, and other people working nearby.

EMERGENCY PROCEDURES

1. Standard Emergency Procedures should be developed by the Company and followed by all Personnel.
2. Typical Format:
 - Alarm Signaled.
 - Rescue or First Aid to commence, if necessary.
 - Stop work safely.
 - Gather at pre-arranged meeting point (up-wind of project work area)
 - Emergency Coordinator accounts for all personnel; assigns duties.
 - Emergency Coordinator makes decisions regarding notification of off-site assistance.
 - Emergency Coordinator gives all clear back to work order.
 - Emergency Coordinator responsible for routine reports and follow up.

INJURY INVESTIGATION CHECKLIST

I. SECURE SCENE

- a. To prevent further injury or damage.
- b. To preserve evidence.

II. PERISHABLE OR TRANSIENT PHYSICAL EVIDENCE

- a. Examine immediately.
- b. Photograph completely.
- c. Record position with sketch.

III. INTERVIEW WITNESSES (principle persons involved)

- a. Injured person.
- b. Co-workers.
- c. Job related persons.
 - 1) Field Personnel
 - 2) Equipment operators
- d. Other witnesses.

IV. EXAMINE THE INJURY SCENE

- a. Reconstruct the occurrence.
 - 1) Have witnesses act out the sequence of events
 - 2) Photograph actors in key events
 - 3) Photograph entire scene before disturbing evidence
- b. Record technical data
 - 1) Equipment name, model, manufacturer, year, numbers
 - 2) Sketch and photograph dials, controls, etc.
- c. Cite violations of safety orders. State number and title.

V. DETERMINE THE RESULTS OF THE INCIDENT

- a. Injuries.
- b. Damage.
- c. Other losses.

VI. REPORT THE INJURY

- a. Who
- b. What happened
- c. When
- d. Where
- e. How

VII. DETERMINE THE IMMEDIATE CAUSES – WHY?

- a. Unsafe act – example:
 - 1) Overriding safety devices.
 - 2) Horseplay.
 - 3) Ignoring safety rules.
- b. Unsafe conditions – example:
 - 1) Wet floors.
 - 2) Poor lighting.
 - 3) Clutter.

VIII. DETERMINE THE UNDERLYING CAUSES – WHY?

- a. Management issues
 - 1) Awareness of safety.
 - 2) Support of safety.
 - 3) Inadequate purchasing.
 - 4) Poor maintenance.
 - 5) Poor job design.
- b. Supervisor safety performance
 - 1) Inadequate training.
 - 2) Inadequate procedures.
 - 3) Lack of enforcement.
 - 4) Motivation.
- c. Employee factors
 - 1) Physical or mental problems.
 - 2) Lack of skills.
 - 3) Improper motivation.

IX. ACTION PLAN FOR CORRECTIONS

NOTE: RELEVANT FORMS ARE INCLUDED IN THE FORMS APPENDIX AT THE END OF THIS DOCUMENT.

INTERNATIONAL TRAVEL

INTERNATIONAL TRAVEL

Zonge International is an international company and many employees will be asked to travel while employed with us. International trips may be for conventions, field work or for training clients in the use of our equipment and software. Zonge carries a full spectrum of insurance programs to help with your traveling, including international workman's compensation, Executive Travel Assistance, and Kidnap and Extortion coverage. Effective security precautions require a continuous and conscious awareness of your environment. This is especially true when visiting a foreign country where it may be necessary to adapt to new cultures, customs, and laws which, in many instances are very different from those to which Americans are accustomed in the United States.

The information below will help to familiarize you with personal security guidelines for traveling overseas. The potential hazards and vulnerabilities that are inherent in protecting/ carrying sensitive or proprietary information while traveling are described, as are surveillance and/or targeting recognition, personal conduct abroad, hostage/ hijacking survival and fire safety.

There are several scenarios to traveling abroad that are addressed: first the actual getting from point A to B: second, the airport: third, the hotel or temporary quarters: fourth, traveling within a foreign country: and lastly the office or work place. Each of these five situations presents different potential security problems.

The most effective means of protecting yourself and your property is through liberal use of common sense reinforced with a high state of security awareness. Do not give anyone the opportunity to exploit your vulnerabilities. Stay alert and exercise good judgment. All employees who travel should carry with them the Travelers Global Companion (FrontierMEDEX) card with phone numbers and contacts (see your Human Resources personnel). Before you travel call the numbers listed with Global or visit the ASI Global Kidnap and Ransom web site for up to date information on what might be happening in the country to which you are traveling,. These groups provide us with Emergency medical, personal, legal and travel services, emergency medical evacuation or repatriation services, and emergency political evacuation or repatriation services. They offer 24 hour access while traveling worldwide.

Travelers Global Companion (FrontierMEDEX) ID #: 314751

Policy Number: ZPP-13T89593-12-GB

Internet: www.frontiermedex.com

E-mail: operations@frontiermedex.com

Phone: 800-927-6139 or Worldwide 410-453-6330 (Collect)
800-9276-1390 (dial appropriate country's AT&T Access Code)

Kidnap and Extortion for Ransom

ASI Internet: www.asiglobalresponse.com (look at the ASI Global K&R Watch and ASI Kidnap & Ransom Threat Map)

ASI E-mail: responders@asiglobalresponse.com

Phone: 713-918-6401

TRAVEL PREPARATION AND PLANNING

DO NOT publicize your travel plans: limit that knowledge to those who need to know. Leave a full itinerary of your travel schedule, hotel phone numbers and addresses, and business appointments with the front office and with a family member or friend.

Make photocopies of your passport, visa and other important documents with which you will be traveling. Put copies in both your carry on and checked luggage. This makes it easier to replace your identification documents should anything happen. You should also make sure that a copy is given to your front office and someone at your home. Some countries will require a visa and some will not, depending on your stay and what you will be doing while there. Some countries are also sensitive to which visa you obtain. If you are traveling on business, a business visa should be obtained. If you will be performing work while there, a work visa will be needed. In some countries, falsifying information on a visa application can result in an unexpected vacation with the local police so be very careful when obtaining your visa.

Take plenty of any prescription medication with you, as well as an extra set of eyeglasses or contact lenses. Also take a copy of your prescription should you need to have glasses, contacts or medication replaced. Keep an inoculation record and update it before each trip as each country has different requirements. Carry with you a list with your blood type, allergies, medical conditions and special requirements. It is a good idea to have a medical alert bracelet if you have a special medical condition.

Does the country to be visited require any specific inoculations? This information is available from the embassy or consulate and may also be found in the Travelers Global Companion (FrontierMEDEX) and ASI Global Kidnap and Ransom web sites. Be sure to carry your international shot record, just in case. Remember many hospitals in foreign countries do not take credit cards and most will not honor U.S. based medical insurance plans.

Keep your personal affairs up to date. If possible, leave a power of attorney with a family member or friend should anything happen to you.

Before you go, do research on the country to which you will be traveling. Check with the U.S. State Department, Bureau of Consular Affairs for any travel warnings, banned materials or other conditions that you should be aware of.

Carry only the documents you will need. Take only the credit cards you plan to use on your trip. Do not carry large amounts of cash. Criminals often watch for and target international travelers purchasing large amounts of foreign currency at airports, banks and currency exchange windows. Leave expensive jewelry at home.

If you plan to rent a car, check to see if you must obtain an international drivers permit for the country you plan to visit.

DO NOT pack sensitive or proprietary information in your checked luggage. Double

envelope the material and hand carry it. Use sturdy luggage and do not over pack. Be sure that your luggage is tagged with covered tags that protect your address from open observation. Put your name and address inside each piece of luggage and be sure that all luggage is locked or secured in some fashion. For added security on all luggage, run a strip of nylon filament tape around the case to preclude its opening accidentally if dropped or mistreated by baggage handlers. Do not pack extra glasses or necessary daily medication in your luggage. Carry it in your briefcase, purse or pocket. If your luggage is lost, stolen or you are a victim of a crime you may not be able to recover your luggage for some time. Never place valuables in your checked luggage (jewelry, money, credit cards, traveler's cheques). Never leave your bags unattended.

Try to book non-stop flights as those have fewer takeoffs and landings. Choose an airline with a good safety and on-time record. Try to make your stopovers in airports that have a high security standard and good security screening.

AIRPORT

To diminish the risks of becoming an innocent bystander victim of a terrorist attack and reduce your exposure to the criminal threat, there are a number of things that you should remember when checking into an airport.

In the event of a disturbance of any kind, go in the opposite direction. **DO NOT GET INVOLVED.**

Plan to check-in early for your flight to avoid long lines at the ticket counter. Go directly to the gate or secure area after checking your luggage. (Secure zone – area between security/immigration and the departure gate.)

Avoid waiting rooms and shopping areas outside the secure areas.

Know what items you are carrying and be able to describe any/all electrical items.

When going through the pre-board screening process cooperate with security personnel and remember that they are there to help ensure that your travel is safe. If a conflict should arise while undergoing the screening process, cooperate. Obtain the names of the screeners involved, and then discuss the matter with a supervisor from the appropriate air carrier.

Eat moderately, avoid alcoholic beverages and drink plenty of water as this will help to avoid dehydration. If possible, before you leave make an effort to adjust your sleep patterns. Sleep as much as possible during the flight. Carry air sickness medication with you. Even the best traveler sometimes experiences air sickness.

HOTEL

When traveling abroad especially in politically sensitive areas, make reservations using Zonge's street address and your name. If you will be arriving after 6:00 P.M., ensure that the reservations are guaranteed. Do not linger or wander unnecessarily in the parking lot, indoor garage or public space around the hotel. Be alert for suspicious persons and behavior. Watch for distractions that are intentionally staged to setup a pickpocket, luggage theft or purse snatch. Always ask where the nearest fire stairwell is located. Make a mental note which direction you must turn and approximately how many steps there are to the closest fire stairwell. In the event of a fire, there is frequently dense smoke and no lighting. Observe where the nearest house telephone is located in case of an emergency. Keep your hotel room key with you at all times. Keep your passport with you at all times, do not leave them in your room. While in your room keep the door closed and engage the dead bolt and privacy latch or chain. Avoid engaging persons who you do not know and refrain from inviting them to your room.

THE FOREIGN WORK PLACE

Safeguards should also be taken at your job site. Safeguard all sensitive or proprietary papers and documents. Do not leave them lying around in the office or on top of a desk.

Guard your conversations so that unauthorized personnel are not able to eavesdrop on discussions pertaining to proprietary information, personnel issues or management planning or problems. In many countries employees are debriefed by the local intelligence or security services in an effort to learn as much as possible about activities of American companies and their personnel.

Be careful of all communications. Be aware that the monitoring of telephone, telegraph and international mail is not uncommon in some countries.

DRIVING ABROAD

Check the laws before you drive in any country. Some countries have a minimum and maximum driving age. Always "buckle up", some countries penalize violators. If you rent a car, always purchase the liability insurance. If you do not, this could lead to financial disaster. If you can obtain a copy of driving rules for the country you are in, do so before you begin to drive. Some countries drive on the opposite side of the road than in the U.S., practice driving in a less populated area before attempting to drive during the heavy traffic part of the day. Be aware of the countryside you will be driving in. Many countries require you to honk your horn before going around a sharp corner or to flash your lights before passing. Find out before you start your journey who has the right of way in a traffic circle. Always know the route you will be traveling. Have a copy of a good road map, and chart your course before beginning. **DO NOT** pick up hitchhikers or strangers. When entering your vehicle, be aware of your surroundings.

PERSONAL CONDUCT OVERSEAS

Here are some DO NOT's to remember, to minimize the possibility of you doing something inadvertent that would bring your activities to special attention:

- DO NOT do anything which might be construed or reflect poorly on your personal judgment, professional demeanor, or embarrassing to you and/or your company.
- DO NOT gossip about character flaws, financial problems, emotional relationships or marital difficulties of anyone working for the company, including yourself. This type of information is eagerly sought after by those who would like to exploit you or another employee.
- DO NOT let a friendly ambiance and alcohol override your good sense and capacity when it comes to social drinking. In some countries, heavy drinking in the form of toasting is quite common, and very few westerners can keep up with a local national when it comes to drinking the national brew. An intoxicated or hung over business negotiator could, if they are not careful, prove to be very embarrassing to themselves and expensive to the company. In these situations, prudence is essential.
- DO NOT engage in any type of political or religious activity, or carry any political or religious tracts or brochures, or publications likely to be offensive in the host country, such as pornography, or mercenary / weapons.
- DO NOT photograph anything that appears to be associated with the military or international security of a country, including airports, ports, or restricted areas such as military installations. If in doubt, DO NOT.
- DO NOT purchase items that are illegal to import such as endangered species or agricultural products.

WHAT TO DO IF ARRESTED

Foreign police and intelligence agencies detain persons for a myriad of reasons, or for no other reason than suspicion or curiosity. The best advice is to exercise good judgment, be professional in your demeanor and remember the suggestions and hints that are listed above. But, if you are detained or arrested for some reason, here are some points to remember.

Ask to contact the nearest embassy or consulate representing your country. As a citizen of another country, you have this right: but that does not mean that your hosts will allow you to exercise that right. If you are refused or just ignored, continue to make the request periodically until they allow you to contact your embassy or consulate.

Stay calm, maintain your dignity and do not provoke the arresting officer(s).

DO NOT admit anything or volunteer any information.

DO NOT sign anything. Often, part of the detention procedure is to ask or tell the detainee to sign a written report. Decline politely until such time as the document is examined by an attorney or an embassy/consulate representative.

DO NOT accept anyone on face value. When the representative from the embassy or consulate arrives, request some identification before discussing your situation.

DO NOT fall for the ruse of helping the ones who are detaining you in return for your release. They can be very imaginative in their proposals on how you can be of assistance to them. Do not sell yourself out by agreeing to anything. If they will not take no for an answer, do not make a firm commitment or sign anything. Tell them that you will think it over and let them know. Once out of their hands, contact the affiliate or your embassy for protection and assistance in getting out of the country.

TARGETING RECOGNITION

Any person traveling abroad on business should be aware that they could be targeted by an intelligence agency, security service or, for that matter, a competitor if they are knowledgeable of, or carrying, sensitive or proprietary information. In the course of doing business abroad, there are certain indicators that may occur which should be recognized as potential hazards and indicative of unwarranted interest in your activities. These situations should be closely scrutinized and avoided if at all possible.

Repeated contacts with a local or third country national who is not involved in your business interests or the purpose of your visit, but as a result of invitations to social or business functions, appears at each function. This individual's demeanor may indicate more than just a passing interest in you and your business activities.

A close personal social relationship with a foreign national of a hostile host government is often unavoidable for business reasons. In these instances, be cautious and do not allow the relationship to develop any further than the strictly business level.

Be suspicious of the accidental encounter with an unknown local national who strikes up a conversation and wants to:

- “Practice English” or other language,
- Talk about your country of origin or your employment,
- Buy you a drink because they have taken a liking to you,
- Talk to you about politics, or
- Use a myriad of other excuses to begin a “friendly” relationship.

If any of the above or anything else occurs which just does not ring true, BE SUSPICIOUS!! It may be innocent but, exercise prudence and good judgment.

SURVEILLANCE RECOGNITION

The subject of surveillance is extremely important to anyone conducting business abroad. Surveillance could be indicative of targeting for reasons other than interest by a foreign intelligence or security service. Terrorists and criminals also use surveillance for operational preparation prior to committing other terrorist or criminal acts. However, the normal business traveler who only spends a few days in each city and has a low profile is not really a viable target for terrorists and the risk is very low.

The real terrorist threat to a traveler is that of being at the wrong place at the wrong time and becoming an inadvertent victim of a terrorist act. Surveillance takes many forms, from static, such as an observer physically or electronically watching or monitoring your activities in your hotel room or office, to mobile surveillance where the individual being watched is actually followed either on foot or by vehicle.

There is only one way to recognize surveillance, be ALERT to your surroundings. As a traveler, you probably will not be at any one location long enough to know the norm is in your surroundings, and this puts you at a disadvantage. You will not realize that the person sitting in the car across the street is a stranger and should not be there, whereas a resident would immediately become suspicious. Be observant and pay attention to your sixth sense. If you get a funny feeling that something is not right or that you are being watched, PAY ATTENTION. That sixth sense is telling you something, and more often than not it will be right.

In any event, report your suspicions or any information to the general manager of the local affiliate or your embassy or consulate just in case something does occur. The most important thing you should do is make sure that your demeanor is professional and everything you do is above board and not subject to compromise. Do not try to slip away or lose the followers as this will probably alert them and belie the fact that you are just a business person going about your business. In your hotel room, assume that the room and telephone are being monitored. DO NOT try to play investigator and start looking for electronic listening devices. This again could send the wrong signals to the surveillance. Just make sure that you do not say or do anything in your hotel room that you would not want to see printed on the front page of a newspaper.

HOSTAGE SURVIVAL

Any traveler could become a hostage. The odds of that happening are extremely low when the number of travelers is compared to the number of people that have actually become a hostage. However, there is always that slim chance that you could end up being in the wrong place at the wrong time. With this in mind, you should make sure that your affairs are in order before traveling abroad. Items of particular importance to an individual in a hostage situation are an up-to-date will, insurance policy and power of attorney for the spouse. If these items have been taken care of before departure, the

employee will not have to worry about the family's welfare and the hostage can focus all of his/her efforts on the one thing of paramount importance and that is SURVIVAL.

To survive, you should realize that there are certain dynamics involved in a hijacking or a kidnapping, and to increase your ability to survive, you must understand how these interacting forces affect the end result. Each individual involved in an incident of this type will have an impact on the eventual outcome. One wrong move by either a victim or a perpetrator could easily result in a disaster rather than a peaceful conclusion to the incident.

Everyone involved will be in the same emotional state, including the perpetrators. Fear can trigger a disaster, and it does not take much for some individuals to set off a defensive spate of violence. Whether it is a demonstration of violence to reinforce a demand or to incite fear in the minds of hostages, the violence will be motivated by fanaticism and/or fear and violence will be directed at the person(s) who are perceived to be a threat or a nuisance to the hijackers.

Hijacking of an aircraft may be characterized by noise, commotion, and possibly shooting and yelling, or it may be quiet and methodical with little more than an announcement by a crew member. The first few minutes of the hijacking are crucial. Stay calm, and encourage others around you to do the same. Remember that the hijackers are extremely nervous and are possibly scared. Comply with your captors(s) directions. If shooting occurs, keep your head down or drop to the floor. Remain alert.

Once the takeover of the aircraft has occurred, you may be separated by citizenship, sex, race, etc. Your passport may be confiscated and your carry-on luggage ransacked. The aircraft may be diverted to another country. The hijackers may enter into a negotiation phase which could last indefinitely and/or the crew may be forced to fly the aircraft to yet another destination. During this phase passengers may be used as a bargaining tool in negotiations, lives may be threatened, or a number of passengers may be leased in exchange for fuels, landing/departure rights, food, etc. This will be the longest phase of the hijacking. Prepare yourself mentally and emotionally for a long ordeal. Do not attempt to hide your passport or belongings. If addressed by the hijackers, respond in a regulated tone of voice. Use your time wisely by observing the characteristics and behavior of the hijackers, mentally attach nicknames to each one and notice their dress, facial features and temperaments. If you are singled out by the hijackers, be responsive but do not volunteer information.

The characteristics of a hostage rescue force introduction into the aircraft will be similar to the hijacker's takeover- noise, chaos, possibly shooting – the rescue force is re-taking control of the aircraft. Cooperate with local authorities and members for the U.S. Embassy, Consulate or other U.S. Agencies in relating information about the hijacking.

KIDNAPPING

Kidnapping can take place in public areas where someone may quietly force you, by gunpoint, into a vehicle. They can also take place at a hotel or residence or on the road, again by using a weapon to force your cooperation in leaving the premises or following them in your vehicle. The initial phase of kidnapping is a critical one because it provides one of the best opportunities to escape.

If you are in a public area at the time of the abduction, make as much commotion as possible to draw attention to the situation. If the abduction takes place at your hotel room, make noise, attempt to arouse the suspicion or concern of hotel employees or those in neighboring rooms. Minimally, the fact that an abduction has taken place will be brought to the attention of authorities and the process of notification and search can begin. Otherwise, it could be hours or days before your absence is reported. Again this is why it is very important that you stay in constant contact (at least once a day) with your office by email or phone calls when possible.

If you are forced into a vehicle, you may be blindfolded, physically attacked (to cause unconsciousness), drugged or forced to lie face down on the floor of the vehicle. In some instances, hostages have been forced into trunks or specially built compartments for transporting contraband.

Do not struggle in your confined state, calm yourself mentally, and concentrate on surviving. Employ your mind by attempting to visualize the route being taken, take notes of turns, street noises, smells, land marks (if you are blindfolded) and your general surroundings. Try to keep track of the amount of time spent between points.

Once you have arrived at your destination, you will be placed in a temporary holding area before being moved again to a more permanent detention site. If you are interrogated retain a sense of pride but be cooperative. Divulge only information that cannot be used against you. Do not antagonize your interrogator with obstinate behavior. Concentrate on surviving, if you are being used as a bargaining tool or to obtain ransom, you will be kept alive. Again be observant. Notice details of the room or area around you, the sounds of activity in the building or country side. Listen for sounds through walls, windows or out in the streets and try to distinguish between smells. Devise a way to track the day, date and the time, and use it to devise a daily schedule of activities for you and your captors. Memorize their schedule, look for patterns of behavior to be used to your advantage and identify weaknesses or vulnerabilities. Use all of the above information to seek opportunities to escape.

Remain cooperative. Attempt to establish rapport with your captors or guards. Once a level of communication is achieved, try asking for items which will increase your personal comfort. Make them aware of your needs. Stay physically active, even if your movement is extremely limited. Use isometric and flexing exercises to keep your muscles toned. You should try to establish a friendly rapport with your captors, but

maintain your personal dignity and do not compromise your integrity.

If you are able to escape, attempt to get first to a U.S. Embassy or Consulate to seek protection. If you cannot reach either, go to a host government or friendly government entity.

CONCLUSIONS

Business travel is hard work and one of the most stressful aspects of your job. The running, waiting, and anxiety associated with travel can take its toll on the mind and body. Add an unfamiliar location, a foreign language, and different culture to the situation and you have the potential for all sorts of problems. The keys to safe travel are planning and sound security practices. Proper planning ensures your logistical plan is in place and you have the necessary background information to support your itinerary. Incorporate sound security practices into your travel routine and communication with your host and home office.

**SAFETY / HAZARD /
ENVIRONMENTAL MANUAL**

SAFETY / HAZARD / ENVIRONMENTAL MANUAL

The objective of our Safety program is to provide safe working environments for our employees in order to eliminate personal injury and to minimize property and equipment damage.

The safety of all personnel whether working in the field, in manufacturing, or in the office is of utmost importance. We ask all of you for your full cooperation in making this Safety Program work.

Safety manuals will be provided to all employees with the intention of increasing safety awareness and listing company safety regulations that affect our daily work.

Safe production is efficient production, therefore, benefiting all of us both physically and financially.

This Safety Policy is based on the idea that each one of us is directly responsible for his/her safety and that of fellow employees.

It is important that every employee remembers that we will comply with all Company, Client, State, Federal, and local laws pertaining to safety.

Every employee's safety record will be considered in his/her review of overall work performance, as safety is an essential part of the employee's work ability.

A signature page is enclosed to verify that each employee has read and understands the contents of this Safety Manual. By signing this page, the employee is agreeing to comply with the safety guidelines set forth in the manual. A copy of the signature page will be filed in each employee's personnel file.

NOTE: ALL FORMS AND CHECKLISTS ARE INCLUDED IN THE FORMS APPENDIX AT THE END OF THIS DOCUMENT.

ZONGE SUBSTANCE ABUSE POLICY

1. PURPOSE OF POLICY.

Zonge International Inc. believes that it is important to promote a drug-free community, to maintain safe, healthy and efficient operations, and to protect the safety and security of our employees, facilities, and property. Drugs or alcohol may pose serious risks to the user and all those who work with the user. In addition, the use, possession, sale, transfer, manufacture, distribution, and dispensation of alcohol or illegal drugs in the workplace pose unacceptable risks to the maintenance of a safe and healthy workplace and to the security of Zonge International Inc. employees, facilities, and property. Substance abuse, while at work or otherwise, seriously endangers the safety of employees, as well as the general public, and creates a variety of workplace problems, including increased injuries on the job, increased absenteeism, increased health care and benefit costs, increased theft, decreased morale, decreased productivity, and a decline in the quality of products and services provided by Zonge International Inc.. For all of those reasons, Zonge International Inc. has established this Substance Abuse Policy.

This Policy and acknowledgment is not intended to and does not constitute a contract of employment with Zonge International Inc. Your employment with Zonge International Inc. is “at will,” and either you or Zonge International Inc. may terminate your employment with Zonge International Inc. at any time, and for any or no reason. No supervisor or manager has any authority to make any statements or representations to you that change or conflict with the at-will status of your employment with Zonge International Inc., or that change or conflict with any of the provisions of this Policy. The at-will status of your employment with Zonge International Inc. can be modified only by an express written agreement signed by the general manager of Zonge International Inc..

This Policy supersedes and revokes all previous practices, procedures, policies, and other statements of Zonge International Inc., whether written or oral, that modify, supplement, or conflict with the Policy. This Policy may be amended at any time.

2. SCOPE OF POLICY.

This Policy applies to all Zonge International Inc. employees, including management, administration, and temporary employees, and to all applicants who have received conditional offers of employment with Zonge International Inc.. This Policy also applies to all employees of Zonge International Inc. contractors who are performing services on Zonge International property, or who are operating Zonge International Inc. equipment, machinery, or vehicles. Such employees of contractors are considered “employees” within the meaning of this Policy.

3. DISSEMINATION OF POLICY.

- A.** All employees will receive a copy of this Policy, and will be required to sign an appropriate acknowledgment and receipt.
- B.** All applicants who have received conditional offers of employment with Zonge International Inc. will be required to read this Policy and will be required to sign an appropriate acknowledgment and receipt.

4. DEFINITIONS.

A. Illegal Drugs.

“Illegal drugs” means any controlled substance listed in schedules I through V of the federal Controlled Substances Act (21 U.S.C. § 812), medication, or other chemical substance that (1) is not legally obtainable; or (2) is legally obtainable, but is not legally obtained, is not being used legally, or is not being used for the purpose(s) for which it was prescribed or, in the case of an over-the-counter medication, intended by the manufacturer. Thus, “illegal drugs” may include prescription drugs that are obtained illegally, or which are obtained legally but are being used in a manner not prescribed by the employee’s healthcare provider. They also include over-the-counter medications that are being abused or not being used for the purpose(s) for which they were intended by the manufacturer.

B. Legal Drugs.

"Legal Drugs” means prescribed or over-the-counter drugs that are legally obtained by the employee and used for the purpose(s) for which they were prescribed, or in the case of over-the-counter medications, intended by the manufacturer.

The Arizona Medical Marijuana Act (the “Act”) recognizes marijuana, if obtained in certain limited amounts and used for authorized medical purposes, is a legal drug. This Policy is intended to follow the requirements of the Act. However, even if an employee’s use of marijuana may be otherwise permissible under the Act, the smoking or consumption of marijuana on or in Zonge International Inc. property, equipment, machinery, and vehicles or while on duty is strictly prohibited under this Policy. Also, notwithstanding otherwise permissible use of marijuana under the Act, being under the influence of marijuana while on or in Zonge International Inc. property, equipment, machinery, and vehicles or while on duty is strictly prohibited. Being under the influence of Marijuana means that the employee has levels of delta-9-tetrahydrocannabinol (“THC”) in his system sufficient to interfere with the employee’s duties or pose a danger to the employee or to others.

C. Zonge International Inc. Property.

“Zonge International Inc. property” and “Zonge International Inc. equipment, machinery, and vehicles” means all property, equipment, machinery, and vehicles owned, leased, rented, or used by Zonge International Inc..

D. On Duty.

“On duty” means all working hours, as well as meal periods and break periods, regardless of whether on Zonge International Inc. property, and all hours when an employee represents Zonge International Inc. in any capacity.

5. WORK RULES.

A. Substance Abuse by Employees

1. Alcohol.

Except for those employees entrusted with, and while engaging in, the lawful sale or distribution of alcoholic beverages to Zonge International Inc. guests, employees may not possess, sell, or transfer alcohol while on duty or while working on Zonge International Inc. property.

Employees may not consume or be under the influence of alcohol, or have detectable levels of alcohol in their systems, while on duty, including while working on Zonge International Inc. property, or while operating Zonge International Inc. equipment, machinery, or vehicles.

Employees who violate either of these rules will be subject to discipline, up to and including immediate discharge. Zonge International Inc. may make exceptions to these rules for certain business or social functions sponsored or approved by Zonge International Inc.

2. Illegal Drugs

Employees may not possess illegal drugs or engage in the illegal use of drugs while on duty, while working, while on Zonge International Inc. property, or while operating Zonge International Inc. equipment, machinery, or vehicles.

Employees may not work or report to work under the influence of illegal drugs or with detectable levels of illegal drugs or the metabolites of illegal drugs in their systems.

Employees may not manufacture, distribute, dispense, transfer or sell illegal drugs at any time, whether on or off duty.

Employees who violate any of these rules will be subject to discipline, up to and including immediate discharge.

3. Legal Drugs/Medication.

Any employee who has reason to believe that the legal use of drugs, such as a prescribed medication, may pose a safety risk to any person or interfere with the employee's performance of his or her job must report such legal drug use to his or her supervisor, or to human resources. Zonge International Inc. shall then determine whether any work restriction or limitation is indicated. Failure to report the legal use of a drug that may pose a safety risk to the employee or to others may result in disciplinary action.

B. Criminal Drug Convictions.

Employees are required to report to their immediate supervisor or to human resources any conviction of any crime involving the use, possession, sale or transport of illegal drugs within five days of such conviction. Zonge International Inc. may discipline or discharge, at its discretion, any employee who is convicted of any such crime while employed by Zonge International Inc..

C. Inspection Of Property, Equipment, And Vehicles.

All persons on Zonge International Inc. property or who are performing services on a Zonge International Inc. project, and all property, equipment, and vehicles on Zonge International Inc. property or being used in connection with the performance of work on a Zonge International Inc. project (including without limitation all vehicles, containers, desks, and file cabinets), are subject to unannounced inspection by Zonge International Inc.. You should not expect that any property or items that you bring to work with you, or that you use at work, are private or subject to any right of privacy. If you do not want any property or items inspected, do not bring them to work.

Employees who refuse to permit inspections under this Policy or who fail to cooperate with inspections under this Policy will be subject to discipline, up to and including immediate discharge.

6. DRUG AND ALCOHOL TESTING.

Zonge International Inc. may require employees and applicants to provide urine, blood, breath, and/or other samples for testing for the following substances:

- | | |
|-------------------------|--------------------|
| 1. Marijuana (THC); | 6. Barbiturate; |
| 2. Cocaine; | 7. Benzodiazepine; |
| 3. Opiate; | 8. Propoxyphene; |
| 4. Amphetamines; | 9. Methadone; |
| 5. Phencyclidine (PCP); | 10. Ethanol, |

Such testing may be conducted under any of the following circumstances:

A. Reasonable Suspicion Testing.

Zonge International Inc. may require any employee to undergo drug and alcohol testing if management has a reasonable suspicion that the employee has violated any provision of this Policy, including:

1. The use, possession, sale, or transfer of alcohol and/or illegal drugs while on duty, while working, while on Zonge International Inc. property, or while operating Zonge International Inc. equipment, machinery, or vehicles; or
2. Being under the influence of alcohol and/or illegal drugs while on duty, while working, while on Zonge International Inc. property, or while operating Zonge International Inc. equipment, machinery, or vehicles.

B. Post-Accident/Post-Injury Testing.

Zonge International Inc. requires any employee to undergo drug and alcohol testing within 24 hours of notification of a work-related accident or injury, if Zonge International Inc. reasonably believes that the employee may have contributed to the accident or injury and if the employee is treated at a medical facility.

C. Testing Required by Law or by Zonge International Inc. Clients.

Depending upon their specific job duties, certain employees may be subject to drug and alcohol testing under client requirements or state or federal regulations.

D. Random Testing.

Zonge International Inc. may conduct drug and/or alcohol testing of employees using a non-discriminatory random selection method.

E. Pre-Employment Testing.

Zonge International Inc. may require applicants for certain classifications within the company to undergo drug or alcohol testing as a condition of eligibility for employment or re-employment with Zonge International Inc.

F. Other Bases for Testing.

Zonge International Inc. also may require employees to undergo drug and alcohol testing when, in the judgment of management, such testing is appropriate for the maintenance of safety for employees, customers, clients, or the public at large, or for the maintenance of productivity, quality, or security of property or information.

7. SPECIMEN COLLECTION AND TESTING PROCEDURES.

A. SPECIMEN Collection Procedures.

1. Test Subject Privacy.

Appropriate professional personnel will supervise the collection of urine and blood specimens for testing. In the absence of a reasonable suspicion that the test subject will alter or substitute a urine specimen, the collection personnel typically will not directly observe the collection of the urine specimen.

2. Chain of Custody Procedures.

Zonge International Inc. will take steps to preserve the chain of custody of specimens, in order to ensure testing accuracy.

B. Specimen Testing Procedures.

Specimens will be tested only by laboratories that are properly approved to conduct drug and alcohol testing by the U.S. department of Health and Human Services (SAMHSA, formerly NIDA), the College of American Pathologists, or the Arizona Department of Health Services.

Specimens will be tested only for the presence of alcohol, or the substances (and their metabolites) described in this Policy.

Positive initial screening test results for employees will also be confirmed by gas chromatography/mass spectrometry or other appropriate methods of confirmatory analysis (“confirmatory test”).

C. Cost of Testing.

Zonge International Inc. will pay for any drug and alcohol test that it requests or requires of any employee.

D. Suspensions Pending Test Results.

Pending receipt of test results and written explanations of positive confirmatory test results, employees may be temporarily suspended. If an employee is suspended and the final confirmatory test result is negative, the employee will be reinstated immediately with full back pay.

E. Test Result Reports.

To the extent required and allowed by law, Zonge International, Inc. will communicate test results to test subjects. Any test subject may request a copy of his or her test result report.

8. CONFIDENTIALITY OF THE TEST RESULTS.

Zonge International Inc. will make reasonable attempts to keep the results of any positive drug or alcohol test confidential by releasing the test results only to authorized representatives and agents, and to the extent authorized by law.

9. CONSEQUENCES OF REFUSAL.

Employees may refuse to undergo drug and alcohol testing. However, employees who refuse to undergo testing or who fail to cooperate with the testing procedures will be subject to discipline, up to and including immediate discharge. Employees who refuse to undergo testing or who fail to cooperate with the testing procedures also may be disqualified from receiving unemployment compensation benefits and/or workers' compensation benefits, to the extent permitted by law.

10. CONFIRMED POSITIVE TEST RESULTS AND THE RIGHT TO EXPLAIN TEST RESULTS.

Minimum levels of any tested substance necessary to establish a confirmed positive test result shall be determined at the discretion of the Zonge International Inc. Any test subject who tests positive on a confirmatory test on any drug and/or alcohol test required by Zonge International Inc. may submit additional information to Zonge International Inc.'s Human Resources manager, in a confidential setting, to provide an explanation for the confirmed positive test result.

11. CONSEQUENCES OF CONFIRMED POSITIVE TEST RESULTS.

Any employee who tests positive on a confirmatory test on any drug or alcohol test required by Zonge International Inc. and does not timely and successfully explain the test results will be subject to appropriate disciplinary action, at the sole discretion of Zonge International Inc., up to and including immediate discharge. First time offenders shall be put on a 90 day probationary period during which time they may not work on job sites requiring drug screening. At the end of the 90 day period employee shall be required to retest. At that time it will again be at the sole discretion of Zonge International Inc's to remove the employee from probation or discharge the employee immediately.

Any employee who tests positive on a confirmatory test on any drug and/or alcohol test required by Zonge International Inc., does not timely and successfully explain the test results, and is discharged on the basis of the positive test result, may be disqualified from receiving unemployment compensation benefits. However, an employee who is terminated after failing a drug and/or alcohol test may be considered for rehire no less than six (6) months after termination, provided he or she successfully passes a pre-employment drug and alcohol test at the time of re-employment.

Any employee who tests positive on a confirmatory test on any drug and/or alcohol test required by Zonge International Inc. after a work-related accident or injury and does not timely and successfully explain the test results may be disqualified from receiving workers' compensation benefits in connection with the injury, to the extent permitted by law.

BLOOD BORNE PATHOGENS

The Danger of Blood borne Pathogens

Blood borne pathogens are organisms or viruses in human blood that can infect and cause disease. Other body fluids can also cause infection, including semen, vaginal secretions, saliva, and any other body fluid that is visibly contaminated with blood.

Who is at Risk

Anyone who may come in contact with blood or other bodily fluids is at risk. These individuals include anyone who may deliver first-response medical care and/or have potential blood/fluid exposure, such as health care providers, emergency-response workers, housekeeping staffers, police, firefighters and lifeguards.

How to Avoid Infection

To avoid infection and disease, practice a method called **Universal Precautions**, developed by the Center For Disease Control. This method assumes that all bodily fluids are potentially dangerous, and recommends the use of workplace safety precautions, as well as personal protective equipment that does not allow blood or other potentially infectious materials to pass through it to reach your work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes.

What to Wear

The types of personal protective equipment that are appropriate for a given task depend on the degree of exposure you anticipate:

- Gloves where blood, blood products or body fluids will be handled.
- Hypoallergenic gloves, glove liners or other alternatives for employees who are allergic to the standard gloves employers usually provide.
- Masks, eye protectors, and other face shields for procedures that could involve more extensive contact with blood or body fluids, including the risk of potential splash or splatter to the mucous membranes of the face (eyes, mouth, etc.)
- Pocket masks, resuscitation bags, mouthpieces, or other ventilation devices with a one-way valve used during resuscitation of a patient to minimize exposure. Keep these devices within easy reach whenever the need for resuscitation is likely.
- All safety kits shall contain the appropriate supplies.
- Gowns and long-sleeved garments that cover the forearms are required for times when blood or other potentially infectious materials are anticipated.

5 Ways to Protect Yourself

- Wash hands thoroughly after removing gloves and wash hands or any other part of your body with soap and water immediately after contact with blood or bodily fluids.

Use disposable needles and syringes whenever possible. **Do not recap, bend or cut contaminated needles.**

- Place contaminated, sharp instruments like needles and syringes in specially designated rigid, red leak-proof containers located as close as possible to the area where they are used. Handle and dispose of these instruments and containers with extraordinary care to prevent possible injury.
- Remove personal protective equipment and clothing before leaving your work area or when the garment becomes contaminated. If the garment is penetrated, remove it immediately or as soon as possible. Place used or contaminated items in the designated containers for storage, decontamination, or disposal.
- Never eat, drink, smoke, apply cosmetics, handle contact lenses, or apply lip balm in areas where there is any likelihood of exposure. Food and drink must never be kept in refrigerators, freezers, shelves, cabinets, or countertops where blood or other potentially infectious materials are present.

What is HIV/AIDS

HIV (Human Immunodeficiency Virus) is a virus that attacks the body's immune system and can eventually cause a disease known as AIDS (Acquired Immune Deficiency Syndrome).

How is HIV Transmitted? Blood borne pathogens such as HIV and HBV may be present in body fluids, primarily blood and semen. All body fluids and tissues should be regarded as potentially infectious and handled using universal precautions. HIV is primarily transmitted through sexual contact, needle sharing, and contact with contaminated blood or body fluids. It is **NOT** transmitted by touching or "causal contact" with a person who has HIV.

What is Hepatitis

Hepatitis is the inflammation of the liver. It can be caused by infectious agents, medications or toxins. There are several types of infectious hepatitis such as A, B, Non-A/Non-B, C and Delta. Hepatitis B presents the greatest risk to workers in the health care industry.

How is HBV Transmitted? HBV (Hepatitis B Virus) can be transmitted through sexual contact, needle sharing and exposure to contaminated blood or body fluids. The occupational risk of HBV infection directly relates to the extent of worker contact with infected blood/body fluids. Vaccination must be offered within 10 days of assignment to a job where exposure to blood or other potentially infectious materials can be "reasonably anticipated".

WORK EXPOSURE TO BODILY FLUIDS

Re: Human Immunodeficiency Virus (HIV)
Acquired Immune Deficiency Syndrome (AIDS) and Hepatitis C

Employees are notified that a claim may be made for a condition, infection, disease or disability involving or related to the Human Immunodeficiency Virus (HIV) or Acquired Immune Deficiency Syndrome (AIDS), or Hepatitis C within the provisions of the Arizona Workers Compensation Law, and the rules of The Industrial Commission of Arizona. Such a claim shall include the occurrence of a significant exposure at work, which generally means contact of an employee's ruptured or broken skin or mucous membrane with a person's blood, semen, vaginal fluid, or surgical fluid(s) containing blood. **AN EMPLOYEE MUST CONSULT A PHYSICIAN TO SUPPORT A CLAIM.** Claims cannot arise from sexual activity or illegal drug use.

Certain classes of employees may more easily establish a claim related to HIV or AIDS, or Hepatitis C if they meet the following requirements.

1. The employee's regular course of employment involves handling or exposure to blood, semen, vaginal fluid, surgical fluid(s) or any fluid(s) containing blood. Included in this category are health care providers, forensic laboratory workers, fire fighters, law enforcement officers, emergency medical technicians, paramedics and correctional officers.
2. **NO LATER THAN TEN (10) CALENDAR DAYS** after a possible significant exposure which arises out of and in the course of employment, the employee reports in writing to the employer that the details of the exposure as provided by Commission rules. Reporting forms are available at the office of this employer or from the Industrial Commission of Arizona, 800 W Washington, Phoenix, Arizona 85007, (602) 542-4661 or 2675 E. Broadway, Tucson, Arizona, 85716, (520) 628-5188. If an employee chooses not to complete the reporting form, the employee may be at risk of losing a prima facie claim.
3. **NO LATER THAN TEN (10) CALENDAR DAYS** after the possible significant exposure the employee has blood drawn, and **NO LATER THAN THIRTY (30) CALENDAR DAYS** the blood is tested for HIV OR HEPATITIS C by antibody testing and the test results are negative.
4. **NO LATER THAN EIGHTEEN (18) MONTHS** after the date of the possible significant exposure at work, the employee is retested and the results of the test are HIV positive or the employee has been diagnosed as positive for the presence of HIV, or **NO LATER THAN SEVEN (7) MONTHS** after the date of the possible significant exposure at work, the employee is retested and the results of the test are positive for the presence of Hepatitis C or the employee has been diagnosed as positive for the presence of Hepatitis C.

GENERAL FIRE SAFETY

Familiarize yourself with the locations of all exits and fire extinguishers in the offices and shops.

Not all fire extinguishers can be used for every fire.

1. A = Ash, for fires that leave ash. Grasses, leaves, wood.
2. B = Bottle, Fluids that cause fires.
3. C = Circuit, Electrical fires.
4. D = Explosive flammable (sodium, magnesium).

ABC fire extinguishers are to be located in the offices, field trucks, shops and the manufacturing areas and on ATVs. Each extinguisher will be checked periodically to see that they are fully charged and in good working order. Have them refilled and replaced immediately if needed.

Directions for using a fire extinguisher:

1. Pull the pin
2. Stand back 8 feet and aim at the **base** of the fire.
3. Depress push lever
4. Sweep from side to side.

WHAT TO DO IN CASE OF FIRE

If you CAN EXIT the building.

- Remain calm. Call 911; give complete address, and status of fire. Sound alarm if available.
- Notify as many people in the building as you can of the fire.
- **Never use an elevator in a fire**, always use the stairs.
- Walk quickly; do not run from the building.
- Have everyone meet at a designated meeting place. Take a head count to make sure everyone was able to get out of the building.
- If there is smoke in the building hold a wet cloth over your nose and mouth (if available). Crawl on your hands and knees to the nearest emergency exit and get out of the building and go to designated area.
- Only use a fire extinguisher if it is safe enough to do so.
- Never try to put out a fire that is out of control.

- **Never grab a door handle**, it could be hot and burn you. Use the back of your hand to see if the door is hot first, and then open the door carefully. **Never open a door if it is hot to the touch in a fire.**
- **Never break a window.** This will only make matters worse by supplying the fire with more oxygen, causing it to burn in your direction. Close doors and windows as you exit to prevent spread of smoke and flames.

If you are trapped in the building and CAN NOT get out.

- Try to stay calm. Call 911, give them the complete address and tell them you are trapped and cannot get out of the building.
- Keep doors and windows closed.
- **Open windows SLIGHTLY, only if there is no smoke outside**, this will bring in fresh air and vent the smoke out of the room.
- Seal cracks around doors with tape or other items available.
- Cover your mouth and nose with wet cloth, if available, and stay as low to the floor as you can.
- Wave a piece of clothing out the window so the fire department will know where you are trapped in the building.
- **Only break the window if there is no other means of escape.**
- **Do not jump out of a window if the building is more than 2 stories high.**
- If your clothing catches on fire stop, drop and roll to put out flames.

FIRE SAFETY FOR FIELD JOBS

- ABC class fire extinguishers are to be carried on each field truck and one per generator. Before starting the generator, move the fire extinguisher approximately 15 feet away and make sure it is easily accessible.
- Park vehicles so that exhaust systems do not come in contact with dry flammable materials (grass, weeds, etc.).
- Never throw burning cigarettes out of moving vehicles.
- Smoke only in designated areas.
- Do not smoke when filling trucks or generators with gasoline
- Do not smoke when working around generators.
- Always make sure you have good connections on electrodes and clear the area of grass, weeds, seeds, etc.
- Never fight a fire if you are working in a mine area. Inform the proper people at the mine and stay out of the way.
- Place containers on the ground when filling them with gasoline. Do not fill them in the bed of a truck or inside a vehicle.

- If you are in the field and accidentally start a fire do what you can to contain the fire but never endanger yourself or the crew if the fire is too big to handle. Call for help and evacuate the area immediately.
- Report the fire to the proper authorities as soon as possible.
- Never leave portable fuel tanks/cans in the shop or storage unit with fuel left in them. When returning from the field all fuel cans are to be emptied into work trucks, ATVs or generators.

CAMPSITE FIRE SAFETY

- Make sure there are suitable and properly functioning fire extinguishers at each campsite.
- Check for fire hazards before setting up a campsite.
- Park vehicles in a position so there are two exit routes in case of a fire.
- Locate tents, cooking area, and fuel storage with fire prevention in mind.
- Clear a firebreak around camp in heavy vegetation areas.
- Smoking is **never** permitted in fuel storage areas, sleeping tents, aircraft/helicopter landing areas, while refueling vehicles or machinery.
- Never leave an open fire unattended. Make sure the fire is totally extinguished before leaving campsite, i.e. several buckets of water dumped on fire, stirred, then dirt and more water.

WORKPLACE VIOLENCE

Work place violence is classified as intimidation, harassment, bullying, belligerent or other inappropriate and aggressive behavior, physical or verbal abuse or assault and battery upon an employee while in the workplace and can be inflicted by someone you work with or by third parties.

A number of different actions in the work environment can trigger or cause workplace violence. It can even be the result of non-work-related situations such as road rage or domestic violence. Workplace violence can be inflicted by an abusive employee, a manager, supervisor, co-worker, customer, family member, or even a stranger. Whatever the cause or whoever the perpetrator, workplace violence will not be accepted or tolerated.

The following list is a partial list of indicators of potential workplace violence:

- Numerous conflicts with co-workers, or supervisors.
- Bringing a weapon to the workplace, making inappropriate references to guns, or making idle threats about using a weapon to harm someone.
- Statements showing fascination with incidents of workplace violence, statements indicating approval of the use of violence to resolve a problem, or statements indicating identification with perpetrators of workplace homicides.
- Statements indicating desperation (over family, financial, and other personal problems) to the point of contemplating suicide.
- Direct or veiled threats of harm.
- Substance abuse.
- Extreme changes in normal behaviors.

If you observe any of the above indicators of workplace violence in anyone, while on the job, report it immediately to a supervisor or manager.

WORKPLACE VIOLENCE IN THE FIELD

Violence can be in many forms when working in the field either in the U.S. or out of the country.

The following is only a guideline to help protect you from workplace violence when working in the field:

- Always carry your passport, visa, driver's license, etc. as securely as possible and lock them in the motel safe when not in use.
- Do not carry large amounts of cash on your person.
- Do not carry more than 2 credit cards. If you must carry an ATM card carry one that can only obtain a limited amount of dollars.
- Only stay at reputable motels with fire alarms or sprinkler systems and window and door locks.
- Never give your room number or where you are staying to strangers.
- Try to stay in groups whenever going out to eat, etc.
- Do not walk alone in the country in third world countries.
- Never go out at night alone.
- Use company vehicles whenever possible or use rented vehicles from reputable firm only.
- Register with local embassy/consultants if staying in a foreign country for a long time.
- If you are attacked or robbed, stay calm, give the attacker(s) what ever they want, (do not be a hero and argue or try to fight the attacker) call local authorities, seek medical aid if necessary. Never pursue your attacker.
- Learn the fundamentals of situational awareness. The objective is to avoid, or remove yourself from any potentially dangerous situation before the conditions become critical. Be aware of activity in front, behind and on either side if you do not feel comfortable with a situation. If available, use your cell phone to immediately make contact with someone.

OFFICE & MANUFACTURING SAFETY GUIDELINES

- Know where all building exits are in case of an emergency.
- Know how to properly use fire extinguishers and where they are placed in the building.
- Know where all first aid equipment is located and how to use it.
- Do not wear clothing with long loose sleeves, long untied hair or long neck ware (chains, necklaces, neckties, etc.) when working with equipment.
- It is important that your workspace has adequate lighting and ventilation and is kept clean to prevent accidents.
- Keep all aisles and doorways clear of obstructions.
- Wear all personal protective equipment when necessary to carry out your work in a safe manner. Have it repaired or replaced when it becomes damaged or does not function properly.
- Clean up any spills immediately and dispose in appropriate containers. Report slippery or faulty floor surfaces.
- Report all machinery, tools, office equipment, exit/emergency lights, fire extinguishers and other items that need to be repaired immediately.
- Keep desk/file cabinet drawers closed at all times to prevent falls, cuts, bruises, etc. Do not overload top drawers in file cabinets.
- Never throw razor blades or other sharp items in wastebaskets. Dispose of dangerous objects and hazardous materials in approved containers.
- Use only OSHA UL approved extension cords that are in good working condition and approved for the current they will carry.
- Never stand on tables, counters or chairs with wheels when reaching for overhead items. Use a ladder.
- Do not throw objects-always carry or pass them. Use hand trucks or other equipment when possible to move heavy objects.
- Handle tools and other objects carefully to avoid dropping them on fellow workers or machinery. Store all tools and objects where they will not fall.
- Keep all equipment guards in place at all times. Never start a piece of equipment without the guard in place.
- Do not clean equipment while it is running. Disconnect all electrical equipment before repairing or cleaning.
- Do not stand on wet floors when working with any electrical equipment or apparatus.
- Do not overload electrical circuits.

SAFE PRACTICES

The following items were adopted to help you make safety a regular part of your work.

WORK SAFELY	Safety is everyone's business. Teach new employees safe work methods. Accidents can be prevented.
WHEN LIFTING	Hold your back straight, bend your knees, get a firm grip on the object, hold it close to your body, space your feet for good balance. Now lift, exerting the lifting force with your strong leg muscles; not the weaker back muscles.
MATERIAL HANDLING	Do not throw objects – always carry or pass them. Use hand trucks or other equipment when possible. Get help with heavy or awkward objects.
TRASH DISPOSAL	Keep all sharp objects and dangerous substances out of the trash cans. Dispose of objects and substances in approved containers.
CLEAN UP	Remove refuse promptly to prevent slips and falls.
PREVENT FALLS	Keep aisles, work spaces, and doorways clear of obstructions. Maintain proper lighting in all areas. Report slippery or faulty floor surfaces.
WALK - DON'T RUN	Watch your step. Wear safety soled shoes.
TOOLS	Handle all sharp and pointed tools carefully. Use the right tool for the right job.
FALLING OBJECTS	Handle objects and tools carefully. Avoid dropping them on fellow workers or machinery. Store tools and objects where they won't fall.
WORK AREA CONDITIONS	Torn or sharp corners can cause serious cuts and bruises. Close all drawers.

**PERSONAL
PROTECTIVE
EQUIPMENT**

Wear PPE when you are required to do so. Maintain PPE in good condition so it functions properly when needed. Replace PPE when it becomes damaged or doesn't function properly to protect you.

LADDERS

Use a safe ladder – not a box, chair, or any other unsafe item to stand on. Place ladders securely. Check rungs. **Never** stand on the top rung of a ladder.

**EQUIPMENT
GUARDS**

Keep guards in place at all times. Do not clean equipment while it is running. Disconnect all electrical equipment before repairing or cleaning.

**ELECTRICAL
HAZARDS**

Do not stand on a wet floor when using any electrical apparatus. Keep extension cords in good repair. Do not make unauthorized connections or repairs to electrical equipment. Do not overload circuits.

**PREVENT
INFECTIONS**

All puncture wounds, cuts and scratches are dangerous. Get first aid immediately.

IF INJURED

Report all injuries, no matter how slight.

HORSEPLAY

Scuffling, practical jokes, and tricks are not allowed.

EMERGENCIES

Know what emergency procedures are in place. Know where fire extinguishers are located and how to use them. Know where your first aid supplies are located and how to use them.

CORRECT LIFTING PROCEDURES

1. Make sure your footing is secure; position your legs shoulder-width apart with one foot slightly ahead of the other.
2. Bend your knees and get a good grip. Use gloves when needed.
3. Lift with your legs, not your back. Keep your back straight, avoid twisting and do not jerk the object when you lift it.
4. Hold heavy objects close to your body when carrying them.
5. Get help when an item is too heavy for one person to lift.

SAFETY PROCEDURES FOR HAZARDOUS SUBSTANCES

Federal legislation mandates that an employee has the “**Right to Know**” about any hazardous substance that he or she is working with or near. All employees will be trained in the proper use of the MSDS sheets.

MSDS sheets are detailed information bulletins prepared by manufacturers or importers of a chemical that describes the physical and chemical properties, physical and health hazards, routes of exposure, precautions for safe handling and use, emergency and first-aid procedures and control measures.

The following information will familiarize you with the dangers of handling hazardous materials and how to minimize the risks by proper handling procedures.

Hazardous substances include toxic chemicals, flammable liquids, fuels, compressed gases, explosives, corrosives, acids, caustics, degreasing agents, paints, etc.

Hazardous substances can enter your body through the following:

- Inhalation: Breathing in fumes
- Ingestion: Swallowing chemicals
- Absorption: Chemicals contacting skin, eyes, etc.
- Injection: Chemicals penetrating body through a wound, cut, or puncture of the skin.

Hazardous materials also pose physical threats to people and property due to their characteristics as flammability, corrosiveness, chemical reactivity and toxicity.

- Flammable: It may catch on fire or explode.
- Corrosive: Extremely dangerous, it could burn your skin or eyes.
- Reactive: Can become unstable, possibly causing it to explode, burn or give off toxic vapors if mixed with or comes in contact with air, water, heat or other materials.
- Toxic: Can cause illness or even death if inhaled, ingested, absorbed or ingested.

MSDS sheets and an accompanying register must be kept for every hazardous material used by the company at each office. They will be available to all employees at all times.

Before purchasing a new hazardous material, check with the office administrator or safety manager to see if we have an MSDS sheet on file for that item, if we do not, request one from the store or have the safety administrator download one from the Internet and insert in our MSDS register.

Safety rules for using hazardous materials:

- All employees must wear appropriate PPE when working with hazardous materials.
- All flammable materials, i.e., diesel, gasoline, paints, solvents, degreasers, oils and gas cylinders will be stored away from open flames and if in camp sites away from cooking/sleeping areas.
- Never store a hazardous material in an unmarked container.
- Ensure hazardous materials are properly secured and contained to reduce the risk of leakage, spillage, contamination or reaction.
- Do not smoke around chemicals.
- Use appropriate containers for hazardous materials during disposal and dispose as per MSDS sheet or container instructions.
- Never mix chemicals that you are unfamiliar with.
- Should an accident occur involving a hazardous substance take the MSDS sheet to the doctor/hospital with the victim.

Copper Sulfate is the major hazardous material used by our field employees. All field employees will be trained on the proper use of Copper Sulfate upon hire. For your safety the following guideline is to be followed at all times when using this product.

USE OF COPPER SULFATE PENTAHYDRATE

1. **Always** wear rubber gloves, long sleeves and goggles when using this material.
2. **Disposal:** Sweep up crystal or powdered product and dispose in an approved landfill. If product is in **confined solution**, introduce lime or soda ash to form insoluble copper salts, then dispose in landfill. **Never** dump into any water source.
3. **Storage:** Always store in dry place, in covered appropriate container. **Never** leave crystals on shelves or other areas where they can fall on someone, into their eyes, or be eaten by small children or animals.
4. **Hazards to humans:** Skin irritant, **corrosive to eyes – irritation** within 2 hours; corrosion within 48 hours. If **inhaled**, can irritate nasal membranes. If **ingested** can cause severe gastroenteric distress (vomiting and pain), local corrosion and hemorrhages, prostration, anuria, hematuria, anemia, coma, respiratory difficulties, and circulatory failure. **Chronic overexposure**; systemic effect in humans which affects the metabolic and excretory function of the liver and kidneys.
5. **Emergency First Aid Procedures:**
 - **Eye contact** – irrigate eyes with large amounts of water for at least 15 minutes, holding eyelids apart during irrigation ... **See a doctor immediately.**
 - **Skin** – wash or shower thoroughly with water, remove clothing and wash contaminated clothing before re-use.
 - **Inhalation** – remove worker from exposure and seek medical aid.
 - **Ingestion** – Drink 1-2 gallons of water and induce vomiting by touching back of throat with finger. **Do not induce vomiting if unconscious.**

**SAFETY POLICIES,
GUIDELINES,
PROCEDURES**

SAFETY POLICY FOR CAMP FIELD JOBS

Our field camps will contain the necessary equipment for employees to work safely and efficiently in the field with as little impact on the environment as possible.

Locate camps as close to the job site as possible and away from river and creek beds, watering holes, game trails, feeding areas, insect nests and stagnant water.

- There must be first aid kits and supplies sufficient for crew members and other persons at camp.
- At least one person trained in first aid/CPR must be present at all times.
- Latrine facilities should be set up at least 300 feet away from cooking area of camp.
- Store food in appropriate containers to keep animals/insects out of the camp. Never store food in tents. Remove garbage to an approved location away from sleeping areas.
- Place smaller generators at least 20 feet away from tents, buildings or other equipment when in operation and larger generators further away and downwind from camps to reduce noise and exposure to exhaust fumes.
- **Never run a generator in an enclosed space.**
- Always check tents for wildlife and snakes when returning from field.
- Wear gloves when collecting fire wood and never collect fire wood in the dark.
- Fire precautions (See Field Fire Safety).
- Bear Safety in camps (See Bear Safety).

If you use propane on field jobs the following must be adhered to:

- Propane tanks must be used/transported and stored in an upright position. Place cylinders on a solid base and secure them so they cannot tip over. Place protecting collars on cylinders.
- Always have proper ventilation around equipment that burns propane.
- Use soapy water to check for leaks at joints and fittings.
- Always store empty and full propane cylinders outside.

GEAR REQUIREMENTS FOR FIELD WORK

Being prepared for any type of weather with the appropriate clothing and survival gear can save your life when working in the field. The following items are required of all field personnel:

Crew Chief

Mandatory Gear

- Fully stocked first aid kit
- Compass
- Flashlight
- Come-A-Long
- Axle jack
- Tow strap
- Ice chest
- Water cooler
- Extra Water
- Tire chains
- Jumper cables
- Fire extinguishers
- Maps
- Pick
- Shovel
- List of emergency phone numbers
- Personal GPS

All Field Personnel

Personal Gear

- Work boots/extra laces
- Light and heavy jacket
- Long sleeve shirt
- Long pants
- Hat
- Gloves
- Rain gear
- Chap Stick
- Sun Glasses
- Sun block 30+ SPF
- Knife
- Canteen full of water
- Rock Hammer
- Day Pack
- Insect Repellent
- Hardhat (for mine sites)

Take enough clothing to ensure that you can spend an unexpected night in the field in a crisis situation. Dress appropriately in layers for conditions in your field area.

All crew chiefs shall carry cellular or satellite phones for communicating with the office, clients and emergency facilities.

COMMUNICATIONS GUIDELINES

Regular communications play an important role in safe and effective fieldwork.

- All crew chiefs must ensure that their cell/satellite phones and VHF/UHF radios are in good working order, charged, and tested prior to leaving for the field.
- All crew chiefs shall carry a list of client or client representative phone numbers, emergency contact phone numbers of each field employee, as well as a list of emergency numbers for the closest hospital, emergency room, fire department and sheriff/police departments with them at all times when in the field. This list shall be prepared by the crew chief prior to mobilizing the crew.
- Working in the field alone can be risky; therefore, any employee working in the field alone must set up an established line of communication with a designated person in the office before leaving for the field. Check in times must be adhered to, otherwise; if you are not heard from within a reasonable amount of time during designated check-in time and you can not be reached on your cell/satellite phone, a search and rescue mission will be put in place until you are either heard from or found. Search and rescue missions are expensive and can put other people's lives at risk so be sure and call in as close to your scheduled time as possible.

ENVIRONMENTAL PROCEDURES

- Crewmembers will comply with all State, Federal and local laws, as well as, client requirements regarding protecting the environment to prevent damage to property, livestock, crops, timber, roads, trails, gates, fences, etc.
- Vehicle travel will be limited to existing roads/trails whenever possible.
- All wire cables, conduit, electrodes and other job related items are to be gathered up and returned to company trucks when the job is completed. All pits or holes dug for survey use are to be filled in completely. If aluminum foil was used in pits they should be completely covered.
- All trash/garbage is to be bagged up and disposed in appropriate locations.

NOISE LEVEL SAFETY

Noise is inevitable in almost any environment. Depending on the level and duration, noise can be a minor irritant, a definite disturbance, or even a threat to your hearing.

When employees are subjected to excessive levels of sound, feasible administrative or engineering controls shall be utilized. If sound levels cannot be reduced to acceptable levels, personal protective equipment shall be provided and used to reduce sound levels.

Whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response) or, equivalently, a dose of fifty percent, the employer shall administer a continuing, effective hearing conservation program.

Variations in sound levels of one second or less are considered to be continuous sound.

This chart, gathered from Federal, state, and local agencies, shows standards for acceptable levels of noise.

Sound Level (dB) (A-weighting, SLOW response)	Maximum Duration Per Day (hours)
90	8
92	6
95	4
97	3
100	2
102	1½
105	1
110	½
115	½ or less

Hearing protection is required for all operators when using a sledge hammer or other impact instruments. Other field personnel who will be within 10 feet or less of the operator must also wear hearing protection devices.

On seismic surveys ALL personnel are required to wear hearing protection at all times when instruments are in use due to the sudden and extreme noise levels.

EQUIPMENT SAFETY

- If you are unsure how to use a piece of equipment ask for instruction before using it.
- Report equipment malfunctions or breakages to management immediately, use Lock-Out-Tag Out procedures until it is repaired or replaced. Do not make unauthorized electrical repairs to equipment.
- Always wear appropriate personal protection when using equipment.
- Always use the correct tool or equipment for the job.
- Wrenches must be of adequate size. Cheater pipes should not be used to increase leverage as this may cause the wrench to fail. Get a larger wrench.
- Make sure that any power tool that is used is equipped with appropriate guards and shields and the plugs are in good condition. Never cutoff the third prong on a plug to accommodate a two prong outlet. Ensure that all electrical tools are grounded or double insulated and the electrical circuit to be used is of the proper rating.
- Never use electrical tools in wet conditions or near flammable liquids or gasses where a spark may ignite fumes/vapors.
- Always shut down fuel powered equipment before fueling. If the equipment's engine is hot from previous use let it cool down before re-fueling.
- Electrical cords should never have taped splices or breaks in the insulation. Use power cords that are as short as possible for the job. Keep the cord out of the way while you work, especially away from your feet.
- Make sure amperage rating of cord is sufficient for equipment supplied.
- Surge protectors and power strips must be equipped with overload protection.
- All portable electrical equipment must be turned OFF and unplugged prior to any maintenance or cleaning and when the equipment is not in use.
- In vehicles or mobile equipment, the tools must be secured in tool boxes or other means to prevent damage to the tools and the occupants.
- Always make sure electrical tools are in the OFF position before connecting to the power source.
- Do not use shovels, picks and hammers with cracked or splintered handles.
- Replace or repair chisels, punches and other tools with burred or mushroomed heads.
- Keep knives sharp and always cut away from your body.
- Chain-falls and come-a-longs shall be inspected and tested on a semi annual basis.
- Connect pneumatic tools to the air supply with correct couplings. Any connection other than automatic shutoff type requires whip-checks, safety clips, or other suitable locking devices and shall be used at hose to hose connections or hose to machine connections.

Welding Safety

- When welding wear leather aprons, welder's mask or goggles, long sleeved shirts, long pants and boots.
- Welding machines must be properly grounded.
- Welding operations must be shielded when performed at locations where arc flash could be hazardous to people.
- Hearing and face protection is required while air arcing.
- Your welding area must be free of all combustible materials.
- Never weld within 50 feet of explosives or flammable materials.

Ladder Safety

- Ladders must be formally inspected on an annual basis
- Always keep areas surrounding ladders and stairs clean and free of obstacles.
- Always inspect a ladder before using it to make sure it is in good working order. No broken rungs or metal spreaders.
- Keep all ladders free of oil, grease and other slippery hazards.
- All ladder rungs must be skid resistant and shaped so your feet cannot slide off.
- Make sure ladder footing is secure. If necessary have someone brace ladder.
- Ladders must not be tied or fastened together to provide longer sections, unless they are specifically designed for such use.
- Never stand on the top rung of a ladder, or any other rung so marked.
- Do not extend reach to the side of ladder past the point where center of body is beyond the edge of the ladder, as this can cause ladder to tip over the top.
- Always face the ladder when going up or down and only go down one step at a time. Apply the three-point practice that is always keep two hands and one foot, or one hand and both feet, in contact with the ladder.
- There should never be more than one person on a ladder at a time.
- The top of portable ladders must be secured to the structure while in use.
- If an extendible straight-line ladder is used, make sure after extending one section that the safety pins or locks are hooked and the extension rope is tied to a step on the beam at the base of the ladder.
- Never leave anything on top of or on the rungs of a ladder that can fall of injuring someone below.
- No wooden, make-shift or hand made ladders will be used.

Generator Safety

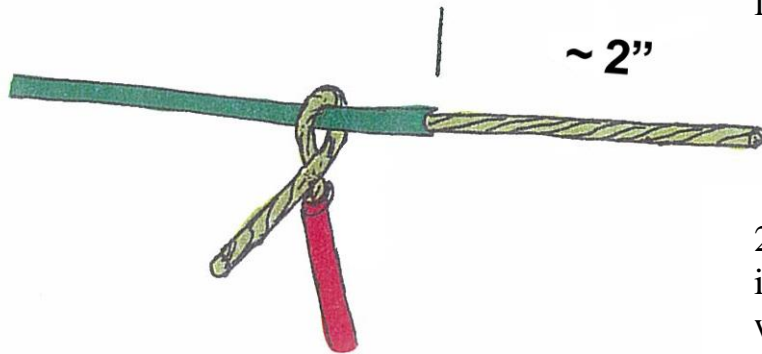
- All employees using generators will be trained on the operation and emergency shut off of all of our generators.
- A charged and inspected fire extinguisher and shovel will be positioned approximately 15 feet from generator during transmission.
- When using generators in the field make sure they are located away from combustible materials to prevent wild fires.
- Engines must be **turned off** before any maintenance work is to be performed.
- Carry out maintenance and repairs for the generators including regular oil changes and coolant levels. Keep written maintenance/service logs for each generator.
- Generator operators must be isolated from the earth by wearing rubber-soled boots or standing on a non-conductive mat.
- **Never** refuel generator with the engine running.
- Do not smoke when refueling generator.

Transmitter Safety

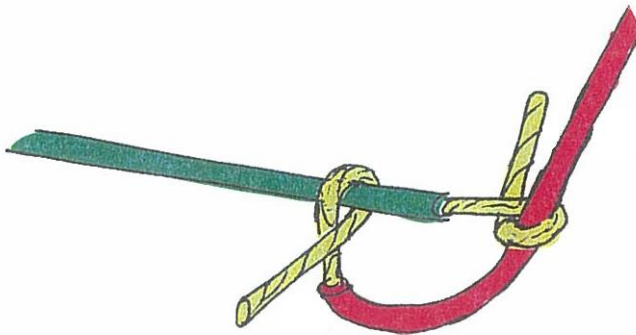
- **Always assume every wire is “HOT”**
- Transmitters must be **turned off** before turning on the voltage regulators, before connecting or disconnecting the electrode wires, transmitter controller cables, motor-generator power cables, or before changing voltage taps.
- Transmitter power must be **off** at all times **except when** actual measurements are being made.
- Test the transmitter every morning before starting the job. If there is a problem with the transmitter and you do not have a spare one you must stop the job until it is repaired.
- Always make sure the electrodes are clear and there is no interference with cables before transmitting.
- Before you power up you must have a **VERBAL** “Clear” from the entire crew working on the line.
- Immediately terminate transmission and check line if a current drop is noted.
- After the electrode wires have been attached to the transmitter no one should handle an electrode wire until receiving a specific call from the transmitter operator that the electrode wires have been disconnected from the transmitter or the transmitter has been powered down.
- **It is not sufficient to stop transmitting.** Even though a transmitter has been placed on ‘stand by’ power, it can be outputting a potentially fatal leakage current.
- If the transmitter has to be opened for repair make sure that it is totally disconnected from the generator before starting repairs.
- It is best to operate the transmitter from inside the truck.
- Never drape transmitter electrode wires over wire fences when crossing fences.
- Transmitter and receiver wires shall be separated by a minimum of 10 feet.
- No power is to be transmitted through wire that remains coiled on a wire reel.
- All worn, cut or frayed wires shall be repaired or replaced prior to operation. All spliced wire shall be double-wrapped with electrical tape.

WIRE SPLICING

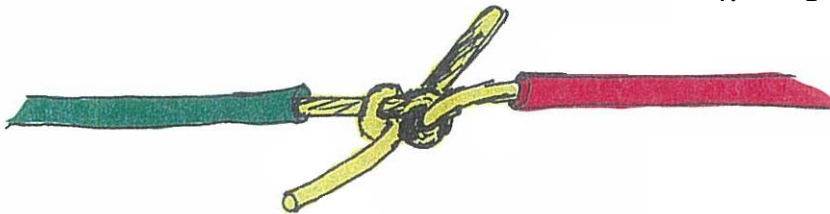
1. Strip about 2" of insulation from ends of wires



2. Loop one conductor around insulation of other wire, with end wrapped inside of the splice.



3. Loop other conductor around insulated part of first wire, with end wrapped inside, and in the opposite direction of the first loop.



4. Pull wire tight.

5. Twist ends back on bare wires.



6. Tape splice with half-overlapping layers of 7+ mil electrical tape, continuing at least 1" over the insulation.

HELICOPTER GENERAL SAFETY

Helicopters by nature of their design and use present many hazards. The following procedures should be taken when working on a field job that uses helicopters:

- PPE: Hard hat (with chin strap fastened) and safety goggles, earplugs recommended.
- **Remember the pilot is at all times responsible for safety in relation to the activities of the helicopter and passengers and his/her instructions must be followed at all times.**
- Everyone must watch for signs of pilot fatigue that may include slow reaction time and inattentiveness.
- **Never approach or exit a helicopter without the pilot's direct permission.**
- Normally you would **approach and exit** a helicopter toward the **front** of the aircraft and in full view of the pilot. There may be times when you will have to **enter/exit the side** of a helicopter if it lands facing high ground or if it has a low blade clearance at the front of the craft. **Always approach and exit a helicopter using the DOWNHILL side if the helicopter is on a slope.** Never enter or exit towards the **rear** of a helicopter. The Tail rotor is invisible when the machine is running.
- **Do not approach/exit a helicopter if the rotor blades are moving slowly.** The blades will dip as the motor slows and can also dip unpredictably if it is windy.
- **Do not approach a helicopter when visibility is reduced with blowing sand, dust or snow from the downdraft of the rotors. Wait until visibility is clear or helicopter has shut down.**
- **Always approach/exit a helicopter in a crouching position to give your head more clearance from the rotor blades. If you are wearing a hat, hold on to it.**
- **NEVER WALK IN THE DIRECTION OF THE TAIL ROTOR. IF YOU WALK INTO THE TAIL ROTOR IT WILL KILL YOU!!!!**
- **Always** inform the pilot before exiting. If you must remove gear from the cargo compartment, inform the pilot and do this as carefully as possible. Make sure you close the cargo compartment door properly when finished. When exiting a helicopter refasten seat belts so they don't hang out the door. Then return to the front in full view of the pilot and move away as described above.
- **Do not distract or upset the balance of the helicopter with sudden moves during takeoff, landing or maneuvers.**
- When loading and unloading carry all long items horizontally (i.e. poles, oars, tools). Never carry them vertically or over your shoulder as they may hit the main rotor blades.

- Never throw anything out of a helicopter as it may be sucked into the engine or hit the rotor blades.
- If you are exiting from a helicopter that has to takeoff immediately, move at least 30 feet away with your gear and crouch down, turn your head away from the helicopter, protect your eyes and stay there until it has fully taken off.
- There are times when a helicopter door may be removed, **NEVER**, unfasten your seat belt until the pilot gives permission.
- Stand back at least 50 feet from the landing pad when a helicopter is arriving or departing.
- Never place items against the bubble of the helicopter as they may damage the surface or obstruct the pilot's view.
- Always take first aid and survival equipment with you when departing a helicopter as the pilot may not be able to return for you.
- All vehicles must be at least 100 feet from the helicopter when it is running, taking off or landing.
- Inform the pilot immediately of any hazard observed while in flight.
- In the event of a forced landing, do not leave your seat until all movement has stopped, including the blades, and evacuate only on the command of the pilot unless he/she is incapacitated.
- **In the event of a fire you may have to vacate the aircraft while the rotors are still in motion. Take care to avoid the turning blades. If a helicopter is going to catch fire after a crash landing it will usually do so within 60 seconds of impact.**

LANDING ZONE PREPARATION

A good Landing Zone (LZ) should be as level as possible. (Helicopters vary as to their ability to land on angled slopes.) The LZ should be free of loose debris. Any brush that has been cleared or is loose must be removed from the LZ. Otherwise, it may become airborne, possibly injuring personnel or the aircraft. The LZ should be as clear as possible of tall objects, and should also be free of rocks and brush which could damage the underside of the aircraft or hook on a skid. The type of helicopter and skid/wheel configuration will determine how high the bushes and rocks may be for a safe landing. When looking for a potential LZ, the size of the aircraft determines the size of the clearing. There must be sufficient rotor and tail clearance for the aircraft to maneuver and land. A medium size helicopter such as a Jet Ranger ideally would like 75' x 75'. Weather conditions and pilot experience can alter the required size of a potential LZ, so the ultimate test is whether or not the pilot likes it.

When choosing an LZ, avoid areas the helicopter's approach could cause blowing dust. Grassy or rocky patches of ground tend to be less dusty. Blowing dust around the helicopter causes visibility problems for the ground crew and pilot. If the pilot can't see the ground through the dust cloud, he will abort the landing attempt. Wetting down dusty areas works well, but may be difficult unless you have access to lots of water. Keep in mind that new snow can cause the same visibility problems as dust. When communicating the weather, LZ location and obstacles to the helicopter, use compass directions as much as possible. Most pilots prefer to use compass directions for reference. There are exceptions to this where terrain features are very distinctive (deep canyons), but keep in mind that an airborne pilot's perspective is different, and what is obvious to ground personnel may not be obvious to the pilot. Avoid using the clock system when mistakes can be made in the frame of reference, which must be the same as the pilot's. Only when the helicopter is directly in view should the rescuer consider using clock references. (The clock system is from the pilot's point of view, and puts 12 o'clock to the nose of the aircraft, 6 o'clock to the tail, with 3 o'clock being to the right and 9 o'clock to the left, just like the markings on a watch.)

After the LZ is prepared, get organized before the aircraft arrives. It is difficult to communicate around a running helicopter. Assign tasks in advance and make sure that everyone knows what they are expected to do and where they are expected to be.

COMMUNICATIONS

Preplanning is required to make effective use of radios. Test the radios to ensure that the aircraft can talk on your frequency. You will probably need to know how to set your radio for "open squelch" or "monitor" mode, otherwise you won't hear the aircraft. Radios will be most useful as the aircraft approaches and leaves the area, and they will NOT be useful while the helicopter is running on the LZ or hovering nearby.

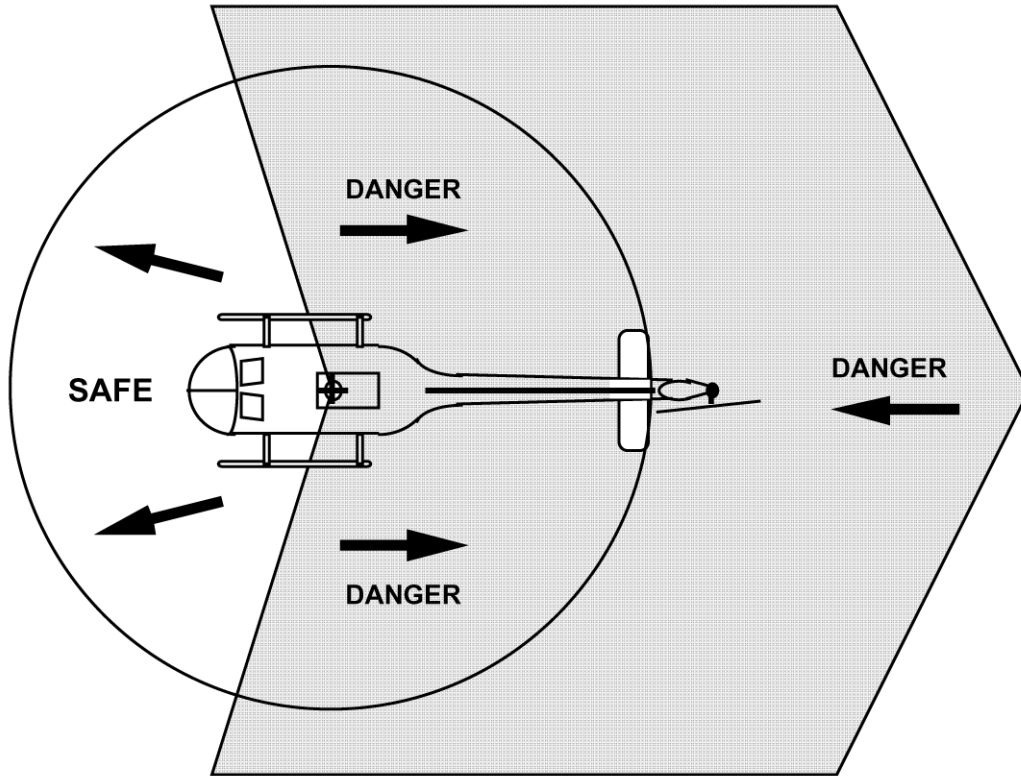
There are hand signals for marshaling helicopters. Pilots probably won't pay attention to signals given by ground personnel they do not know. They are more likely to ask you to move out of the way. Review acceptable signals with the pilot during preplanning.

Lights and mirrors are useful to attract a distant aircraft to your location. Do not use them when aircraft are nearby, and ensure that other lights are not pointed at the aircraft. Mirrors reflect light that is just as bright as sunlight, so don't try to hold a steady beam on the aircraft. Use a few quick flashes across the aircraft until the crew sees you, then stop signaling.

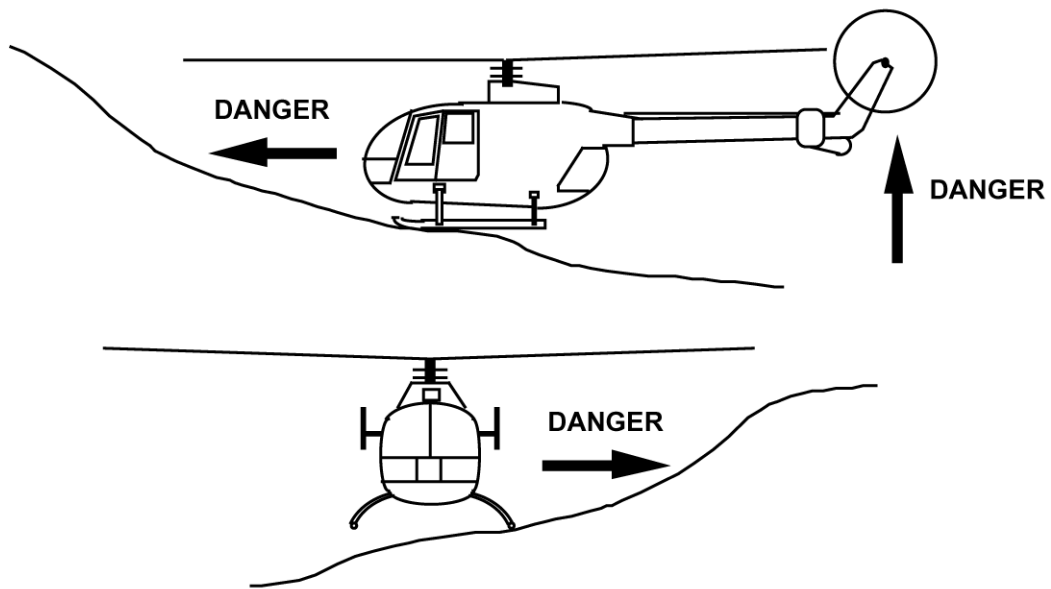
The aircrew will always be interested in the strength and direction FROM which the wind is blowing. A verbal description may be enough, but large streamers hanging in a few places around the LZ can be helpful.

The aircrew will also be very interested in any obstructions or hazards that may be present, like powerlines.

HELICOPTER SAFETY DIAGRAMS



AREAS OF SAFE APPROACH AND DEPARTURE ON FLAT TERRAIN

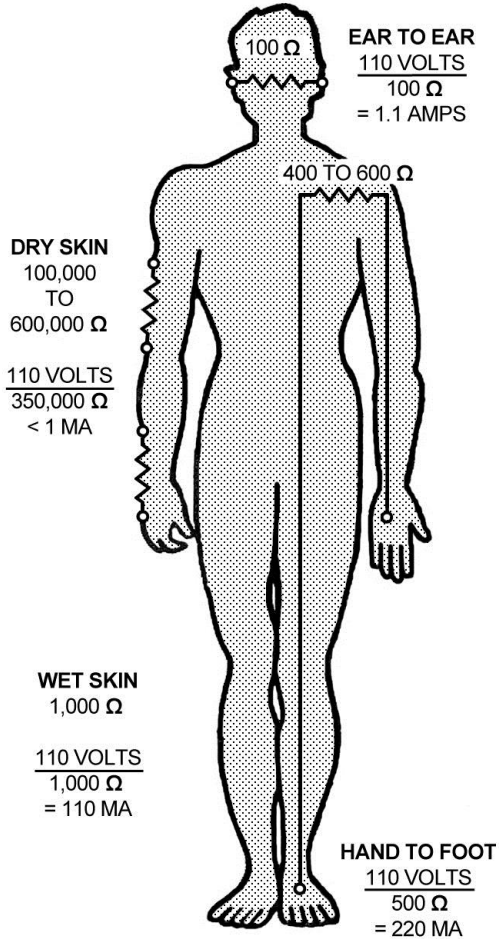


AREAS OF DANGER FOR APPROACH AND DEPARTURE ON A SLOPE

ELECTRICAL SAFETY

What Electricity Can Do To YOU!

Body Resistance:

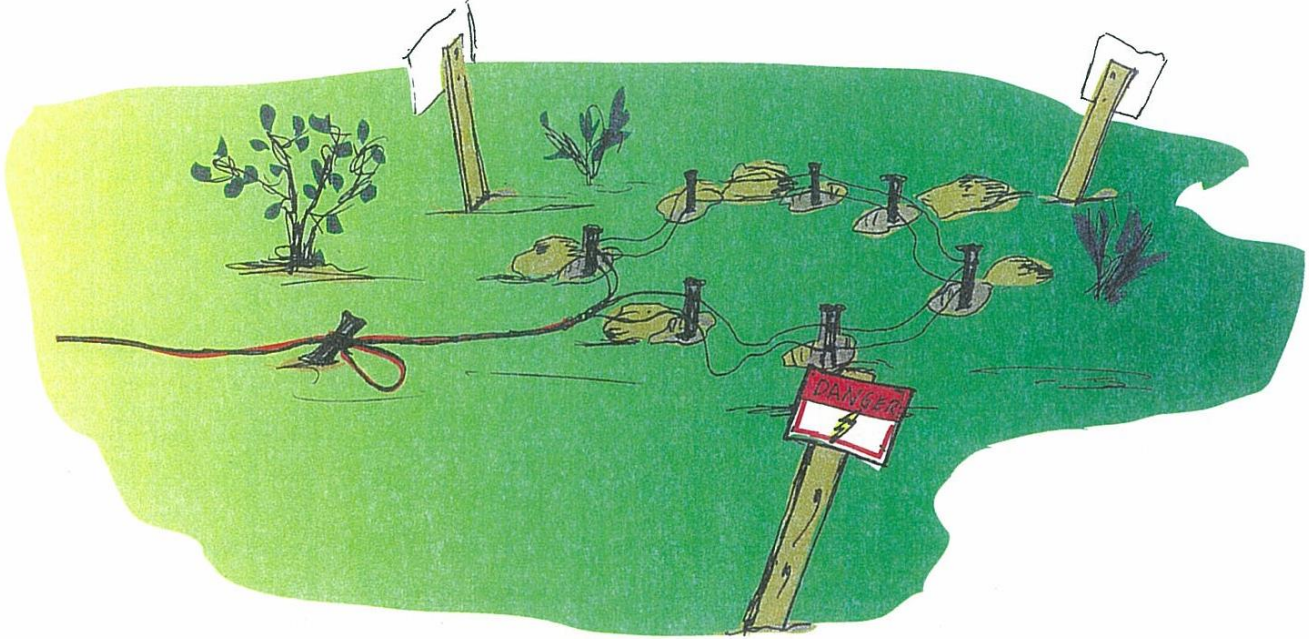


Typical Body Resistance
&
Current 1

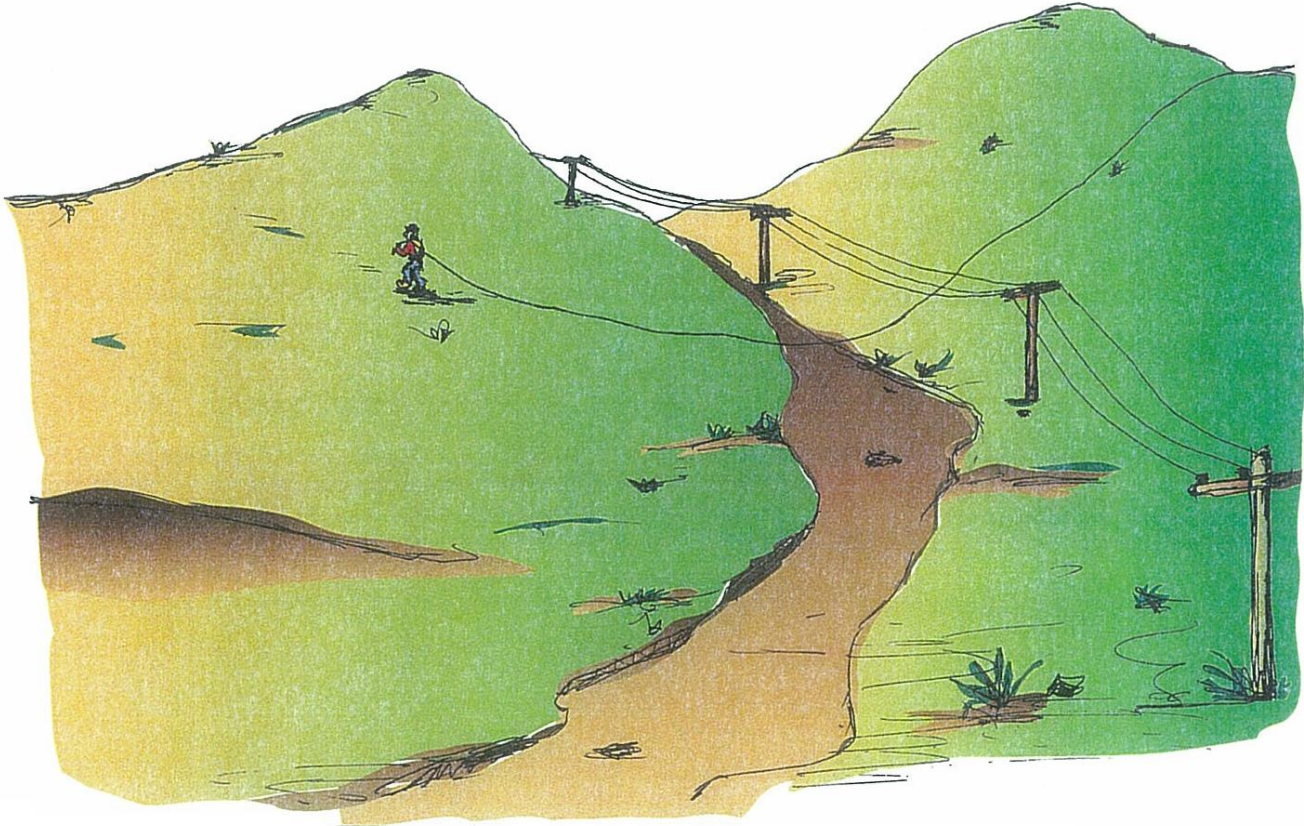
Current Scale and the Effect on the Body

CURRENT VALUES THROUGH BODY TRUNK		EFFECT
SAFE CURRENT VALUES	1 Milli-ampere, or less	CAUSES NO SENSATION – NOT FELT. Is at threshold of perception
	1 to 8 Milli-amperes	Sensation of shock. Not painful. Individual can let go at will, as muscular control is not lost. (5 MA is accepted as maximum harmless current intensity)
UNSAFE CURRENT VALUES	8 to 15 Milli-amperes	Painful shock. Individual can let go at will, as muscular control is not lost.
	15 to 20 Milli-amperes	Painful shock. Muscular control of adjacent muscles lost. Cannot let go.
	20 to 50 Milli-amperes	Painful. Severe muscular contractions. Breathing is difficult.
	100 to 200 Milli-amperes	VENTRICULAR FIBRILLATION (A heart condition that results in death – no known remedy.) Disrupts or changes rhythm of heart.
	200 & over Milli-amperes	Severe burns. Severe muscular contractions, so severe that chest muscles clamp heart muscles and stop it during duration of shock. (this prevents Ventricular Fibrillation.)

HIGH VOLTAGE SAFETY



- High voltage signs must be placed on any unsupervised electrode site that carries high voltage.
- Place high voltage signs in areas that are populated where the electrodes are out of sight.
- Place high voltage signs when working near drill sites.



- Use extreme caution when pulling an electrode or receiver wire under a power line. If you start to walk uphill it is possible to pull the wire tight enough to bring the wire up against the power line causing fatal results.

The following will be adhered to at all road and trail crossings. This pertains to any road, as well as, trails and paths that could be traveled by any vehicle, including dirt bikes and mountain bikes.

- During the survey the wire is to be staked or otherwise tied-off so that there is NO chance that the wire will be pulled up off of the ground surface if people or animals cause tension on the wire. It must be tied off in a manner that the wire will break before it can be elevated off of the ground surface.
- At the end of the field day, all wires at road and trail crossings will be cut and pulled to the side of the road/trail.
- Transmitter wires will be marked at all road and trail crossings with "High-Voltage" warning signs at both sides of the road and such that the signs are obvious from both directions.

The popularity of the ATVs, dirt bikes and mountain bikes has put a lot more people in the backcountry and in possible contact with our survey crews. We need to be certain that our operations do not cause harm to others.

VEHICLE SAFETY

It is each driver's responsibility to inspect his/her vehicle for basic operations, i.e. steering, brakes, headlights, turn signals, brake lights, seatbelts, fan belts before using a company vehicle. Keep vehicles clean, especially windshields, lights and license plates.

NOTE: RELEVANT FORMS AND CHECK LISTS ARE INCLUDED IN THE FORMS APPENDIX AT THE END OF THIS DOCUMENT.

- Only employees with a valid/clean DMV license are permitted to drive Zonge vehicles.
- No Company/leased vehicle will be driven while under the influence of drugs/alcohol or while taking prescription drugs (that may impair your eyesight, judgment or cause you to be dizzy or sleepy).
- No one under the age of 21 will be allowed to drive vehicles rented by Zonge.
- Seatbelts must be properly fastened upon entering the vehicle and kept fastened at all times while driving or riding as a passenger while the vehicle is in motion. This applies to all vehicles that are owned, leased, or rented by Zonge. Any injury sustained due to the fact that seat belts were not worn will be the cause of disciplinary action. (see Safety Belt Policy)
- All State and local speed limits are to be adhered to at all times. Never drive faster than conditions allow.
- If you know that you have hit a boulder while driving in the field, immediately stop the truck and check the tie rods and stabilizing bars and other areas for damage. Have the truck inspected when you return from the field and repaired if necessary.
- Report immediately to your Supervisor any need for repair that may occur before or during the day.
- Always secure your loads in the company trucks to ensure that nothing can blow out of the back and hit a vehicle behind you.
- Allow enough stopping distance between vehicles at all times, especially when driving on dusty roads, in snowstorms and in foggy conditions.
- Use the "Three Second Rule" when following vehicles/equipment. For example, 330 feet at 75 mph, and 135 feet at 30 mph.
- Always carry extra fuel, oil and water when working in remote areas.
- **Never fill plastic or metal cans with gasoline or diesel fuel in the bed of a truck or inside a vehicle. Always place them on the ground to fill them.**
- All field employees will be trained how to properly change a flat tire and safely jump-start the trucks.

- Night driving is discouraged whenever possible.
- Do not drive with the tailgate down, unless replaced with an approved replacement.
- Passengers will not be allowed in beds of pickups.
- Slow down and use good judgment on wet roads. It is not always possible to tell how deep water is on a road which can cause the vehicle to hydroplane or for you to lose control of the vehicle.
- Watch out for high winds and winds accompanied with rain, snow or hail. Visibility can be cut to near zero.
- Be careful opening vehicle doors in strong winds. The wind can literally rip the door from your grasp, springing the hinges and damaging the vehicle and possibly injuring someone standing nearby.
- Vehicle drivers are admonished to keep their attention on driving at all times and should not be responsible for anything other than driving while the vehicle is moving.
- Front seat passengers are to assist the driver. Do not assume he is going to stop. Do not let him nod off.
- Turn signals must be used well in advance of turning.
- Watch for unmarked rail road crossings.
- Do not swerve suddenly to avoid small animals.
- Watch for debris on the road.
- Do not drive into restricted areas without permission.
- Do not drive into smoke or blowing dust that obscures your view. If heavy rains obscure your view, pull over onto a paved shoulder if possible, to avoid being hit from behind and turn on your emergency blinkers.
- Have passengers assist you when backing up.
- Do not drive over live power lines. If live power lines are in contact with the vehicle, stay in the vehicle. Do not ground yourself by getting out of the vehicle.
- Pay attention to approaching areas of lightning. Stay in the vehicle if at all possible.
- Do not drive into running water unless you are certain you can get across.
- Stay alert for flooding, especially after dark (the worst time). Listen to car radios for watches and warnings.
- Check for road and bridge closings. Avoid areas already saturated by previously heavy rainfall.

- The number of passengers inside a vehicle must not exceed the number of operational seat belts provided by the manufacturer.
- When parking on a grade, chocks, “ribbing”, or chock ditches must be used when the vehicle is unattended. A single chock on the downhill side is sufficient.
- Never leave a vehicle with the engine running unless precautions have been taken to assure it will not move.
- Never leave keys in a vehicle. Always lock vehicle when not in use.

The following is a list of standard equipment required for all Zonge field trucks.

- Fire Extinguishers, Class ABC
- First Aid Kit
- Spare Tires
- Tow Straps
- Axle jacks
- Lug wrench
- Tool kit
- Heavy duty booster cables
- Large flash light w/extra batteries
- Extra Water as Needed

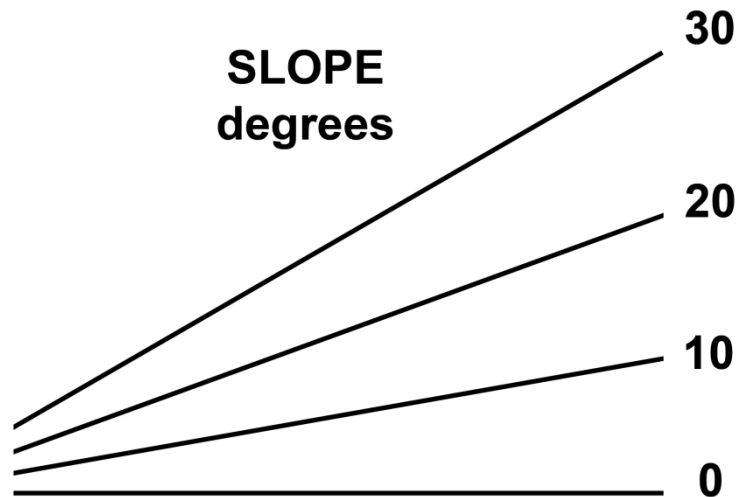
- Spare set of keys for vehicle
- Tire pressure gauge
- Tire pump
- Wheel chocks
- Axe
- Shovel
- Rope
- Tire Chains
- Large plastic bag for catching water
- Extra fuel
- Come-along

NOTE: RELEVANT FORMS ARE INCLUDED IN THE FORMS APPENDIX AT THE END OF THIS DOCUMENT.

ATV Safety Rules

Serious injury can result from improper use of ATVs. ATVs handle differently than motorcycles and cars. Remember ATVs are designed for off-road use only. Never ride an ATV on paved surfaces as it may seriously affect handling.

Only employees with valid driver's licenses who have received ATV Safety Training are allowed to drive the ATVs.



- The use of alcohol or drugs while driving an ATV will be cause for dismissal.
- Ensure procedures are in place for loading and offloading ATV. Use purpose-built (non-slip) ramps. Wear helmet and eye protection.
- Proper daily inspection of ATV's is crucial to safe operation.
- Minimize potential fall / trip injuries by ensuring that parking areas are clear of debris, on a stable surface, and relatively flat.
- Maximum speed while driving ATV will be 15 miles per hour, and the maximum slope is 20 degrees.
- Do not exceed the weight limits of front and rear cargo racks.
- Hot exhaust can cause fire. Ensure a fire extinguisher is close by and choose an appropriate parking location (no dry grass). Ensure that spark arrestors are fitted to the exhaust of ATV.
- Fatigue can affect your ability to control your ATV, protect yourself from the elements, dress properly with helmet and eye protection, take breaks when needed.
- Drive responsibly and protect the environment. Avoid wildlife and livestock.
- Stay out of Designated Wilderness areas and always get permission to travel across private property.
- Ensure that procedures are in place for managing minor fuel / oil spills, and that MSHA requirements for fuel storage are met.
- Less experienced operators should not be operating on slopes greater than 10 degrees or carry any load no matter how confident they might be in their abilities. Their ability to ride in the field should be evaluated by their crew chief and daily tasks should be assigned based on these evaluations.

Towing and Trailers

- The total weight of a trailer and cargo load must never exceed the trailer's weight restrictions (GVW). The total weight of a loaded trailer must not exceed the recommended tow capacity of the vehicle.
- All trailers must be equipped with safety chains.
- Load the heaviest objects of the cargo as low as possible to maintain a low center of gravity. Secure the cargo thoroughly inside and outside to prevent shifting. Never overload a trailer.
- Balance trailer load front-to-back to avoid excessive leverage tongue weight.
- Avoid sudden stops as they might cause the trailer to jack-knife or your load to shift.
- Drive at a slower speed than normal when towing trailers.
- Trailers with GVW over 3,000 lbs shall be equipped with trailer brakes.

Safety of Zonge Vehicles, Equipment and Personal Items in vehicles.

Items left in vehicles are just asking to be stolen. Not only is there the cost of replacing the items, the broken windows, damaged door locks, etc. but there is also the possibility of privileged client information being lost as well as a chance of financial fraud and identity theft.

Due to numerous thefts of company and personal items from either company or personal vehicles the following is to be adhered to by **all** Zonge employees.

Always lock your vehicle and take the keys when you get out, **even at gas stations** and in front of your home.

- Put valuables out of site. Don't attract thieves by leaving valuables visible inside the vehicle. If items are stolen from an **unlocked** vehicle the crime is considered petty theft, not burglary - no matter what the dollar amount of the stolen property is.
- **Never** leave Zonge property i.e. computers, GPS systems, field equipment or other items of monetary value, client information or company/personal financial information (i.e. credit card numbers, bank information, personal addresses/phone numbers, etc.) in a vehicle. Trucks should be unloaded every day.
- Always set the emergency brake even on level ground. This will delay the thief and reduce the chance of your vehicle being pushed away.
- Park the vehicle in a locked garage whenever possible.
- Always look inside the vehicle before entering, especially if there is a back seat.
- Keep the vehicle registration **locked** in the glove box. **Never** put it on the sun visor.
- Never leave a tag with the company or your personal name/address on vehicle keys.
- Away from the office always park in well-lit, heavy pedestrian traffic areas.
- If you must leave a key with a parking attendant, only leave the ignition key.

SAFETY BELT POLICY

Each employee shall follow the policy outlined below regarding **SAFETY BELTS**.

1. Safety belts **must** be worn at all times when a vehicle is in motion. Any injury sustained due to the fact that safety belts were not worn will be the cause of disciplinary action or termination of employment.
2. All occupants of vehicles assigned to Zonge International **will** fasten their seat belts as soon as they enter the vehicle and shall continue to wear the seat belt as long as the vehicle is in motion.
3. Occupants of privately owned vehicles being operated at Zonge International expense **will** follow the above stated policy.
4. Safety belts shall be **properly** fastened by employees **driving** or **riding** while on official business before the vehicle is started in motion.

It is not only our policy, but the State of Arizona's policy that all occupants riding or driving in a vehicle **must** wear a safety belt.

This policy is for your safety and the safety of others.

CROSSING STREAMS

Stream Crossing By Foot

With any Stream or River crossing a quick assessment should be made to identify the hazards associated with the task. If possible the client should fly the route you are planning to take during this work day before being dropped off. Study the current flows, looking for eddies (circular motion that can provide an exit from the main current), undercutting of the banks on both sides, and “strainers” where water flows through brush and rocks and are serious hazards. Water moving around bends can be deceiving and hazardous. When in doubt call for a helicopter hop to the other side or look for an alternative route. Communicate with your partner and never cross a stream or river without a plan, no matter how small the moving water seems.

When crossing, the best way to accomplish your task is to cross at the narrowest points of the stream (as long as it is not too deep and swift). Swimming should be a last resort, with flotation devices used when possible to float equipment across and provide support for you (a personal flotation device is highly desirable for each person). Wading techniques include support poles, moving slowly and facing upstream. Additional team members can support one person “at the point”. If packs are worn, they should be configured for immediate removal when footing is lost.

If you are swept off your feet, be prepared to rotate to floating mode, on your back with feet downstream. Keep your feet off the bottom, otherwise a foot can be caught in a hole, and the force of the water will break your leg and hold you underwater. You will not be able to avoid moving downstream, so use your hands to backstroke at an angle towards the bank. Avoid “strainers” where you can be pinned by the flow and find it very difficult to get loose. Look for eddies (preferably those that were noted during your planning before you get wet), where you can get out of the main stream flow.

Again with this method you may want to cross at a narrow point where the current is not showing signs of being strong at all. If at all possible find the shallow point of the stream and if you are lucky to find all these points together then you’re on your way. Avoid crossing very rocky areas. Rocks can become very mossy and this can lead to your slipping and going under and injuring yourself badly.

Also choose to cross in an area where the bank on the other side is not too steep or high. Climbing up these slopes can endanger your life. The possibility of falling backwards is high with the extra weight of your pack and also these banks are usually slippery and unstable. Be sure to scour both sides of the stream and focus on all aspects of crossing before attempting to cross.

Never under estimate the force of the water. It may look clam and serene and you may even be able to see the bottom of the stream in spots but remember the undercurrent. Undercurrent is just that, a current that moves swiftly under the surface of the water.

Undercurrent can sweep you downstream and take you underwater and hold you there. Water that moves at five to seven miles per hour, or seven feet per second carries over a hundred pounds of pressure per square foot. This means that once an undercurrent takes hold the pressure of the water holds you there and literally crushes you.

When walking parallel to a stream try and read the bank for stability. Maintain as much distance as possible from the edge in the event that you are not able to assess the bank ahead of you. Also review the safety manual section G14 pertaining to Muskeg for more information on possible land dangers.

Ferry your equipment across on flotation devices (real or makeshift raft or boat). A highline can be used as an alternative. Ignorance of the hazards will result in lost equipment.

Wet clothing contributes to hypothermia. As part of your plan, prepare for being able to start a fire or find another source of shelter.

While in any wilderness area be sure to keep in mind your safety plan and utilize it to ensure the safety of yourself and others in your party.

Stream Crossing By Vehicle

The following guidelines apply to standing or slowly flowing water. Higher stream flow can be very hazardous, even on solid roadways. Part of the roadway may have been eroded, forming deep holes. Hub-deep flowing water can move vehicles. Debris flowing in the stream can be very dangerous. Even sand flowing across a road can be a hazard if you drive too quickly. The safest alternative is to wait for the flow to decrease, which can be only a few minutes for small drainages.

- Cross streams slowly and at a slight angle to minimize streambed damage and to keep water out of the engine's air intake. Create a steady "bow wake" that will form an air pocket in and around the engine bay and away from tires if water is bumper height.
- Always check the water depth, if the water is higher than your engine's air intake, do not cross. Water in the engine will stall it and can also pollute the stream.

The following is **only a guideline** for stream crossing:

- If the water is hub depth or less: Usually no problems crossing.
- Hub to bumper: Check air intake height and proceed slowly.
- Bumper to bottom of headlights: Use extreme caution, as sudden dips in the streambed could mean water in the air intake.
- If at headlight level: **Do not attempt to cross.**
- **Always** check your brakes after crossing water.

ICE CROSSING

- Never go alone and never go on ice if there is any question of its safety.
- Wear ice safety picks (worn sheathed or retracted, around the neck).
- When changing locations on the ice always walk at least 10 feet apart from your buddy.
- Visually observe the ice from water’s edge before starting onto the ice. Look for evidence of recent thaws, open water, etc.
- Stay away from cracks, seams, pressure ridges, slushy areas and darker areas that signify thinner ice.
- **Do NOT walk out on the ice** until there are at least 4 inches of clear, solid ice.
- Look closely at the ice before setting foot on it. The strongest ice will appear a clear blue or blue black and be free of snow, air bubbles or debris. Weak ice (also known as ‘rotten ice’) is white, brittle, mixed with snow, or filled with air bubbles.
- Looking at the surface is not a good way to gauge ice thickness. The only way to verify the thickness is by cutting a hole in the ice. Be sure you continue to make more test holes as you move further away from shore.
- **Snow** can act like a blanket insulating the water below. Snow can insulate ice and keep it strong. It can also insulate it to keep it from freezing. Snow cover also hides the surface and can mask rotten ice and thin spots. You should always be cautious when moving across snow-covered ice.
- **Slush** is a danger sign. It indicates that ice is no longer freezing from the bottom and indicates weak or deteriorated ice.

Description and thickness	Strength	Other
clear blue ice, < 3” thick	Unsafe, can break anytime under the weight of an average person	Do not traverse
clear blue ice, 3-5” thick	Capable of holding up a human	Groups should spread out as traveling together will stress the ice
clear blue ice, < 6-8” thick	Capable of supporting a group of people or equipment like a ski mobile	Minimum thickness needed for group activity

(Section M02 contains Field Medical Conditions including Hypothermia and Frostbite.)

MUSKEG

Muskeg is an acidic soil type common in Arctic and boreal areas, although it is found in other northern climates as well. Muskeg is more-or-less synonymous with bogland but muskeg is the standard term in non-Atlantic Canada and Alaska (while bog is more common elsewhere). The term is Cree origin, muskek meaning low lying marsh. Large tracks of this soil existing in Siberia may be called muskeg or bogland interchangeably. Muskeg consists of dead plants in various states of decomposition (as peat), ranging from fairly intact sphagnum moss, to sedge peat, to highly decomposed muck. Pieces of wood such as buried tree branches can make up 5 to 15% of the peat soil. Muskeg tends to have a water table very near the surface. As well, the sphagnum moss forming it can hold 15 to 30 times its own weight in water, allowing the spongy wet musket to form even on sloping ground. Muskeg patches are ideal habitats for beavers, pitcher plants, agaric mushrooms and a variety of other organisms.

Composition:

Muskeg forms because permafrost, clay or bedrock prevents water drainage. The water from rain and snow collects in an area forming permanently waterlogged vegetation and stagnant pools. Muskeg is wet, acidic, and relatively infertile which prevents large trees from growing, although stunted Shore Pine, cottonwood, some species of Willow and Black Spruce are typically found. It needs two conditions to develop: abundant rain and cool summers. A dead plant that falls on dry soil is normally attacked by bacteria and fungi and quickly rots: if however the same plant lands in water or on saturated soil it faces a different fate. Less oxygen is available under water so aerobic bacteria and fungi fail to colonize the submerged debris effectively. In addition cool temperatures retard bacterial and fungal growth. This causes slow decomposition, and thus the plant debris gradually accumulates to form peat and eventually muskeg. Depending on the underlying topography of the land muskeg can reach depths of 30 meters (100 feet) or more.

Description:

Although at first glance muskeg resembles a plain covered with short grasses, a closer look will reveal a bizarre and almost unearthly landscape. Small strands of stunted and often dead trees that vaguely resemble Bonsai trees grow where land protrudes above the water table, with small pools of water stained a dark red scattered about. Its grassland appearance invites the unwary to walk on it, but even the most solid muskeg is spongy and waterlogged. Traveling through muskeg is a strange and **DANGEROUS** experience for the unaccustomed. Muskeg can grow atop bodies of water, especially small ponds and streams. Because of the water beneath, the muskeg surface sometimes ripples underfoot. Thinner patches allow large animals to fall through, becoming trapped under the muskeg and drowning. Moose are a special disadvantage in muskeg due to their long legs, minimal hoof area, and large mass. Young moose are

occasionally encountered in muskeg covered ponds submerged up to their torsos or necks, unaware that the ground was not stable enough for them to walk on.

Surface Strength:

Muskeg can be a significant impediment to transportation. During the 1870s, muskeg in Northern Ontario was reported to have swallowed a railroad engine whole when a track was laid on muskeg instead of clearing down to bedrock. Many other instances have been reported of heavy construction equipment vanishing into muskeg in the spring as the frozen muskeg beneath the vehicle thawed. Construction in muskeg-laden areas sometimes requires the complete removal of the soil and filling with gravel. If the muskeg is not completely cleared to bedrock then its high water content will cause buckling and distortion from winter freezing, much like permafrost. One method of working atop muskeg is to place large logs on the ground, then cover those logs with a thick layer of clay or other stable material. This is commonly called corduroy road. To increase the effectiveness of corduroy, prevent erosion, and allow removal of material with less disturbance of the muskeg, sometimes a geotextile fabric is placed down before the logs. When working in areas where muskeg is found workers should always take additional precautions and be aware of its dangers. Crew members should never work alone and should report these conditions as soon as possible. They should not walk in these areas if at all possible. If the area must be accessed they should have more than one crew member present and move with extreme care.

HAZARD REGISTERS

Hazard Register: Weather Hazards

Hazard or Threat	Consequences	Prevention	Care
<u>Weather- Heat Cramps</u> (muscle spasms in legs or abdomen)	Minor illness and discomfort	Drink plenty of fluids; wear broad-brim hat; cool skin with damp cloths; watch for heat stress symptoms in co-workers.	Rest in cool place; drink cool water or sports drink.
<u>Weather- Heat Exhaustion</u> (headache, nausea, dizziness, weakness)	Illness and discomfort	Drink plenty of fluids; wear broad-brim hat; cool skin with damp cloths; watch for heat stress symptoms in co-workers	Rest in cool place; drink cool water or sports drink. Discontinue work for remainder of day.
<u>Weather- Heat Stroke</u> (red, hot, dry skin; rapid weak pulse; rapid shallow breathing; changes in consciousness)	Illness to fatality	Drink plenty of fluids; wear broad-brim hat; cool skin with damp cloths; watch for heat stress symptoms in co-workers	Call 911 if victim refuses water, vomits, or loses consciousness. Do not give fluids to unconscious or vomiting victim. Cool body with cold packs or ice packs.
<u>Weather- Hypothermia</u> (shivering, drowsy, confusion, cool pale skin, slurred speech)	Illness to fatality	Dress appropriately for cold, wet and windy conditions. Layered clothing, gloves and headgear.	Move out of cold. Change wet clothing. Rewarm slowly, emphasize warming body core first.
<u>Weather- Lightning</u>	Minor injury to fatality	Discontinue field operations if strikes are within 4 miles; disconnect all wires from equipment; clear all wires from vehicles; remain indoors or in vehicles during storm.	Call 911 if any person is hit or may have been hit by lightning; check victim; ensure breathing; ensure pulse; begin CPR if necessary; watch for symptoms of shock.

Hazard Register: Wildlife Hazards

Hazard or Threat	Consequences	Prevention	Care
<u>Wildlife- Insects</u>	Minor injury to fatality	Avoid contact when possible; wear long-sleeved shirt and ankle-length pants. Watch for allergic reactions (rash; swelling of face, neck, tongue; difficulty in breathing)	Remove stinger and wash wound; apply cold pack. If allergic reaction is suspected, Call 911.
<u>Wildlife- Spiders</u>	Minor injury to fatality	Avoid contact when possible; wear long-sleeved shirt and ankle-length pants. Watch for allergic reactions (rash; swelling of face, neck, tongue; difficulty breathing)	Wash wound; apply cold pack; seek medical care. If allergic reaction is suspected, Call 911.
<u>Wildlife- Scorpions</u>	Minor injury to fatality	Avoid contact when possible; wear long-sleeved shirt and ankle-length pants. Watch for allergic reactions (rash; swelling of face, neck, tongue; difficulty breathing)	Wash wound; apply cold pack; seek medical care. If allergic reaction is suspected, Call 911.
<u>Wildlife- Snakes</u>	Minor injury to fatality	Avoid contact when possible; wear ankle-length pants and boots.	Call 911 if snake is suspected of being venomous. Keep bitten part still and lower than heart; keep victim calm and inactive; do not cut or suction the bite wounds; identify snake if possible.
<u>Wildlife- Other Animal Bites</u>	Minor injury to fatality	Avoid contact when possible; wear ankle-length pants and boots.	Wash wound and control bleeding; apply antibiotic; seek medical care; identify animal if possible; contact animal control.

Hazard Register: Operational Hazards

Hazard or Threat	Consequences	Prevention	Care
<u>Altitude Illness</u> (headache, weakness, upset stomach) (difficulty breathing, confusion, motor coordination problems)	Illness to fatality	Gradually acclimate, climbing over several days if needed.	Minor symptoms may be relieved by rest. Go to lower elevation is best.
<u>Vehicular Transport</u>	Minor injuries to fatalities	Observe all traffic laws and posted speed limits. Use reduced speed in congested areas around landfill entrance and exit.	Call 911 for serious injuries; Check scene for safety; check victim; ensure breathing; ensure pulse; control bleeding; watch for shock; use appropriate first aid if necessary.
<u>Ground Traverse</u>	Trips and falls; minor to major injuries,	Wear appropriate footwear providing ankle support.	Check scene and victim; use appropriate first aid if necessary.
<u>Electrical Shock</u>	Minor burns to fatalities	Observe all standard operational safety rules; warn all visitors of electrical dangers; immediately discontinue use of questionable transmitters; wear appropriate footwear.	Call 911 for serious injuries; Check scene for safety; check victim; ensure breathing; ensure pulse; begin CPR if necessary.

Hazard Register: Site Hazards

Hazard or Threat	Consequences	Prevention	Care
<u>Contact with Waste</u>	Minor infection	Do not pick up or handle any waste material; wear gloves to avoid accidental contact.	Wash with soap and water after any physical contact.
<u>Wind-born dust or irritants</u>	Minor eye irritation or ingestion	Wear safety goggles and dust mask on windy days.	Flush with water; seek medical help if irritation continues, or if irritants can not be removed.

MEDICAL

PROCEDURES FOR COMMON EMERGENCIES

A. ACCIDENTS/INJURIES ILLNESSES

In the event of an accident resulting in injury or illness, the following steps must be taken:

1. Sound alarm as soon as possible.
2. Administer first aid/CPR **only** if qualified and only to extent qualified – qualified person(s) should be identified during tailgate safety meetings.
3. If inhalation of gas, fumes, dust, or mists are involved, all personnel are to evacuate to upwind locations.
4. Emergency Coordinator takes charge.
5. If medical attention is needed, contact emergency medical responders.

B. CHEMICAL EXPOSURE (SKIN/EYES)

In the event of skin or eye contamination, the following steps must be taken:

1. Sound alarm as soon as possible.
2. Proceed to emergency eyewash and shower if available. The location must be identified during tailgate safety meetings.
3. Thoroughly de-contaminate with copious amounts of water.
4. Emergency Coordinator takes charge.
5. If eye irritation persists, seek immediate medical attention.

C. SPILLS AND RELEASES

1. Sound alarm as soon as possible.
2. Contain spill or leak to smallest area using shovels to build soil berms.
3. Emergency Coordinator takes charge.
4. Clean up spill, if possible, using sorbent materials if liquid. If solid material place in disposal drums. Solid materials contaminated with liquids as a result of a spill should also be placed in disposal drums.
5. Resume normal operations once clean-up is complete.

In a event that spill should be large enough to threaten human health and/or the environment, the following information **must be provided immediately to the appropriate authorities**:

EPA National Response Center (800) 424-8802

a. Tucson, Arizona

- Local **911**.
- Tucson Dept of Emergency Management (520) 791-4512
- Tucson Dept of Environmental Protection (520) 791-4014
- U.S. EPA Region 9 (415) 947-8713

b. Reno, Nevada

- Local **911**.
- Nevada Department of Public Safety - Emergency Management
City of Reno, Nevada (775) 334-2328
State of Nevada (775) 687-0300
- Nevada Division of Environmental Protection (775) 687-4670
- Nevada Division of Environmental Protection,
Emergency Management State Highway Patrol (702) 687-4240
- U.S. EPA Region 9 (415) 947-8713

c. Lakewood, Colorado

- Local **911**.
- Colorado EPA (U.S. EPA Region 8) (303) 293-1788

d. Beaverton, Oregon

- Local **911**.
- U.S. EPA Region 10 (206) 553-4973

Provide the following information to these agencies:

- a. Name and phone number of reporting person.
- b. Name and address of location.
- c. Time and type of incident.
- d. Name and quantity of material involved.
- e. Extent of injuries.
- f. Possible hazard to human health and/or the environment.

EMERGENCY COORDINATOR ASSISTS OFF-SITE RESPONDERS.

FIELD MEDICAL CONDITIONS

HYPOTHERMIA

It is important that while working in the field you are aware of the risk of hypothermia. Hypothermia occurs when the body's temperature falls below 95F (35°C). Hypothermia can be caused from:

- Prolonged exposure to cold conditions
- Being in cold water for a long time
- Spending excessive time in wet clothes

Prevent hypothermia by:

- Checking with your doctor to see if any medications you are taking will affect you while working in cold environments.
- Checking weather conditions before leaving for the field.
- Dress appropriately for cold, wet and windy conditions. Layer clothing to adjust to changing weather.
- Wear weatherproof outer layers and weatherproof boots to stay dry. Use gloves, socks, underwear and warm headgear. Take spares in case you get wet.
- Take breaks to reduce the risk of physical fatigue.
- If caught in a snowstorm find shelter as soon as possible or increase physical activity to maintain body warmth.

Symptoms may include:

Feeling cold	Confusion/ Dizziness
Cool, pale skin	Difficulty in breathing/Slowed breathing
Shivering	Slurred speech
Loss of concentration, poor judgment	Dilated pupils
Loss of control over fine motor coordination	Coma
Drowsiness/ Lethargy	Death

First Aid for Land temperatures:

- **Move the person out of the cold.** Cover their head, wrap in blanket, protect from wind and insulate from cold ground. Do not leave alone.
- **Remove wet clothing. Replace with dry, warm, covering.**
- **Try to warm victim. Do not apply direct heat. Do not use hot water, heating pad or heat lamp. Do not attempt to warm arms and legs, do not put in a warm water bath and do not massage or rub the person this could stop their heart.**
- **Apply warm compresses or warm bottles to the neck, arm pits, chest wall and groin. Warm the body core first.**

- Keep the patient still and do not let them help you.
- **Share body heat.** Remove your clothing and lie next to the victim making skin contact. Cover both bodies with sleeping bag or blanket.
- **If the victim is alert, do not give alcohol or drinks containing caffeine. Warm broth, warm sugar water or warm sports drinks are best.**
- Continue monitoring breathing. **If victim stops breathing start CPR.**
- **Do not assume the person is dead. CPR can be lifesaving for a person with severe hypothermia who may appear to be dead.** They may not be breathing, have no pulse, be cold to touch, have fixed pupils and be rigid, but they may still be alive. A person is not DEAD until s/he is WARM AND DEAD.
- **Get to an emergency medical facility immediately.**

First Aid For Water Temperatures:

- Call for emergency help immediately. Body heat is lost up to 25 times faster in water.
- **DO NOT REMOVE ANY CLOTHING. Button, buckle, zip and tighten any collars, cuffs, shoes and boots because the layer of trapped water closest to the body provides a layer of insulation that slows the loss of heat. Keep head out of water and put on a hat or hood.**
- Get out of the water as quickly as possible or climb on anything floating. Do not attempt to swim unless a floating object or another person can be reached because swimming or other physical activity uses the body heat and reduces survival time by about 50%.
- If getting out of the water is not possible, wait quietly and conserve body heat by holding arms across the chest, keeping thighs together, bending knees and crossing ankles. If another person is in the water huddle together with chests held closely.
- Get to emergency medical facility as soon as person has been removed from the water and is stable enough to move.

FROST BITE

Frostbite is distinguishable by the hard, numb, pale, and cold skin that has been exposed to the cold for a length of time. The area is likely to lack sensitivity to touch, although there may be an aching pain. As the area thaws, the flesh becomes red and very painful. Very severe frostbite may cause blisters, gangrene (blackened, dead tissue), and damage to deep structures such as tendons, muscles, nerves, and bone.

To prevent frostbite wear suitable clothing in cold temperatures and protect susceptible areas. Wear gloves, wind-proof, water-resistant, many-layered clothing; two pairs of socks (cotton next to skin, then wool); and a scarf and a hat that cover the ears (to avoid substantial heat loss through the scalp).

First Aid for Frostbite:

Move the victim to a warmer place and shelter him/her from the cold. Remove any constricting jewelry and wet clothing. Look for signs of hypothermia and treat accordingly.

- **Do not rub affected areas. Rubbing could cause damage to skin.**
- Do not attempt to rewarm frostbite until the affected areas can be kept warm. Severe damage will result from refreezing.
- If immediate care is not available, repeatedly apply warm cloths to affected ears, nose, or cheeks for 20 to 30 minutes. If warm (105 F) water is available, gently place affected areas (fingers, toes or feet) in a warm water bath. Do not pour warm water directly on the affected area. Severe burning pain, swelling and color changes may occur during warming. Warming is complete when the skin is soft and sensation returns usually in 25-40 minutes.
- If immediate medical help is available, it is usually best to wrap the affected areas in sterile dressings (**remember to separate affected fingers and toes**) and transport the victim to an emergency department for further care.
- If the frostbite is extensive, give warm drinks (**no alcohol**) to the victim in order to replace lost fluids.

HEAT RELATED ILLNESSES

To prevent heat related illnesses, build up tolerance to heat and work activity before going to the field. This usually takes up to 2 weeks.

While in the field drink plenty of cool water or sports drinks (small cup every 15-20 minutes). Wear light, loose fitting, breathable (like cotton) clothing. Take breaks in shaded areas to cool down. Avoid caffeine drinks as they cause the body to lose water.

Heat Cramps

- Stop activity
- Rest in cool/shady area,
- Drink cool liquids

Heat Exhaustion

- Pale with cool, moist skin
- Sweating profusely, mood changes
- Feeling faint or collapsing
- Headache, weakness, thirst, nausea

First Aid for Heat Exhaustion:

- Stop activity.
- Rest in cool/shaded area. Remove heavy clothing
- Drink plenty of cool liquids (water/sports drinks), a small cup every 15 minutes.
- If light-headed lay victim on their back. If nauseous, lay victim on their side.
- If needed seek emergency care.

Heat Stroke

- Flushed, hot, dry skin
- Dizziness, Confusion or Delirium
- Possible hyperventilation.
- Seizures/fits
- Unconscious or abnormal mental status

First Aid For Heat Stroke (Heat Stroke is a medical emergency)

- Move victim to cool shaded area, and do not leave alone.
- If having seizures remove any objects close by so they will not strike against them.
- Remove any heavy outer clothing.
- If sick to stomach, lay on their side.
- Cool skin with cool spray mists of water or wet cloths or sheets.
- Place ice packs if available, under the arm pits and groin area.
- **Get emergency medical care immediately.**

ALTITUDE SICKNESS

General rule: It is far safer to avoid altitude sickness by planning a sensible itinerary that allows for gradual acclimation to altitude as you ascend (climb up).

Altitude sickness can occur in some people as low as 8,000 feet, but serious symptoms do not usually occur until over 12,000 feet. Even then, it is not the height that is important, rather the **speed at which you ascended** to that altitude.

Some of the first signs of high-altitude illness.

- Headache
- Lightheadedness
- Weakness
- Trouble sleeping
- Upset stomach

First Aid for altitude sickness:

- Stop going up or go back down to a lower altitude
- Rest until your symptoms go away.

More severe symptoms:

- Difficulty breathing even while you're resting
- Coughing
- Confusion
- Inability to walk in a straight line

First Aid for severe symptoms of altitude sickness:

- Go to a lower altitude right away
- Get help from a doctor

FOOD AND WATER SAFETY

Food Safety

- Always wash your hands before eating and preparing food.
- If camping keep food at proper temperatures and away from animals and insects.
- Wash vegetables and produce before eating or preparing to cook.
- Do not eat from street vendors.
- Eat at reputable restaurants.
- To be on the safe side, never eat any wild flora while working in the field. You may think you know what a plant is and want to eat it, however, many plants have the same visual characteristics as other plants and if eaten may cause extreme illness or even death.

Symptoms of Food Poisoning:

- Vomiting
- Diarrhea
- Dehydration

First Aid for Food Poisoning:

- Avoid physical exertion
- Drink water/sports drinks to stave off dehydration
- Seek medical attention if symptoms do not go away after 24 hours.

Drinking Water Safety

You should always assume natural occurring water is contaminated unless it has been purified. To be safe drink bottled water only, especially in developing countries. Do not use the ice as it is probably made with contaminated water. Cook only with bottled water.

Symptoms of drinking contaminated water:

- Fever
- Cramps
- Nausea
- Vomiting
- Diarrhea

First Aid for drinking contaminated water:

- Seek medical assistance and follow instructions

Giardiasis (gee-ar-dye-a-sis)

Clear, cold, free-running “natural water may not be as clean or safe as it looks. Drinking it untreated could result in an intestinal disorder called Giardiasis (gee-ar-dye-a-sis). It can cause you severe discomfort. The culprit is a microscopic organism, *Giardia lamblia* that colonizes and reproduces in the small intestine, and is sometimes found in mountain streams and lakes. These natural waters may look, smell and taste good. You may see wildlife drinking without hesitation from these sources. Don’t assume the water is safe to drink. *Giardia* may or may not be present, but you should be aware of the possible danger. *Giardia* can be readily transmitted between humans and animals. Feces (human and animal waste) can contain the organism. Bury all waste 8 inches deep and at least 100 feet from natural waters.

Symptoms and Treatment

Although giardiasis can be incapacitating, it is not usually life threatening. Symptoms may appear a few days to a few weeks after drinking contaminated water and may last up to 6 weeks. They include:

- Diarrhea
- Increased gas
- Loss of appetite
- Abdominal cramps
- Bloating
- Weight loss

Treatment is important. See your doctor. If not treated, the symptoms may disappear on their own, only to recur intermittently over a period of many months. Other diseases can have similar symptoms, but if you have drunk untreated water you should suspect giardiasis and inform your doctor. With proper diagnosis, your doctor can prescribe medication to cure the disease.

Protect Yourself:

If you must use raw water it needs to be treated. The most certain treatment to destroy giardia is to boil water for at least 3 minutes. Boiling will also destroy other organisms causing waterborne disease. At high altitudes, you must maintain the boil for 5 minutes for an additional margin of safety.

Chemical disinfectants such as iodine or chlorine tablets or drops are not considered as reliable as heat in killing giardia, although these products work well against most waterborne bacteria and viruses that cause disease. In an emergency where chemical disinfection is necessary, use an iodine-based product, since iodine is often more effective than chlorine. If possible, filter or strain water first, and then allow the iodine to work at least 30 minutes before you drink the water. If the water is cold or cloudy, wait at least an hour or use more iodine.

SUNSCREEN / SUN PROTECTION INFORMATION

The following information was provided by a local Dermatology lab located in Tucson Arizona. Sunscreen recommendations are listed as well as web sites that you can use as references for clothing that is available on the market today.

Facts:

- UVA is the same strength everyday and is responsible for photo-aging.
- Products containing zinc oxide are physical sun blocks that block the entire spectrum of both UVB and UVA.
- Tanning beds and sunbathing cause harmful UV exposure.
- Self tanning lotions and sprays are a safe alternative but do not offer SPF protection.
- A typical white t-shirt has an SPF of 3.
- Visor hats and baseball hats are not adequate protection.
- Wet clothing has decreased SPF.
- Surfing rash guards or swim shirts also provide excellent sun protection for adults and children. Suggested manufacturers: Quicksilver, Volcom, Oneill, and Body Glove which are widely available on the internet.

What To Do:

- Avoid sunbathing and limit exposure to sun during the hours of 10 am and 4 pm.
- Wear sunglasses, a wide brimmed hat, and if possible high UPF (ultraviolet protection factor A & B) clothing.
- Apply a zinc oxide sunscreen with a minimum of SPF 30 as part of your daily regimen. If you engage in outdoor activities consider higher SPF sunscreen and reapply every 2 hours, even on cloudy days.
- No sunscreen is “waterproof”, so reapply sunscreen after swimming or excessive sweating.

Recommended Sunscreens:

Elta Gold UV Shield SPF45
Elta Gold UV Sport SPF 50
Elta Gold UV Facial Block 30+
Solbar Sunblock SPF 40

Obagi Healthy Skin SPF 35
Obagi C Sunguard SPF 30
Vanicream Sunscreen SPF 60
Vanicream Lip Protectant SPF 30

Recommended UPF Clothing:

www.coolibar.com
www.alexandme.com

www.sunprecautions.com
www.solareclipse.com

POISONOUS PLANTS

What are poison ivy, oak, and sumac?

Poison ivy, poison oak, and poison sumac are plants that can cause a skin rash when they touch your skin. The red, uncomfortable, and itchy rash often shows up in lines or streaks and is marked by fluid-filled bumps (blisters) or large raised areas (hives). It is the most common skin problem caused by contact with plants.

Treatments: Wash with hot soapy water immediately after touching the poison oak. Change clothing as soon as possible after exposure and handle contaminated clothing carefully to avoid spreading the poison oak. Launder clothes several times in hot soapy water before re-wearing.

- Use calamine lotion as a topical treatment.
- Aloe Vera gel can help heal skin irritated by scratching.
- Check with local pharmacist for other over counter remedies.
- Do not use topical steroids unless specifically instructed to do so by a physician.
- Do NOT wash the body with any concentration of liquid bleach after a poison oak exposure. Bleach is not helpful and the vapors can be irritating to the eyes, nose, throat and lungs. Bleach will irritate inflamed skin even more, causing redness and pain to sensitive body parts.

WEATHER CONDITIONS

Safety will be a fundamental consideration during field and office operations. Anyone engaging deliberately in unsafe or unlawful behavior will not be allowed to participate further in Zonge operations.

Under the best of circumstances, the crews should not have to deal with rain, hail, and wet roads. However, the reality of storms will require the field teams to operate under less than ideal conditions. The following are some suggestions for the field crews to make this experience as painless as possible. Everyone should be prepared for the conditions they may well encounter. It makes sense to have some sort of rain gear preferably a rain suit or poncho. Remember, however, that a poncho can blow about and render it ineffective against the wind and rain. A change of shoes and socks might be useful (muddy, water-filled ditches). It would be prudent to have a full overnight kit for each crew member in case of emergencies. Be sure to bring along any personal medications you need, including allergy medicine, pain relievers, antacid tablets, and so forth for minor discomforts. If you have any medical conditions (e.g. asthma) or allergies (e.g., to bee stings or to penicillin) that the rest of the crew needs to know about, be sure to let them know in advance.

While it is possible to make brief stops to buy snacks and drinks on the road, you should bring your own snacks and drinks: the crew may not be able to stop to let you buy what you want, when you want it. Bring a sack lunch each day as you will on most days not be in the position to stop and go to the nearest town to eat. Drink plenty of fluids to avoid dehydration. Also should a sudden storm appear and you cannot get back to a dry location in time you will have food and water to help wait out the storm.

Sunglasses are quite useful, particularly if they are UV blockers and even polarized to reduce glare. Headaches can result from glare associated with excessive sunlight. A hat with a brim is useful to keep the sun off your eyes, face and neck. Bring along and/or use a sunscreen, and long sleeves may be a viable option. Work locations are often full of chiggers, various bugs and even ticks. Insect repellent applied to your pants and/or legs can reduce this annoyance considerably. It is useful to have a jacket or windbreaker along, since it can get quite cool late in the day on a thunderstorm day.

<http://www.weather.gov/om/brochures/ttl.pdf>

NOAA Weather Radio is the best means to receive warnings from the National Weather Service

The National Weather Service continuously broadcasts warnings and forecasts that can be received by NOAA Weather Radios, which are sold in many stores. The average range is 40 miles, depending on topography. Purchase a radio that has a battery back-up and a Specific Area Message Encoder (SAME) feature, which automatically alerts you when a watch or warning is issued for your county or parish.

THUNDERSTORMS

All of the weather conditions in this section can be produced by Thunderstorms. Thunderstorms affect relatively small areas compared with hurricanes and winter storms. Despite their small size, ALL thunderstorms are dangerous. The typical thunderstorm is 15 miles in diameter and lasts an average of 30 minutes. Of the estimated 100,000 thunderstorms that occur each year in the United States, about 10 percent are classified as severe.

The National Weather Service considers a thunderstorm severe if it produces hail at least ¾” in diameter, winds of 58 mph or stronger, or a tornado. Every thunderstorm needs moisture to form clouds and rain. Unstable air is warm air that can rise rapidly. Cold or warm fronts, sea breezes, mountains, and the sun’s heat are capable of lifting air to form thunderstorms.

In a Developing Stage of a thunderstorm, towering cumulus could indicate rising air. There is usually little if any rain during this stage, it lasts about 10 minutes and has occasional lightning. A Maturing Stage Thunderstorm is likely to form hail, heavy rain, frequent lightning, strong winds and tornadoes. Storms occasionally have a black or dark green appearance. They last an average of 10 to 20 minutes, but may last much longer. In a Dissipating Stage storm the rainfall decreases in intensity but can still produce a burst of strong winds. Lightning remains a danger.

Flash floods and floods are the #1 cause of deaths associated with thunderstorms, more than 140 fatalities each year. Most flash flood fatalities occur at night and most victims become trapped in automobiles. Six inches of fast-moving water can knock you off your feet. Two feet of water will float most vehicles.

Large hail can accompany thunderstorms. Strong rising currents of air within a storm, called updrafts, carry water droplets to a height where freezing occurs. Ice particles grow in size, becoming too heavy to be supported by the updraft, and fall to the ground. Large stones fall at speeds faster than 100 mph.

Being Prepared

Preparedness information, combined with timely severe weather watches and warnings could save your life. Once you receive a warning or observe threatening skies, YOU MUST make a decision to seek shelter before the storm arrives. It could be the most important decision you will ever make. You should always notify (if possible) your working location that you are leaving the work area due to an approaching storm.

Listen to the radio and television for weather information before you mobilize for the day. Always review with your crew what needs to be done should a sudden storm appear. Watch for signs of approaching storms.

Flash flood safety rules include: Avoid walking or driving in flood waters. Stay away from high water, storm drains, ditches, ravines, or culverts. If it is moving swiftly, even

water six inches deep can knock you off your feet. If you come upon flood waters, stop, turn around, and go another way. Climb to higher ground and wait for the storm to pass and the water levels to recede.

LIGHTNING

The nature of thunderstorms varies with each storm. To estimate the approximate distance of lightning, every 5 seconds equals approximately 1 mile, between the time you see the flash and the time you hear the thunder.

You can **reduce** the risk of injury or death when working in lightning prone areas by following the safety guidelines listed below:

Working Indoors:

- Stay off corded phones, computer and other electrical equipment that puts you in direct contact with electricity.
- Stay away from sinks, showers and other plumbing.
- All key equipment will have surge protectors.
- All circuits near water or outdoors will have ground fault protectors.
- If possible, wait 30 minutes after the last sound of thunder before going outside.

Working in the field:

- Monitor weather forecasts each day before leaving for the field. Thunderstorms are most likely to develop on spring or summer days but can occur year round. As the sun heats the air, pockets of warmer air start to rise and cumulus clouds form. Continued heating can cause these clouds to grow vertically into towering cumulus clouds, often the first sign of a developing thunderstorm.
- Lightning can strike as far away as 10 miles from the area where it is raining. If you can hear thunder, you are within striking distance. If a lightning storm is within 10 miles the crew needs to shut down and seek shelter immediately.
- The safest place to be during a lightning storm is inside your vehicle with the windows rolled up and doors closed. If you can not get back to your vehicle, move to a low spot away from trees, fences and poles. Make sure the place you pick is not subject to flash floods or other flooding.
- If you are working in the woods, move to an area with the shortest trees.
- If your skin starts to tingle or your hair stands on end, to prevent lightning from flowing through the entire body immediately squat down as low as possible to the ground leaning on the balls of your feet. Place your hands over your ears and your head between your knees. **Never put your hands on the ground. Do not lie down.**
- Never move electrode lines, receiver lines, or seismic cables when a thunderstorm is in the immediate area. All equipment must be disconnected from the wires and all field crewmembers shall remain clear of the wires until the storm passes. A lightning strike near these wires can induce a fatal current in the wire.

- The switch box should be disconnected from the transmitter and the input wires separated from the receiver if a thunderstorm is approaching. A direct hit by lightning (or even a very close strike) on the transmitter or receiver lines can produce spectacular effects on the equipment and the operator.
- Turn off and do not use radios with antennas.
- On CSAMT jobs turn the transmitter off, make sure wires are separated and off the truck.
- Never lean on any long linear item (fences, railings, etc.) during a lightning storm.

First Aid for Lightning Strike Victims

Lightning victims do not carry an electrical charge. First aid CPR can be administered immediately. Even with prolonged first aid CPR the resuscitation rate for lightning strike victims is high.

Lightning strikes are most dangerous for humans when the currents hit the chest area of the body. Strikes can stop the heart or cause cardiopulmonary arrest. It is important for at least one person in the group to have first aid CPR training. The primary first aid skill for lightning strike victims will be CPR.

First aid burn treatment for lightning victims requires getting the victim dry. Place a blanket under and over the victim. Place dry first aid gauze over the burn areas to protect the burns while waiting for emergency medical assistance. Observe the victim for possible signs of shock and hypothermia. For first degree burns apply first aid antibiotic ointment, burn cream or Aloe Vera gel. Do not apply first aid creams to burns that are blistering or bleeding.

Get victim to a medical emergency center immediately.

TORNADOS

Although tornadoes occur in many parts of the world, they are found most frequently in the United States.

In an average year, 1,200 tornadoes cause 70 fatalities and 1,500 injuries nationwide.

Weak Tornadoes account for 88% of all tornadoes. They account for less than 5% of tornado deaths and have a lifetime of 1-10+ minutes with winds less than 110 mph.

Strong Tornadoes account for 11% of all tornadoes. They account for nearly 30% of all tornado deaths, last 20 minutes or longer and have winds of 110-205 mph.

Violent Tornadoes account for less than 1% of all tornadoes. They account for 70% of all tornado deaths, have a lifetime that can exceed 1 hour and have winds greater than 205 mph.

Tornado Facts

- A tornado is a violently rotating column of air extending from a thunderstorm to the ground.
- Tornadoes may appear nearly transparent until dust and debris are picked up or a cloud forms within the funnel. The average tornado moves from southwest to northeast, but tornadoes have been known to move in any direction.
- The average forward speed is 30 mph but may vary from nearly stationary to 70 mph.
- The strongest tornadoes have rotating winds of more than 250 mph.
- Tornadoes can accompany tropical storms and hurricanes as they move onto land.
- Waterspouts are tornadoes which form over warm water. They can move onshore and cause damage to coastal areas.

When and Where Tornadoes Occur

- Tornadoes can occur at any time of the year.
- Tornadoes have occurred in every state, but they are most frequent east of the Rocky Mountains during the spring and summer months.
- In the southern states, peak tornado occurrence is March through May, while peak months in the northern states are during the late spring and summer.
- Tornadoes are most likely to occur between 3 and 9 p.m. but can happen at any time.

What To Do In Case of a Tornado:

Once you receive a warning or observe threatening skies, you must make the decision to seek shelter before the storm arrives. It could be the most important decision you will ever make. Occasionally, tornadoes develop so rapidly that advance warning is not possible. Remain alert for signs of an approaching tornado such as a dark, often greenish sky, large hail, or loud roar similar to a freight train.

- In a home (hotel) or building, move to a pre-designated shelter, such as a basement. If an underground shelter is not available move to a small interior room or hallway

on the lowest floor and get under a sturdy piece of furniture. Put as many walls as possible between you and the outside.

- Stay away from windows.
- Get out of automobiles
- Do not try to outrun a tornado in your vehicle, instead, leave it immediately for safe shelter.
- If caught outside or in a vehicle (get out of the vehicle) and find a ditch or depression. Lie flat in a nearby ditch or depression and cover your head with your hands.
- Be aware of flying debris. Flying debris for tornadoes causes most fatalities and injuries.
- Mobile homes, even if tied down, offer little protection from tornadoes. You should leave a mobile home and go to the lowest floor of a sturdy nearby building or storm shelter.

WINTER STORMS

<http://www.nws.noaa.gov/om/winter/resources/winterstorm.pdf>

The dangers of winter weather include HEAVY SNOW, ICE, WINTER FLOODING, and COLD. Recognize winter weather threats, develop an action plan and be ready when severe winter weather threatens. Remember ... your safety is up to YOU.

Why Talk About Winter Weather?

- Each year, dozens of Americans die due to exposure to cold. Add to that number, vehicle accidents and fatalities, fires due to dangerous use of heaters and other winter weather fatalities and you have a significant threat.
- Threats, such as hypothermia and frostbite, can lead to loss of fingers and toes or cause permanent kidney, pancreas and liver injury and even death. You must prepare properly to avoid these extreme dangers. You also need to know what to do if you see symptoms of these threats.
- A major winter storm can last for several days and be accompanied by high winds, freezing rain or sleet, heavy snowfall and cold temperatures.
- People can become trapped at home or in a car, without utilities or other assistance.
- Attempting to walk for help in a winter storm can be a deadly decision.
- The aftermath of a winter storm can have an impact on a community or region for days, weeks or even months.
- Extremely cold temperatures, heavy snow and coastal flooding can cause hazardous conditions and hidden problems.

Heavy snow can immobilize a region and paralyze a city, stranding commuters, closing airports, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can cause roofs to collapse and knock down trees and power lines. Homes and farms may be isolated for days and unprotected livestock may be lost. In the mountains, heavy snow can lead to avalanches. The National Weather Service issues outlooks, watches, warnings and advisories for all winter weather hazards. Below are warnings and what to do. Use the information to make an informed decision about your risk and what actions should be taken. Always discuss and review with your crew weather conditions and action to be taken should a storm hit before mobilizing to your job. Remember YOUR safety is up to YOU.

What to Listen For, Warnings:

Outlook: Winter storm conditions are possible in the next 2-5 days. Stay tuned to local media for updates.

Watch: Winter storm conditions are possible within the next 36-48 hours. Prepare now.

Warning: Life-threatening severe winter conditions have begun or will begin within 24 hours. Act now.

Advisory: Winter weather conditions are expected to cause significant inconveniences and may be hazardous. If you are cautious, these situations should not be life threatening.

Winter Storm Terminology:

Blizzard: Winds of 35 mph or more with snow and blowing snow reducing visibility to less than ½ mile for at least 3 hours.

Blowing Snow: Wind-driven snow that reduces visibility. Blowing snow may be falling snow and or snow on the ground picked up by the wind.

Snow Squalls: Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant

Snow Showers: Snow falling at varying intensities for brief periods of time. Some accumulation is possible.

Snow Flurries: Light snow falling for short durations with little or no accumulation.

Avalanche: An avalanche is a mass of tumbling snow. More than 80% of midwinter avalanches are triggered by a rapid accumulation of snow, and 90% of those occur within 24 hours of snowfall. An avalanche may reach a mass of a million tons and travel at speeds up to 200 mph.

Being Prepared Before the Storm and When Caught in a Winter Storm

Plan your travel and check the latest weather reports to avoid storm. Some of the items below under the Survival Kit area will be items that should be carried in vehicles at all times.

Fully check and winterize your vehicle before the winter season begins.

Avoid traveling alone and keep your gas tank near full to avoid ice in the tank and fuel lines.

Let someone know your job timetable, location, and primary and alternate routes at all times.

Carry a Winter Storm Survival Kit:

- Mobile phone, charger, batteries
- Blankets and/or sleeping bags
- Flashlight with extra batteries
- First-aid kit
- Knife
- High-calorie, non-perishable food
- Extra clothing to keep dry
- Large empty can for an emergency toilet, tissues and paper towels for sanitation
- Small can and waterproof matches to melt snow for drinking water
- Shovel, sack of sand or cat litter for traction
- Windshield scraper and brush
- Tool kit
- Tow rope
- Battery Booster cables
- Water Container
- Compass and road maps

Dress for the season. Wear loose, lightweight, warm clothes in layers. Trapped air insulates. Remove layers to avoid perspiration and subsequent chill. Outer garments should be tightly woven, water repellent, and hooded. Wear a hat. Half your body heat loss can be from the head. Cover your mouth to protect your lungs from extreme cold. Mittens, snug at the wrist, are better than gloves. Try to stay dry.

If caught in a winter storm avoid overexertion, such as shoveling heavy snow, pushing a car or wading in deep snow. The strain from the cold and the hard labor may cause a heart attack. Sweating could lead to a chill and hypothermia.

If you are outside, find shelter, try to stay dry and cover all exposed body parts.

If there is no shelter, build a lean-to, windbreak or snow cave for protection from the wind. Build a fire for heat and to attract attention. Place rocks around the fire to absorb and reflect heat. Melt snow for drinking water, eating snow will lower your body temperature.

If you are in a vehicle, stay in the vehicle. You will become quickly disoriented in wind-driven snow and cold. Run the motor about 10 minutes each hour for heat. Open the window a little for fresh air to avoid carbon monoxide poisoning. Make sure the exhaust pipe is not blocked. Be visible to rescuers. Turn on the dome light at night when running the engine. Tie a colored cloth, preferably red to your antenna or door. After snow stops falling, raise the hood to indicate you need help. Exercise, from time to time, move arms, legs, fingers and toes vigorously to keep blood circulating and to keep warm.

If you are inside a building, stay there. When using alternate heat from a fireplace, wood stove, space heater, etc. use fire safeguards and properly ventilate. If no heat is available, close off unneeded rooms. Stuff towels or rags in cracks under doors. Cover windows at night. Eat and drink. Food provides the body with energy for producing its own heat. Keep the body replenished with fluids to prevent dehydration. Wear layers of loose-fitting, lightweight, warm clothing. Remove layers to avoid overheating, perspiration and subsequent chill.

SAFETY PROCEDURES FOR WILDLIFE

SNAKES

How to prevent getting bitten by a venomous snake and what to do if you are bitten.

- Before leaving for a field job discuss the type of snakes that may be in the area along with type of first aid to be used and the availability of medical facilities in the area. Snakes are more active during certain times of the year. Some snakes become very aggressive at mating times.
- Always roll over stones or logs with your rock hammer or a long stick, not with your hand or foot. Roll them towards yourself to keep the object between yourself and the snake.
- Never reach-into a hole/crevice with your hand or foot.
- Use extra caution when climbing on rocks.
- Do not crawl under a fence with high grass without checking first for snakes.
- When working in tall grass, stamp on the ground and use a walking stick to sweep ahead of you.
- Always step up onto boulders and logs rather than stepping over them.
- Keep the doors of field vehicles closed so that snakes can't crawl inside.
- If in a field camp always check your sleeping bag before getting into it.

First Aid for Spitting Snakes:

1. Irrigate the eye and other mucous membranes immediately with large quantities of bland fluid – water is best but other fluids can be used such as milk or beer. In extreme emergencies urine can be used.
2. Continue irrigating the eyes for several minutes while opening eyelids and rotating eyeballs.
3. **Do not let victim rub their eyes.**
4. Have victim wear dark glasses if possible, if not, place patch over eyes and seek immediate medical attention.

First Aid for Vipers (Rattlesnakes) (tissue damaging bites)

1. Make sure scene and onlookers are safe. Stay calm.
2. **Do not use tourniquet or suck bite site.**
3. Do not tamper with bite. If bitten on a limb, remove all rings and tight fitting clothing.
4. Immobilize bitten limb with splints and slings
5. Monitor vital signs and undertake CPR if required.
6. Transport victim to emergency medical care with as little movement and stress as possible.
7. Give only small amounts of fluid if medical help is hours/days away.
8. Try and get a good description of the snake but **do not attempt to catch it.**

First Aid for Snakebites that DO NOT cause local tissue damage (puncture only).

This includes all Elapid snakes in Australia i.e. Taipan, Brown Snakes and Death Adders. Also includes selected cobras and African Mambas. **This is not a complete list.**

(1.,2.,& 3.) **Same as above for vipers (rattlesnakes).**

4. Immobilize affected limb using a “pressure immobilization bandage”. If the bite is on a limb; a broad bandage or torn strips of clothing should be applied over the bitten area at moderate pressure (do not cut off circulation) then cover as much of the bitten limb as possible, including fingers or toes, going over the top of the clothing. Then immobilize using a splint or sling.

5.,6.,7., & 8.) **Same as above for vipers (rattlesnakes).**



INSECT BITES

Insect Bites: General

Avoid insect contact when possible. Wear appropriate clothing-long sleeved shirts and ankle-length pants.

Possible reactions to insect bites:

- Rash
- Swelling of face, neck tongue
- Difficulty breathing

First aid for insect bites:

- Remove stinger. Do not cut into the wound or apply suction.
- Wash wound
- Apply cold pack
- Acetaminophen (Tylenol) 1-2 tablets every 4 hours may be given to relieve pain. Avoid aspirin and ibuprofen (Advil, Motrin).
- Antibiotics are not helpful.
- If allergic reaction call 911 and seek medical attention immediately



Desert Hairy Scorpion

The following pages provide more detailed information about Ticks, Black Widow spiders, and Brown Recluse spiders.

Insect Bites: Ticks

When you return from the field and think there might have been ticks in the area where you were working, carefully examine your skin and scalp for ticks. The sooner you remove a tick, the less likely they are to spread disease.

To remove a tick:

- Use fine-tipped tweezers. If you do not have tweezers, put on a glove or cover your hands with tissue paper and use your fingers. Never handle a tick with bare hands.
- **Do not try to burn the tick while it is attached to your skin.**
- Grab the tick as close to its mouth (the part that is stuck in your skin) as you can.
- Do not grab the tick around its bloated belly. This could push infected fluid from the tick into your body if you squeeze it.
- Pull the tick straight out until its mouth lets go of your skin. Do not twist or “unscrew” the tick, this could separate the head from the body.
- Do not try to smother a tick that is attached to your skin with petroleum jelly, gasoline or rubbing alcohol. This could increase your risk of infection.
- Put the tick in a jar or bottle filled with rubbing alcohol and save it for later identification if necessary.
- Wash the area of the tick bite with a lot of warm water and soap.
- If the bite becomes irritated, apply an antibiotic ointment and cover it with an adhesive bandage.
- After you remove the tick wash your hands well with lots of hot water and soap.

First Aid for Tick bites:

- Apply an ice pack to the bite for 15 to 20 minutes once an hour for the first 6 hours. When not using ice, keep a cool, wet cloth on the bite for up to 6 hours.
- A nonprescription medicine such as Benadryl or Chlor-Trimeton may help relieve itching, redness and swelling. Read precautions on label before using.
- A spray of local anesthetic containing benzocaine, such as Solarcaine, may help relieve pain. If your skin reacts to the spray, stop using it.
- Calamine lotion applied to the skin may help relieve the itching.
- After the first 6 hours if there is no swelling, try applying a warm cloth to the bite.



Insect Bites: Black Widow Spider

If you think you have been bitten by a black widow spider, if possible, make a positive identification.

The bite feels like a pinprick. You may not even know you've been bitten. At first you may notice only slight swelling and faint red marks. Within a few hours, though, intense pain and stiffness begin. Other signs and symptoms of a black widow spider bite include:

- Chills
- Fever
- Nausea
- Severe abdominal pain

First Aid for Black Widow Spider Bites:

If the spider bite is on an arm or a leg, tie a snug bandage above the bite to help slow or halt the venom's spread. Ensure that the bandage is not so tight as to cut off circulation in the arm or the leg.

- Clean the site of the spider bite well with soap and water. Apply a cloth dampened with cold water or filled with ice at the site of the bite. Aspirin or acetaminophen (Tylenol, others) may be used to relieve minor signs and symptoms in adults.
- **Seek immediate medical attention.** Treatment for the bite of a black widow may require an anti-venom medication.



Black vs Brown spiders

Insect Bites: Brown Recluse Spider

You can identify this spider by the violin-shaped marking on its top. The bite produces a mild stinging, followed by local redness and intense pain within eight hours. A fluid-filled blister forms at the site and then sloughs off to leave a deep, enlarging ulcer. Reactions from a brown recluse spider bite vary from a mild fever and rash to nausea and listlessness.

There is no anti-venom available in the United States to counteract the poisonous venom of the brown recluse spider.

First Aid for Brown Recluse Spider bites:

If the spider bite is on an arm or a leg, tie a snug bandage above the bite to help slow or halt the venom's spread. Ensure that the bandage is not so tight as to cut off circulation in the arm or the leg.

- Wash area thoroughly with cool water and mild soap.
- Apply ice to decrease pain and swelling.
- Elevate area if possible above level of your heart.
- Avoid any strenuous activity because this can spread the spiders venom in the skin.
- Seek medical attention immediately.

Do not do any of the following techniques:

- **Do not apply heat to the area, this will accelerate tissue destruction.**
- **Do not apply any steroid creams to the area such as hydrocortisone cream.**
- **Do not attempt to remove the spider venom with a suction device or to cut out the affect tissue.**

ANIMAL BITES

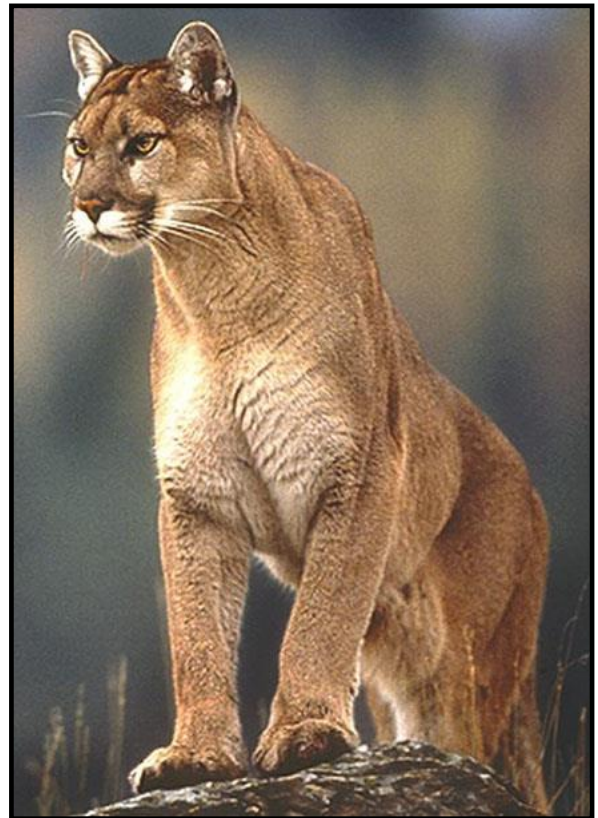
Avoid contact whenever possible. Wear appropriate clothing – long sleeved shirts, ankle-length pants and boots.

First aid for animal bites:

- Wash wound with soap and water
- Control bleeding
- Apply antibiotic ointment
- Seek medical attention
- Identify animal if possible
- Do not try to trap or catch the animal
- Contact animal control, or appropriate authorities.

Mountain Lions

- **Do not work alone if at all possible.**
- **Do not approach a mountain lion.** Most mountain lions will avoid a confrontation. Give them a way to escape.
- **Do not run from a mountain lion.** Running may stimulate a mountain lion's instinct to chase. Instead, stand and face the animal. Make eye contact.
- **Do not play dead.**
- **Do not crouch or bend over.** A human standing up is not the right shape for mountain lion's prey. However, a human bending over or squatting looks a lot like a four-legged prey animal.
- **Do all you can to appear large.** Raise your arms, open your jacket, throw stones and branches or whatever you can reach without crouching down or turning your back. Wave your arms slowly and speak firmly in a loud voice. The idea is to convince the mountain lion you may be a danger to it.
- **Fight back if attacked.** Fight back with a rock, sticks, caps, jackets, rock pick or any other tool you may have with you or use you bare hands. Mountains lions usually bite the head or neck, try to remain standing and face the attacking animal.



WORKING IN BEAR PRONE AREAS

Color does not always mean a brown colored bear is a Brown Bear.

Black bears tend to vary in color from pure black to brown, cinnamon orange to blonde. Black bears have a "Roman" profile, with a straight line running between the forehead and the tip of the nose. The ears of black bears are larger and more distinctly pointed.



Black Bear



Brown Bear (Grizzly)

Brown Bears (grizzlies) colors vary from brown to blonde frequently with white/light tips and usually with a large hump over the front shoulders (**but not always**). Grizzly bears have a dished-in profile, with a clear depression between the eyes and the end of the nose. Grizzlies have short rounded ears. Grizzly bear's claw marks extend farther away from the pads than black bears.

BE ALERT IN BEAR COUNTRY

<http://www.udap.com/safety.htm>

Be alert where recent bear activity has been documented. Some common areas where bears like to frequent are: avalanche chutes, stream beds, dense edge cover, and berry patches in late summer.

- Use extreme caution when travelling on trails at night or at either end of day.
- Be careful with food smells – never cook close to camp. Store all foods in plastic away from camp at night and when camp is unattended, at least 100 yards from camp and at least 14 feet up a tree hung 4 feet away from the trunk.

- Watch for fresh bear sign (scat or bear tracks) on the trail or near possible camp sites.
- If possible, make plenty of noise on the trail, especially on blind curves, in dense vegetation or areas with limited vision.
- Be conscious of the wind – bears have an excellent sense of smell. If the wind is at your back, chances are a bear will smell you and leave the area well before you reach it. If the wind is blowing in your face, your chances of an encounter greatly increase. Also, in high wind situations or along creeks and streams, a bear might not hear you coming or you might not hear a bear.
- If you come on a dead animal carcass, immediately leave the area. Bears will often feed on a carcass for days and also stay in the area to protect their food.
- If you see a bear cub, chances are the sow is not far away. Female bears will fiercely defend their young, so leave the area and find an alternative route.
- Keep dogs under control, they can lead an angry bear back to you.
- Do not travel alone in bear country. It is always safer to travel in groups.

AVOID PRIME BEAR HABITAT

Avoid areas that bears like and you can reduce your chances of an encounter. If you can't avoid these areas, be extra cautious and alert when travelling through them. Bears like to travel on saddles, ridges, game trails and along water. They'll eat dead animal carcasses whenever they can find them. They feed on green grasses and also vegetation that grows in wet areas. They often nest in cool, dark, thick forests. Grizzly bears are typically, but not exclusively active during the dawn, dusk, and nighttime hours.

In spring and early summer, bears are often found in lower elevations along rivers and streams. They love to catch fish when the spawning runs are going. They will also search for winter-killed animals in these areas.

In the summer, bears usually spend time at higher elevations, often in park like areas. They'll eat wild berries when they are ripe.

In the fall, bears are often found in white bark pine stands eating pine nuts. Sometimes a bear will dig around a tree to try to locate a squirrel's cache of nuts. Bears also dig for roots in mid-elevation meadows, especially in years when there are fewer pine nuts.

BE AWARE OF RECENT BEAR ACTIVITY

Always check with park officials, rangers, or other authorities regarding the area you intend to travel for possible bear activity. Always make sure others know where you are going to be in the back country. Learn to identify the signs of bear activity and avoid using these areas. Typical signs of grizzly bear use include: fresh tracks (a grizzlies claw marks extend farther away from pads than black bears), scat greater than 2 inches in diameter (most likely a grizzly's), areas where the ground may be torn up from bears scavenging, and partially consumed or buried animal carcasses.

BEAR BEHAVIOR

Bears seem to experience moods much like we do; they can be shy, curious, pushy, or aggressive, and can possess other attributes that we can identify as humanlike. Each time you get close to a bear, you encounter a specific individual that may behave differently from any other individual you have ever met before or will ever meet again.

Grizzly attack victims are often not aware of why they were attacked. Many attacks are caused by close encounters, where the bear has been surprised and feels threatened by human presence. A female with cubs will defend them aggressively. Many attacks can be avoided if the bear sees a way out of the situation.

Bears are basically solitary animals. Each has its zone of danger, or personal space, which varies from animal to animal. If something or someone penetrates this zone, a response in the form of a bluff charge, bodily contact, or outright attack may result. Often times grizzly bears will essentially ignore people until a person enters into a bear's "personal space". Even groups as large as 100 people have been ignored by grizzly bears until one of the group gets too close. Most bears are timid enough to flee a possible encounter if they sense the presence of something or someone soon enough to leave the area undetected. On the other hand, when a bear is surprised, the bear may see you as a threat, forcing an immediate response.

A person who runs when frightened by a bear may trigger a chase response. One bear will even chase another if it runs. Bears that stand their ground when confronted by other bears usually aren't attacked, and bears that behave submissively have a lower incidence of being attacked as well. A grizzly bear rarely wants to kill a human. Considering the damage a grizzly is capable of inflicting on a human, wounds resulting from bear attacks are often nothing more than superficial bites, scrapes, and lacerations. The evidence is very clear that grizzlies do not try to kill a human as a result of a close encounter; they simply try to remove a perceived threat. The injuries that occur are more a function of what the human does to resist, rather than what the bear is capable of doing. Of course, a grizzly entering a tent represents a predatory event which is behaviorally very different than a close encounter situation.

Young grizzly bears have just left their mother and rank low on the hierarchical scale. Larger, more dominant bears often push these juveniles into marginal habitat. To survive, young bears do a lot of exploring. If these bears start using campgrounds as foraging areas, they may quickly become dangerous to people camping in them. In extremely rare instances, young grizzlies will even key onto people as potential prey.

Black bears seem to rely more on sheer bluffing than on charging and mauling. Those rare instances in which a black bear presses an attack can probably be grouped into two categories: First, a female protecting her cubs, particularly if she is also habituated and food-conditioned; or second, a bear that has no experience with humans and may regard them as possible prey.

BODY LANGUAGE OF BEARS

If a bear stands on its hind feet is usually just trying to get a better look and smell by sniffing the air. This is not usually an aggressive posture unless it drops down on all fours and charges.

A bear that swings its head from side to side, or turns sideways from you, is expressing a reluctance to charge and is looking for a way out of the situation.

If a bear looks directly into your eyes and has its ears back it is warning you that you are too close and it feels threatened. Sometimes bears make a barking, woofing or moaning sound to indicate that you are too close.

If a bear “pops” its jaws, it is very agitated and will most often charge. Charges are most often bluff charges to resolve the situation. The bear may charge and stop short of you and veer off and run right past you. This could happen many times before the bear might leave or it might bluff charge and then come at you from a different angle.

If the bear does charge you and knocks you down it is attempting to remove the threat. It will use as much force as it believes is necessary.

A bear can instantly reach speeds of 30 to 35 miles per hour in a matter of a split second. Never try to outrun a bear; it will only make matters worse.

IF YOU ENCOUNTER A BEAR ON THE TRAIL

Stop, stay calm and quiet and make no sudden moves. Break eye contact-do not stare in the bear’s eyes, as this is a sign of aggression. Stand your ground-do not turn your back on the bear. Have your bear spray ready, but do not spray unless you are sure the bear is close enough to spray in the face. Back away slowly, speaking in a calm, monotone voice, showing you are being submissive and want to get out of its territory. If the bear comes at you, aim the bear spray at the bear’s face or spray a fog out that the bear has to run through to get to you.

IF YOU ENCOUNTER A SOW WITH CUBS

Stay calm, do not run or scream. Right before a grizzly bear makes contact in a surprise attack at close range if you do not have bear spray, roll into a ball or lie face down, try to protect your neck and face. Don’t stick your arm out, kick, scream or fight. Try to protect the vulnerable parts of your body while remaining as still as possible. This action will help the bear remove the perceived threat.

Some bears have been known to stalk humans. If you think this is the situation you are in, and have not just surprised the bear, it is recommended that you defend yourself aggressively. If the bear mauls you continuously, despite you being passive, you may have to fight back. Use any available weapon, a knife, rock or fist and aim at the bears head, eyes and nostrils.

BEAR ENCOUNTERS IN CAMP

It is possible that a bear entering your camp may have no fear of humans and is looking for food. These bears are dangerous. Make sure you store your food properly. Sleep in tents large enough to stack gear between you and the tent wall. If a bear does come into your camp stay calm, make no direct eye contact, speak softly to the bear. If the bear is within 10 to 15 feet spray it with your bear spray. Playing dead may not work in this situation. If it is safe to do so, slowly back out the area while looking for suitable trees to climb. Make sure you have enough time to climb a tree before attempting it and make sure you can be up the tree at least 14 feet before the bear can reach you. **If you try to climb a tree to get away from the bear, remember this ... all black bears can and some grizzlies will climb a tree and a grizzly can reach 10 feet up a tree while standing on the ground.**

Even if a bear simply walks through your camp we do not recommend that you remain in that campsite for another night.

IF A BEAR COMES INTO YOUR TENT

This is the worst possible situation. **Do not panic, run or scream but do not stay calm. Fight back with everything you have. Do not lie still in your sleeping bag. Do not play dead. Use your bear spray, make loud metallic noises, shine lights in the bear's eyes, and temporarily blind the bear with the flash from your camera. Use whatever physical resistance you can.**

FORMS

EMPLOYEE SAFETY INFORMATION FORM

Please use this form to provide safety suggestions and for reporting unsafe workplace conditions or practices.

Description of unsafe condition or practice: _____

Causes or other contributing factors: _____

Has this matter been reported to a supervisor? Yes _____ No _____

Employee Name (optional): _____

Date: _____

Employees are advised the use of this form or other reports of unsafe conditions or practices are protected by law. It is illegal for the employer to take any action against an employee in reprisal for exercising rights to participate in communications involving safety.

NOTICE OF SAFETY INFRACTION

Safety of our employees is very important to us. In order to prevent accidents, our policy is the enforcement of all safety rules issued by the Company, Client, and Government agencies. Any infractions of these rules will result in the following:

- 1st Infraction – Written/Verbal Warning.
- 2nd Infraction – Written Warning.
- 3rd Infraction – 3 to 5 day suspension
- 4th Infraction – Dismissal.

Employee Name: _____

You have been observed working in the following unsafe manner, contrary to Company safety Rules: _____

This is your _____ 1st _____ 2nd _____ 3rd _____ 4th Infraction

Action taken, therefore is: _____

Employee Signature

Date

Supervisor Signature

Date

REPORT ON NEAR-MISS OR UNSAFE ACT / CONDITION

Completion of this form reports a non-injury near-miss incident, an unsafe act, or an unsafe condition. The purpose of this report is to inform fellow employees, clients, and contractors of an incident, act, or condition that could, but did not, result in a personal injury or a threat to health.

Zonge International guarantees that the completion of this form by an employee or contractor will not influence employment decisions, pay rates, work schedules, or performance reviews. Failure to report a near-miss or unsafe act or condition is a violation of safety policy, however, and may result in termination of employment.

Upon completion, this report becomes an addition to the H&S Plan document for this project.

Reported by: _____ Signature: _____

Date: _____

Report acknowledged by: _____ Signature: _____

Description of Incident, Act, or Condition: _____

Corrective Action or Suggestions to Avoid Recurrences: _____

ACCIDENT/INCIDENT REPORT

Date: _____

Name(s)/Occupation of injured: _____

Location of Accident/Incident: _____

Time of accident/incident: _____

Weather conditions at time of accident/incident: _____

Describe accident/incident in detail: _____

Nature of Injury or illness: _____

On site first aid care: _____

Was employee transported to doctor or medical center? _____ Yes _____ No.

Name and Location of doctor/medical center: _____

Witnesses: _____

Reported to: _____ Date: _____

HEALTH AND SAFETY PLAN - ACKNOWLEDGEMENT OF REVIEW

This form is to be maintained by the field crew chief and completed on a daily basis by on-site Zonge International personnel, contractors, and visitors, acknowledging review of the H&S plan for this project.

Name (print)	Signature	Company	Date
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
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_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____



**Zonge International Inc.
Tucson Arizona
Daily Vehicle Check Sheet**

3322 E Fort Lowell Rd
Tucson, Arizona, 85716
Phone: 520-327-5501
Fax: 520-325-1588
Email: zonge@zonge.com

Operators Name: _____ Date: _____
 Truck Number: _____ Type: _____
 Beginning Mileage: _____ Job #: _____

MOB
 DEMOB
 PRODUCTION
 PERSONAL USE

CHECK	YES	NO	N/A	REMARKS
Overall Condition Acceptable				
Tire pressure and Condition				
Fluid Leaks				
Headlights, Turn Signals, Flashers and Brake Lights				
Battery Level and Condition				
Engine Oil Level				
Body Damage				
Brake Operation				
Fuel Level				
Windshield Clean or Cracked				
Canopy or Tool Box				
Loose or Worn Parts				
Interior Clean and Safe				
First Aid Kit, Tool Kit, Spare Tire , Tire Jack, Jumper Cables and Tow Strap				
Registration and Insurance				
Horn and Reverse indicator				
Emergency Equipment				

COMMENTS: _____

SUPERVISORS APPROVAL: _____ DATE: _____

Equipment returning from a field job needs to be in working order for the next field job. This means that all equipment must be either checked into stock or returned to the Zonge office for QC or repair. QC or repair forms must be used for all equipment not returned to stock. This includes all Zonge field trucks. For trucks requiring maintenance or repairs, it is critical that the Crew Chief initiates these repair forms as soon as possible, not doing so retards the next deployment.

Trucks returned to the yard **must** be cleaned, fueled, itemized (fire extinguishers, first aid kits, tool kits) and the keys returned.



**Zonge International Inc.
Tucson Arizona
Daily Safety Meeting**

3322 E Fort Lowell Rd
Tucson, Arizona, 85716
Phone: 520-327-5501
Fax: 520-325-1588
Email: zonge@zonge.com

JOB#:	<input style="width:95%;" type="text"/>	PROJECT:	<input style="width:95%;" type="text"/>	DATE:	<input style="width:95%;" type="text"/>
CLIENT:	<input style="width:95%;" type="text"/>	LOCATION:	<input style="width:95%;" type="text"/>	CREW CHIEF:	<input style="width:95%;" type="text"/>

	Normal Temps	Extreme Heat	Extreme Cold	Lightning	Rain	High Winds
Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PPE Required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Steel Cap	Boots	Reflect Vest	Safety Glasses	Hard Hat	Gloves
			Radio			

PRINTED NAMES:	SIGNATURES:

Job-specific safety concerns discussed:

Topics requiring further review/attention:

Crew Chief Comments:

The Daily Safety Meeting is not just a time to discuss safety concerns relating to field work, but a time for general communication within the crew. Use these few minutes wisely and you will reduce the chance of an accident and your crew effectively communicates the requirements for that days field work

This Safety Meeting should be done daily or at a minimum weekly per the requirements for the



**Zonge International Inc.
Tucson Arizona
Daily Production Report**

3322 E Fort Lowell Rd
Tucson, Arizona, 85716
Phone: 520-327-5501
Fax: 520-325-1588
Email: zonge@zonge.com

JOB#: <input style="width:95%;" type="text"/>	PROJECT: <input style="width:95%;" type="text"/>	DATE: <input style="width:95%;" type="text"/>
CLIENT: <input style="width:95%;" type="text"/>	LOCATION: <input style="width:95%;" type="text"/>	CREW CHIEF: <input style="width:95%;" type="text"/>

	Field Crew	Payroll Crew Hours				Travel		Total
		Production	Standby	Weather	Zonge	Ground	Air	
Crew Chief	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>
Assistants	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>
Reset Hours	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>	<input style="width:95%; height:20px;" type="text"/>

Leave for Field:	<input style="width:95%;" type="text" value="pm"/>	This Field Day is Chargeable?	
Return From Field:	<input style="width:95%;" type="text" value="pm"/>	Yes <input type="radio"/>	No <input type="radio"/>
Total Time:	<input style="width:95%;" type="text" value="Hrs"/>	Survey Type <input style="width:95%;" type="text"/>	

Daily Production Summary:

Management	Production	Standby	Weather	MOB/ DEMOB	Other		Total
Summary of Hours:	<input style="width:95%;" type="text"/>	<input style="width:95%;" type="text"/>	<input style="width:95%;" type="text"/>	<input style="width:95%;" type="text"/>	<input style="width:95%;" type="text"/>	<input style="width:95%;" type="text"/>	<input style="width:95%;" type="text"/>
Manager Comments:	<input style="width:95%; height:40px;" type="text"/>						
Manager Signature:	<input style="width:95%; height:20px;" type="text"/>			Date:	<input style="width:95%; height:20px;" type="text"/>		
Crew Chief Signature:	<input style="width:95%; height:20px;" type="text"/>			Date:	<input style="width:95%; height:20px;" type="text"/>		



Zonge International Inc.
Tucson Arizona
Daily Production Report

3322 E Fort Lowell Rd
Tucson, Arizona, 85716
Phone: 520-327-5501
Fax: 520-325-1588
Email: zonge@zonge.com

JOB#:		PROJECT:		DATE:	
CLIENT:		LOCATION:		CREW CHIEF:	

Equipment Summary:

Data Inventory:

SAMPLE form
use PDF