BUTTE INTERAGENCY RESCUE GROUP

Operations Manual

Revision 2016

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TECHNICAL RESCUE RESPONSE SYSTEM

OPERATIONS MANUAL

100 AUTHORITIES

The Butte Interagency Technical Rescue Group, (BIRG) is established as a cooperative organization under the authority of the Butte County Fire Chiefs Association and the Butte County Sheriff's Office. The Butte County Fire Chiefs Association and Butte County Sheriff's Office provide direction, policy and guidelines. The County of Butte, Sheriff's Office and Fire Department, along with the Town of Paradise and the cities of Chico, Oroville, Gridley, Biggs and Butte County Sheriff's Search & Rescue are all voluntary participants of the Butte Interagency Rescue Group, which endorse this operations manual and which also sets the parameters under which technical rescues are performed.

110 PURPOSE

The purpose of this document is to coordinate a Technical Rescue Response System for agencies within the county charged with the authority and responsibility to deliver such service to the citizens of Butte County*. In addition, this document also applies to all operations involving an interagency response regardless of jurisdiction or boundaries.*

This document is intended to provide a systematic approach to coordinate a program that provide efficient deployment of technical rescue resources among the cooperating agencies for the purpose of delivering improved services to all jurisdictions within the Butte County.

The document recommends:

(A) Minimum numbers of trained and qualified rescue personnel for technical rescue responses.

(B) Minimum standards for operating procedures, training, equipment and supplies.

(C) A training, competency currency, and qualification program.

(D) Operational control of resources to avoid duplication of services.

(E) Liaison with other rescue service providers and technical assistance resource.

(F) A system of continuous planning, constant analysis, coordination, evaluation, and improvement of the Technical Rescue Response System.

120 GOALS

(A) To provide technical assistance to the Incident Commander at the scene of rescues.

(B) To provide a cost-effective Rescue Response System.

(C) To coordinate the efforts and activities of the participating agencies with other agencies' personnel and resources.

(D) To provide guidelines fo standardization of equipment by Butte Interagency Rescue Agencies.

(E) To gain maximum, effective utilization of all response units assigned rescue responsibilities.

(F) To ensure that continuity exists at all levels of rescue, training, and qualification.

(G) To establish and maintain an organizational liaison between the Butte County Fire Chiefs' Association, the Butte County Training Officers Association, the Butte County Sheriff's Office and Butte County Sheriff's Search and Rescue Unit for the purpose of system evaluation and revision as required.

(H) To clarify the organizational responsibilities of rescue service provided relative to rescue response involvement.

(I) To effect rescue and protect human life.

200 BIRG ORGANIZATION

210 ORGANIZATION AND RESPONSIBILITIES

POLICY

The Butte Interagency Rescue Group shall maintain a functional organization with the purpose of setting policy, providing training and coordinating between all agencies involved in order to meet the purposes and goals of BIRG.

PROCEDURE

BIRG Management Organization

1. Chair Person
2. Co-Chair Person
3. 5 Working Units with a Leader
    a. Over the Edge
    b. Confined Space
    c. USAR
    d. Water Rescue
    e. Air Operations
4. Working Unit Members
5. Agency Representatives
    a. Butte County Search and Rescue
    b. Chico Fire Department
    c. CDF/Butte County Fire/Town of Paradise/Cities of Gridley and Biggs
    d. Oroville Fire Department

Management Meetings

Meetings are to be held quarterly (January, April, July October), on the third Thursday on the month. Minutes of all meetings shall be recorded and distributed to all agencies.

1. Meeting attendees (management group)
    a. Chair Person
    b. Co-Chair Person
    c. Working Unit Leaders
    d. Agency Representatives

Position Responsibilities

1. Chair Person
    a. Chair the Rescue Group and assure proper execution of the group goals and objectives. He will also serve as the official representative with the Butte County Fire Chiefs' Association.
2. Co-Chair Person

b. Support Chairperson and fill in as needed.

3. Working Unit Leader
   a. The Unit Leader sits as a chair person for his assigned discipline. The unit is made up of a chair person and one or more reps from each participating agency.
   b. The Unit Leader will hold meetings @ a minimum of 2 per year or more as needed;
      Set Standard Operating Guidelines for the BIRG, within assigned discipline.
      i. Plan and execute training drills for the BIRG as assigned by the Management group.
      ii. Monitor and assess operational methods, and initiate change as needed.
4. Working Unit Members
   a. To serve as a representative from his/her agency in accomplishing the tasks of the specific Unit.
5. Agency Representative
   1. The Agency reps role in attending management meetings will be to interact within the management group concerning all aspects of the BIRG. The Agency Rep is to bring ideas and concerns from respective agency to the group and to report back to that agency as needed.

212 POLICY CHANGES

POLICY

It is the goal of BIRG to maintain an ongoing evaluation of procedures and methods in order to provide for safe and efficient rescue operations. BIRG will provide for a method in which SOG's can be evaluated and changes made as needed.

PRODEDURES

Any member of BIRG can initiate a request for policy review and change by submitting a "Request for Policy/Standard Change" form (Appendix "A"). The procedure for addressing change in procedure within BIRG is as follows;

1. Submit a request form to the appropriate Working Group with an attachment detailing the proposed change and an explanation for the needed change.

2. The unit will address the submitted request form and determine the need for change and either approve or deny the request. If the Working Group determines there is a need it will be the responsibility for said Group to develop changes as needed and submit changes to the BIRG management group.

3. Upon completion of changes the Working Group Leader will submit detailed changes to the BIRG Management Group for discussion and approval.

4. The approved changes will then be submitted, by the BIRG Chairperson, to the Butte County Fire Chiefs and the Butte County Sheriff for final approval.

5. Upon this final approval the BIRG Management Group will determine the need for and duration of a training program.

6. Upon completion of the training time the BIRG Management Group will determine an implementation date.

213 OPERATIONAL POSITIONS

POLICY

The Working Groups within BIRG shall establish position levels at which an individual can function at an incident based on training requirements. These levels shall be established within the following guidelines. Rescue technicians filling any part of a rescue response must meet training requirements of the technician level.

PROCEDURES

Awareness: This level represents the minimum capability of a responder who, in the course of their regular job duties, may be called upon to respond to, or may be the first on the scene of, a technical rescue incident. This can involve search, rescue and recovery operations. Members of the team at this level are generally not considered rescuers. Primary training issues include personal safety, incident safety, size up, report on conditions, resource ordering, IC issues, and overview of technical rescue by type and support roles.

Operational: This level represents the capability of hazard recognition, equipment use, and techniques necessary to safely and effectively support, and participate in, a technical rescue incident. This can include search, rescue and recovery operations, but usually under the supervision of technician level personnel.

Technician: This level represents the capability of hazard recognition, equipment use, and techniques necessary to safely and effectively coordinate, perform and supervise technical rescue incidents. This can involve search, rescue and recovery operations

Specialist: This level represents a specialty position within a given discipline, i.e.; crew chief, within the air ops working unit or boat and personnel watercraft operator within the the water rescue unit. A working unit is not required to specify a specialist position.

Team Leader: This position is a technician level rescuer with leadership training and experience. The team leader is a line level supervisor with strong technical skills and is capable of technical decision making, delegation of work assignments, and a working

knowledge of the Incident Command System. The team leader position will be appointed by the individual agency and recognized by BIRG.

214 RESCUE TYPES

POLICY

BIRG shall identify the following types of rescue scenarios

DEFINITIONS

Over the Edge: Any rescue which will require rappelling, haul systems or the use of rescue rope to secure personnel, equipment or vehicles, either high angle or low angle, which does not involve a structural collapse or confined space.

Confined Space: A rescue which requires entry into 1) An area large enough for a person to bodily enter, 2) Has limited or restricted means of entry or exit and 3) Is not designed for continuous human occupancy and has one or more of the following characteristics:

1. Contains, or has potential to contain hazardous atmosphere
2. Contains a material that has a potential to engulf on contact
3. Has an internal configuration such that an entrant could be trapped or
4. Asphyxiated by inwardly converging walls, or by a floor which slopes downward and tapers to a smaller cross-section
5. Contains any other recognized serious safety or health hazard (including falls, environmental, equipment hazards)

Trench Rescue: A rescue involving entry into an excavation that is defined as any narrow-walled depression, hole, trench, or earth wall, man-made or natural, with a depth of four feet or greater.

USAR/Structure Collapse: A rescue involving the collapse of any type of structure where access to a victim requires entry into a hazardous or unstable area. A collapse is defined as the breakage, displacement, or permanent deformation of a structural member or connection, so as to reduce its structural integrity and supportive capability.

Remote Area Rescue: A rescue which is located in a remote area and will require additional logistical support to access the site with personnel and equipment. This rescue type will normally involve multiple aircraft if conditions permit.

Water Rescue : A rescue which is located in static water, dynamic water and flood situations. Static water rescue is any rescue involving a static water source where access to a victim will require the rescuer to enter water that could potentially be hazardous. Normally this type of rescue will require rescue personnel trained in SCUBA diving rescue techniques. Dynamic water rescue includes any rescue involving a

dynamic water source (1 knot or 1.15 mph) where access to a victim will require working near or in a moving body of water. Flood rescue includes any rescue involving access to a victim or victims in a geographic area that has been inundated with water.

Animal Rescue: A rescue involving any of the above scenarios involving an animal.

215 DEFINITIONS

POLICY

It shall be the policy of BIRG to adhere to definitions used within rescue operations to adhere to NFPA 1670.

216 TRAINING

216.1 CURRENCY REQUIREMENTS – TEAM MEMBERS

POLICY

All Rescue Technicians will maintain training to the operational level of each defined rescue type (Confined Space, Trench, Over the Edge, USAR and/or Water) to function as a rescue team member at rescue incidents. Such level of training will be as adopted and promulgated by the Butte Interagency Rescue Group. Any member meeting these requirements will be considered current and eligible to respond to rescue incidents in a technical capacity.

PROCEDURE

Every other month, a *Working Unit* will be assigned to coordinate training for the entire Rescue Group. Each rescue tech should try to attend each training. Each participating agency will maintain training records that shall include drill attendance, certifications, etc. for each Rescue Tech.

The currency requirements for rescue technicians govern whether or not a member will be eligible to respond to a rescue incident. The currency rule will be as follows: In order for a Rescue Technician to be considered as current, he/she must have completed the minimum annual training requirements for their specialty. If a Rescue Technician has not met this requirement then he/she will not be utilized in a technical capacity or be considered as part of the technical rescue response until he/she attains currency; however, he/she can be utilized in a support role. It will be the responsibility of each agency to maintain currency. Agency representatives will notify the CALFIRE/Butte County Fire representative when their respective rescue technicians no longer meet currency requirements. The CALFIRE/Butte County Fire representative will then notify the operational area coordinator (CALFIRE/Butte County Fire ECC) in order to maintain correct status of qualified technical rescue responders for mutual aid dispatching.

216.2 CURRENCY TRAINING RECORDS

POLICY

Each participating agency will maintain training records for their own Rescue Technicians. Additionally, the Rescue Group will publish an annual report of training hours accomplished by each Rescue Tech.

PROCEDURE

After the completion of each multi-agency drill, the Training Offices will gather the personnel attendance roster and disseminate this information to the member agency. Every *twelve months*, the Training Officers will publish a report of each member's current status on the team. These reports shall be forwarded to each member's employing department. Additionally, the Training Officers will report to the entire team the results of these reports. Currency is a requirement for direct team participation. Training record keeping will be coordinated with the Training Officer of each participating agency.

217 SAFETY

217.1 PERSONAL PROTECTION

POLICY

All rescue personnel shall be donned in the specific level of personal protective equipment (PPE) prior to entry into the Operational Zone. The level shall be determined by the Incident Commander or Safety Officer at the incident.

PROCEDURE

The type of rescue incident and proper level of personal protective equipment required for entry will be based on the hazard present. All entries into unknown hazardous environments shall require air monitoring.

217.2 SAFETY PLAN

POLICY

A Safety Plan will be completed and implemented as soon as possible for all technical rescues.

PROCEDURE

The Incident Commander or Safety Officer has the overall responsibility to develop and implement a written Safety Plan. Prior to beginning Rescue Operations, all members shall be briefed and *shall be in agreement with this plan.*

217.3 PERIMETER CONTROL/DESIGNATION

POLICY

In order to ensure safety t the public and all personnel, perimeter control lines will be established as soon as possible.

PROCEDURE

The Perimeter Control System utilized three operational zones: (Hot) Zone; (Warm) Zone; and Cold (support) Zone. The Hot Zone is that area where the highest risk exists. Access to this zone requires the appropriate level of personal protective equipment (PPE). The Warm Zone is that area that serves as a buffer. Only those designated personnel, the entry team and safety officer should enter this zone. This zone should be *wide enough* to ensure a safe Cold Zone. The Cold Zone is that area deemed safe and poses no threat. This zone houses all personnel not listed above, including the Incident Commander, Backup Team, Rescue Tech, etc. The Hot Zone will vary in size depending upon the hazards present.

218 COMMAND AND CONTROL

218.1 INCIDENT RESPONSE PROCEDURES

POLICY

It is the goal of BIRG to evaluate an incident and assemble the appropriate resources in a timely manner as well as providing for a command structure that will evaluate and manage the incident, providing for the safety of responding personnel and an effective rescue operation.

PROCEDURE

Incident Response Procedures; Based on information collected by the jurisdiction having authority an initial response will be initiated per that agencies standard response. The initiating agency may, based on initial information or the IC, initiate a full Technical Rescue Response. This full response will be handled through the Butte County mutual aid system.

1. Closest Resources: Engine/Squad

   Initial Actions:
   - Conduct Size Up and Report on Conditions
   - Determines and Places Initial Resource Order
   - Communicated Initial Incident Objectives to Responders

- Establish Staging Area

2. Augmented response based on the IC's request and information received by the ECC.

   Technical Rescue Responders
   - Trained Personnel
   - Command Personnel
   - Support Personnel
   - Equipment and Resource

3. Technical Unit – Division/Group
   - Organize into Working Teams based on critical activities
   - Determine Tactics
   - Request Resources via IC or Operations

218.2 RESCUE RESPONSE REQUESTS

POLICY

Request for team and a rescue technician response shall be made through the Butte County Mutual Aid System (CALFIRE/Butte County Fire ECC). The ECC will receive requests for resources, process requests, and dispatch the closest Rescue Technicians or Specialists, regardless of jurisdiction.

The minimum response to a technical rescue incident shall be five technicians and a leader. During events that overextend an agency's response capabilities, that agency has the authority modify the standard responses in order to maintain sufficient resource for new incidents. Butte County Sheriff and Butte County Fire/Rescue will continue to follow the notification procedures outline in the "Letter Of Understanding" between the Butte County Fire Chiefs' association and the Butte County Sheriff's Office regardless of response modification.

PROCEDURE

Rescue response will be dispatched on a "closest resource" basis whenever possible, using the following guidelines:

1. The agency with primary jurisdictional authority shall ensure that an adequate response is initiated within its jurisdiction.

2. The initial rescue response is designed to be filled by the closest "on-duty" resources plus Butte County Sheriff's Search & Rescue.

3. Specialized resources such as rescue units and helicopters shall be dispatched as

described in Appendix “B” and “C”.

4. Requests for USAR companies and crews shall be typed as defined in the USAR capabilities section of the 420-I where applicable.

5. All requests for rescue resources outside of a jurisdiction shall be ordered via the operational area coordinator for fire and rescue resources.

BUTTE INTERAGENCY RESCUE GROUP

LETTER OF UNDERSTANDING

RELATING TO

OPERATING PLAN FOR TECHNICAL RESCUES

Between

BUTTE COUNTY FIRE CHIEFS' ASSOCIATION

and

BUTTE COUNTY SHERIFF'S OFFICE

August 1st, 2016

PURPOSE

This operating plan specifies operating policies and procedures agreed to below as they apply to technical rescue activities that will be conducted by the signatory agencies of the Butte County Fire Chiefs' Association, as identified on page 6, hereinafter called, "FIRE", and the Butte County Sheriff's Office, hereinafter called "SHERIFF." The Butte County Sheriff's Search and Rescue Team will be referred as "BCSAR".

MISSION STATEMENTS

The mission of FIRE is to protect the citizens of Butte County, including the cities of Chico, Oroville, Gridley, Biggs and the Town of Paradise, from all types of fires, to provide emergency technical rescue services and to provide immediate response to medical emergencies and hazardous materials emergencies.

The mission of BCSAR is to aid in fulfilling the obligation of the Sheriff of Butte County in locating and retrieving lost or missing persons within Butte County, and provide technical rescue services to the citizens and visitors of Butte County.

BUTTE INTERAGENCY RESCUE GROUP

Both the SHERIFF and FIRE recognize and support the Butte Interagency Rescue Group, (Group) as established as a cooperative organization under the authority of the Butte County Fire Chiefs' Association and the Butte County Sheriff's Office. The Butte County Fire Chiefs' Association and the Butte County Sheriff provides direction, policy and guidelines to the Group. The County of Butte, along with the Town of Paradise and the Cities of Biggs, Chico, Gridley, and Oroville, the California Department of Forestry and Fire Protection, (Cal Fire), and Butte County Sheriff's Search and Rescue Team are all voluntary participants of the Butte Interagency Rescue Group, and endorse

the Group's operational manual, which also sets the parameters under which technical rescues are performed. The Group seeks to provide a systematic approach to achieve and coordinate a program that will maintain a cadre of certified rescue personnel and the necessary equipment immediately available to provide rescue capability as defined in the operation manual.

The types of technical rescue covered in this Agreement include:

- Over-the-Edge Rescue
- Remote Area Medical and Remote Area Rescue
- Urban Search and Rescue
- Water Rescue including BCI DART
- Confined Space which includes Trench Rescue
- Air Operations as they relate to technical or remote area rescue

Each type of rescue identified above has an advisory unit, which is responsible to develop the minimum standards that are included in the Operational Manual. Each advisory unit consists of representatives from each participating agency.

The Operational Manual specifically recommends:

- Minimum numbers of training and qualified rescue personnel.
- Minimum standards for operating procedures, training, equipment and supplies.
- A program of training, competency currency and qualifications.
- Operational control of resources to avoid duplication of services.
- Liaison with other rescue service providers and technical assistance resources.
- A system of continuous planning, constant analysis, coordination, evaluation, and improvement of Technical Rescue Response System.

As participants, the SHERIFF and FIRE will ensure that their representatives attend and actively participate with Group activities and maintain training, competency currency and qualifications outline in the operational manual.

PRE-HOSPITAL EMERGENCY MEDICAL RESPONSE

In all areas of Butte County, FIRE is responsible for providing pre-hospital Basic Life Support (BLS) medical emergency service as a first responder. Advanced Life Support (ALS) is dispatched based

on the existing jurisdictional agreements. BCSAR may assist FIRE in providing pre-hospital BLS service in mass casualty incidents (see Notifications below).

NOTIFICATIONS

FIRE resources will be dispatched by each jurisdictional FIRE Emergency Command Center (ECC).

BCSAR resources will be dispatched by the SHERIFF's Dispatch Center.

Each FIRE incorporated jurisdictional PSAP or ECC may notify SHERIFF of any of the following technical rescue emergency incidents of which it becomes aware. However, if the incident occurs in County jurisdiction, the SHERIFF shall be notified immediately.

- Searches for lost or missing persons
- High and low angle building and natural environment rescues
- Water rescues, other than swimming pools
- Flood Operations
- Rescues involving the need for special personnel or equipment such as the SHERIFF's helicopter(s), search dog teams, the Drowning Accident Response Team (DART), boats, and off road vehicles.
- Remote Area Medicals and Remote Area Rescues
- Mass Casualty Rescues or Incidents (such as bus accidents, train wrecks, earthquakes, large airplane crashes, building collapses, etc)
- Evacuations
- Mine rescues
- Cave-in rescues
- Confined space rescues
- Collapse rescues

Anytime the SHERIFF is aware of any of the following types of emergencies, the SHERIFF will immediately notify the jurisdictional FIRE.

- Airplane crashes or incidents
- Bomb threats

- Earthquakes
- Fires
- Floods
- Hazardous materials releases, accumulations or dangerous chemical situations
- Structural collapses
- Life-hazard situations
- Medical emergencies
- Rescues with the exception of searches
- Smoke checks

OPERATIONAL COMMUNICATIONS

On all jointly-managed incidents, FIRE and Law Enforcement, (LE) will use command and tactical radio frequencies. These frequencies may include the following:

Incident-Available Command Nets	Receive	Rx tone	Transmit	Tx tone
Cal Fire - Butte Support Tone 9 (St John)	154.4150	123.0	159.0000	100.0
Tone 10 (Sunset)	154.4150	123.0	159.0000	107.2
Tone 11 (Bald Mtn)	154.4150	123.0	159.0000	114.8
Tone 12 (Colby)	154.4150	123.0	159.0000	127.3
Tone 13 (Bloomer)	154.4150	123.0	159.0000	141.3
OES Fire 2B Tone 3 (Bloomer)	154.2200		159.1950	131.8
BCSAR North (Flea Mtn)	156.0000	192.8	151.1225	110.9
BCSAR South (Rattlesnake Point)	156.0000	192.8	151.1225	131.8
BOAR (Bloomer)	151.4900	114.8	155.1150	173.8
BOAR North (Platte)	151.4900	114.8	155.1150	114.8
BOAR South (Sunset)	151.4900	114.8	155.1150	186.2
BOAR Transportable	151.4900	114.8	155.1150	85.4

Tactical Channels	Receive	Rx tone	Transmit	Tx tone
CALCORD - California On-Scene Coordination	156.0750	156.7	156.0750	156.7
NASAR - Search and Rescue Tactical	155.1600	127.3	155.1600	127.3
VFIRE21	154.2800	156.7	154.2800	156.7
VFIRE22	154.2650	156.7	154.2650	156.7

VFIRE23	154.2950	156.7	154.2950	156.7
VFIRE24	154.2725	156.7	154.2725	156.7
VFIRE25	154.2875	156.7	154.2875	156.7
VFIRE26	154.3025	156.7	154.3025	156.7
Cal Fire Tac 5	151.2500	192.8	151.2500	192.8
Cal Fire Tac 9	151.3850	192.8	151.3850	192.8
Cal Fire Tac 11	151.4450	192.8	151.4450	192.8
Cal Fire Tac 12	151.4600	192.8	151.4600	192.8
County Fire Tac	154.1900	100.0	154.1900	100.0
Paradise Fire Tac	154.4300	100.0	154.4300	100.0
Oroville Tac 1	153.8900	123.0	153.8900	123.0
Gridley Fire	154.3100	131.8	154.3100	131.8

INCIDENT COMMAND SYSTEM

FIRE and Law Enforcement (LE) will use the Incident Command System (ICS) as the only command and control system for the management of incidents involving emergency activities

Where both FIRE and SHERIFF have concurrent jurisdiction, their representatives will establish a Unified Command, as described in the Incident Command System, as the only method of jointly commanding incidents handled under this Operating Plan.

Incidents involving only searches will be handled as a single command under SHERIFF with assistance by FIRE, if requested.

Law enforcement incidents will normally be handled as a single agency command by SHERIFF. Fires, medical emergencies and hazardous materials incidents will be handled as a single command by FIRE.

RESPONSIBILITIES OF UNIFIED COMMAND

- Developing common incident objectives
- Establishing one Command Post (CP) for all participating agencies to co-locate
- Establishing one communications system that employs command and tactical radio frequencies
- Developing and employing a common resource ordering system
- Directing all operations through one Operations Section Chief

- Integrating all resources from each agency into one operational plan to efficiently and effectively manage the incident

Unified Incident Commanders will ensure that all orders for additional resources are placed through a single ordering point to enable timely response and to prevent confusion and duplicate orders.

For technical rescue responses where BCSAR is responding, Unified Incident Commanders may determine who is responding from each agency and then make contact via the BCSAR Command frequency. Upon making contact, Commanders will jointly determine the Incident Command Post location and other details relevant to the particular incident.

Either FIRE or BCSAR may assign personnel from the other agency to ensure that the most expedient service is provided to the public. If possible, when other agency personnel are assigned, every effort will be made to personally advise the other agency's responding Incident Commander as soon as is practically possible.

FIRE and SHERIFF will conduct critiques of all incidents involving technical rescues. Critiques may be as simple as at-scene tailgate sessions, or more involved group exercises.

AIR OPERATIONS

For any technical rescue requiring any aircraft including fixed wing and helicopter operations, the SHERIFF will normally provide the first aircraft, except for advanced life support/medic copters. If the SHERIFF is unable to provide requested first response helicopter, FIRE will order the next due rescue capable helicopter.

TRAINING

FIRE and BCSAR will conduct regular interagency training sessions through the Butte Interagency Rescue Group (BIRG) to familiarize members with techniques, equipment, and personnel of the other agency. Regular training sessions will include, but not be limited to, drills which strengthen the practical application of standard procedures, quarterly proficiency drills and an annual full scale field or table top exercise.

By their BIRG member's personnel's response, each agency certifies that its members have met the minimum training qualifications for the type of rescue to which they are responding, as set forth in the BIRG training guidelines in the operational plan.

QUARTERLY MEETING OF AGENCY REPRESENTATIVES

Representatives of each agency participating in the Butte Interagency Rescue Group, along with each rescue discipline committee chair, shall meet once a quarter to review the following:

- Discuss/critique rescue incidents from the previous quarter
- Review training needs and upcoming scheduled trainings
- Review operating plan
- Collaboration on rescue equipment standardization and use in the county
- Other topics as needed

APPROVALS

Kory L. Honea
Butte County Sheriff and Coroner

Date

Darren Read
Butte County Fire Chief

Date

Bill LaGrone
City of Oroville Fire Chief

Date

Shane Lauderdale
City of Chico Fire Chief

Date

Rusty Ohlhausen
Chief, El Medio Fire Protection District

Date

SECTION 300: Over The Edge

Standards and References:
1. CSFM Rescue Systems I
2. CSFM Low Angle Rope Rescue Operational
3. CSFM Rescue System II
4. CMC Rope Rescue Course Curriculum
5. CSFM Rope Rescue Technician Curriculum

Contents:
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Definitions
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- Operations and Training
- Rope Systems
- Patient Packaging
- BIRG Field Operations Guide
- Rope Rescue Advanced Skills

Attachments

310 INTRODUCTION

The Over the Edge Unit has responsibility for providing the skills necessary to accomplish all aspects of Technical Rescue. These skills provide the framework used within all other disciplines of rescue as named with the Butte Interagency Rescue Group (BIRG).

Technical Rescue operations often carry a high level of risk and may be performed under extreme conditions. Based on this, it is imperative that individuals performing these operations are highly trained and maintain these skills. This guideline will continue to be revised as is determined necessary by either BIRG or as requested by the signature agencies.

This guideline is not intended to address all possible techniques utilized in rope rescue nor address the skill level of the given rescue techs at scene. It is the responsibility of the individual rescue techs and their hosting agency to determine the skill level of that individual and act accordingly.

311 PURPOSE

To provide an outline of operational guidelines, procedures, responsibilities, minimum training, and safety requirements to ensure efficient and safe operations.

312 DEFINITIONS

A. High Angle refers to an environment in which the load is predominantly supported by the rope rescue system.

B. Low Angle refers to an environment in which the load is predominantly supported by itself and the rescuers and not the rope rescue system.

C. Rope Rescue System: A system composed of rope rescue equipment and appropriate anchor systems intended for use in technical rescue operations

D. L.A.S.T. refers to the process of the basic components of victim rescue.

1. Locate
2. Access
3. Stabilize
4. Transport

E. Rescue Systems I (RS-1) A rescue course developed by the California Fire Training and Education System.

313 GUIDELINES

A. OPERATIONS & TRAINING

1. Minimum Standards (attachment "A")
2. Annual Training Checklist (attachment "B")
    a. ***The CSFM- Rope Rescue Tech Taskbook is to be utilized by each participating agency and used as a minimum training standard.***
3. Operational Checklist (attachment "C")
    a. This checklist is an aid to the IC.
4. Safety Officer Checklist (attachment "D")
5. Typical Technical Rescue Operation Org Chart (attachment "E")
6. Patient Packaging Skills Evaluation (attachment "F")

B. ROPE SYSTEMS The base standard for rope systems will be based on the Rescue Systems I and Low Angle Rope Rescue Operational curriculum which primarily addresses low angle operations. High Angle operations will be based on a compilation of various accepted standards as listed on the cover page of this Guideline.

The following are Key Points which relate to Rope Rescue Operations

1. All Rope Rescue Operations will consist of the use of 1/2" (12.7mm) Static Kern Mantle Rescue Rope. NFPA-Certified.

2. Rope System Operation will be built around the concept of the RPM consistent with Technical Rope Rescue Operation (TRRT) and Low Angle Rope Rescue Operational (LARRO).

3. All Rope Rescue Operations will consist of 2 rope systems configured as a Haul Line and a Belay Line. (with one exception)

4. The exception to the 2 rope system when a single rope can be used is for a single person Rappel. A single person rappel may be used only with a safety in place such as a prussic self belay, or a bottom belay person.

5. Accepted methods to be used as a brake on a Belay Line will be a Tandem Prussik or a BIRG approved mechanical devices such as an CMC® Multi Purpose Device (MPD).

6. The color scheme for 1' Tubular Webbing (FEMA) is
   a. 5'=green
   b. 12'= yellow
   c. 15'=blue
   d. 20'=orange
   e. 25'=black

C. PATIENT PACKAGING

Patient Packaging is a critical component in Technical Rescue Operations. This component requires that we package a patient in a manner that the patient can be transported without incurring further injury and delivered to a conventional form of transportation to an EMS facility. (attachment "F")

The following are Key Points which relate to Patient Packaging

1. Medical treatment will be consistent with NorCal/SSV Protocol.

2. The patient can be secured to a back board utilizing one of two methods.

   a. The use of spider straps as are commonly used in patient care within Butte County.

   b. The use of 1" tubular webbing which will consist of a chest harness, a pelvic harness and a method of shoelacing the patient to the board. This is in accordance with RS-1.

3. The head will be held in place with the use of headblocks and secured with either adhesive tape or Kerlex.

4. Upon proper c-spine patient packaging the patient is put in a stokes litter and secured with 1" tubular webbing using the shoelace method

5. Final attachment will be to attach both ends of the backboard to the stokes with short lengths of 1" tubular webbing.

D. BIRG Field Operations Guide (BIRG F.O.G.)

A reference guide has been developed to assist rescuers, leaders and supervisors with reference material utilizing graphics, operational key points and checklists.

The BIRG F.O.G. will contain an Over the Edge section that will list advance rope rescue skills adopted by BIRG policy and contain additional reference material that may assist rescuers in performing their duties. Each agency should keep a copy of the BIRG F.O.G. in responding apparatus and may add to its contents to fit their specific needs.

E. ROPE RESCUE ADVANCED SKILLS

Rope rescue technicians will utilize the advanced operational skills covered in the CSFM Rope Rescue Technician (or equivalent) curriculum. Rope rescue technicians will complete the CSFM Rope Rescue skills check off as their “Annual Training Checklist”.

Attachment "A"
Over the Edge Minimum Standards

POSITION	REQUIREMENTS	DESIRED
AWARENESS	1. Rescue Awareness a. Rescue Safety b. Victim Safety c. Overview of Rescue Operations d. Support Roles 2. ICS-100	
OPERATIONAL	1. Low Angle Rope Rescue Operational 2. RS-1 Rope Rescue Curriculum or equivalent 3. ICS-200	RS-1 EMT-1
TECHNICIAN	1. BIRG-Advanced High Angle Skills 2. Maintenance for Technicians 3. Helo Awareness 4. EMT-1 or 1st Responder 5. CSFM Rope Rescue Technician or equivelant	RS-2 Fire Command I-A Helo Tehnician EMT-P Instructor IA/IB or equivelant Div/Grp Sup.

Attachment "B"

OVER THE EDGE OPERATIONAL CHECKLIST

PRIMARY ASSESSMENT-ESTABLISH COMMAND

- ○ Secure witness or RP
- ○ Determine location, number, and condition of victim(s)
- ○ Determine rescue-recovery needs
- ○ Single-Unified Command
- ○ Develop Incident Action Plan (IAP)
- ○ Incident organization (branches, divisions, groups, task forces, teams)
- ○ Determine and report current and projected situation status (Report on conditions)
- ○ Determine and report current and projected resource status (Report on conditions)
- ○ Establish Incident Command Post (ICP)
- ○ Order needed additional equipment
- ○ Information Officer
- ○ Agency Representative (Law Enforcement Liaison)
- ○ Evaluate LAP accomplishment (progress, duration/time, day/night, Weather, water releases)

SECONDARY ASSESSMENT

- ○ Type of environment Hazards to rescuers Re-assess need for additional personnel
- ○ Re-assess need for additional equipment
- ○ Scene control

OPERATIONS (TECHNICAL)

- ○ Safety Officer
- ○ Plan

☐ VExtrication method

- ○ EMS (treatment and transport)
- ○ Helicopter operations

RESCUE OPERATIONS

- ○ Make general area safe (traffic/crowd control, hazards identified)
- ○ Make rescue area safe Insertion technique
- ○ Evacuation technique
- ○ PPE

- ○ Victim removal equipment
- ○ Transfer to Advanced Life Support (ALS)

TERMINATION

- ○ Personnel accountability
- ○ Equipment removal
- ○ Critical Incident Stress Debriefing (CISD)

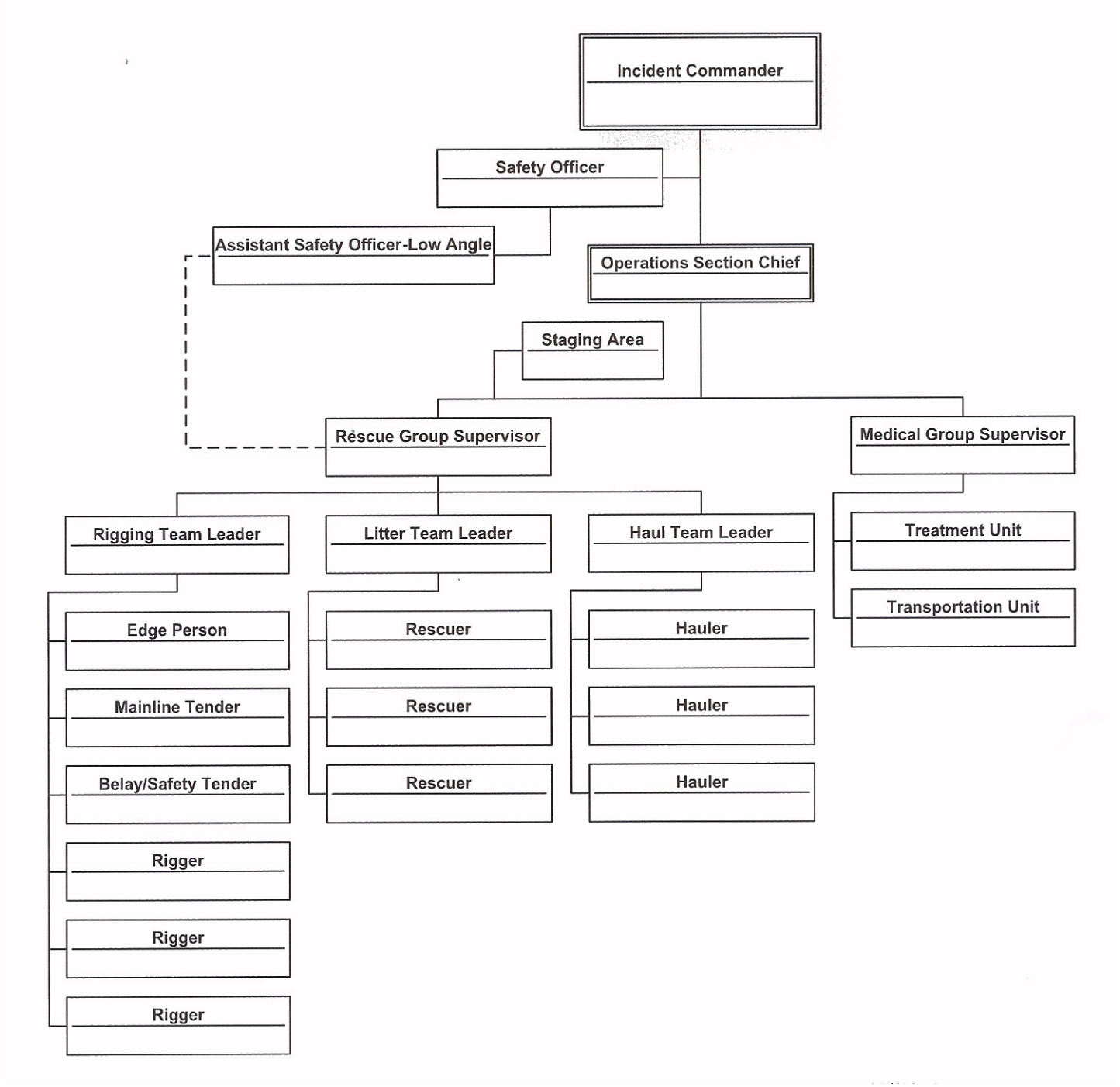
ATTACHMENT "C"

Over the Edge
Safety Officer Checklist

- ○ Maintain a record of activity of the incident Use ICS 214 form
- ○ Report to the incident commander & obtain briefing
- ○ Prepare a safety message and prepare a safety briefing
- ○ Walk the incident and establish safety zones and perimeter
- ○ Special concerns
  - ○ Control the edge
  - ○ Personal protective equipment
  - ○ Traffic control
  - ○ Check all rigging (utilize a technical specialist if required)
  - ○ Adequate lighting for safe operation

- ○ Exercise authority to stop or prevent imminent unsafe acts
- ○ Insure that all personnel on the incident are briefed of any special circumstances or dangers
- ○ Periodically report back to the incident commander

OVER THE EDGE
ORGANIZATIONAL CHART



OVER THE EDGE
PATIENT PACKAGING SKILLS EVALUATION

Guidelines:

Rescuers packages patient appropriately based on conditions present and scenario given.
Rescuers packages patient with equipment provided in separate caches.
Rescuers to demonstrate proficient knowledge of packaging technique and ability to adapt.

Required Equipment:

C-spine head/neck
- Head rolls/blocks
- Tape
- Head pad (optional)

Flight Harness—chest and pelvic w/ carabiner
Stokes litter
- One 25' webbing—external shoelace
- or two 15' webbing—external shoelace

C-spine Spiderstrap Method
- Spiderstraps

C-Spine Webbing Method (1" webbing)
- 15' Webbing-Chest harness
- 15' Webbing—Pelvic harness
- 20' Webbing—Shoelace to backboard

Backboard
- Two 5' webbing—secures opposing corners

Scenario: Patient with c-spine injuries under flyable conditions. Demonstrate the following patient packaging skills.

Observed Skills:	Yes	**No**	*Notes*
Manual C-spine (verbalized)....>			
Simulate marrying head ....>			
Log roll to backboard....>			
Attach Flight Harness (for flyable conditions) ....>			
Proper chest placement and attachment....>			
Proper pelvic placement and attachment ....>			
Attached carabiner and chest strap to pelvis....>			
Adjusts harness as packaging conditions dictate .>			
C-Spine to Backboard—Spiderstrap method....>			
Proper shoulder placement and attachment ....>			
Proper pelvic placement and attachment ....>			
Proper foot attachment and tension....>			
Aware of knee placement (bonus if verbalized) ..>			
C-Spine to Backboard—Webbing method ....>			
Proper knots (2 round turns & 2 half hitches).....>			
Seat harness—secured properly w/tension ....>			
Chest harness—secured properly w/tension .....>			
Shoelace patient to backboard ....>			
C-spine head and neck ....>			
Apply head padding (optional) ....>			
Apply head blocks....>			
Apply tape....>			
Backboard to Stokes ....>			
Secure stokes head and foot short webbing ....>			
Shoelace webbing—proper tension and knots.....>			

SECTION 400: CONFINED SPACE

Standards and References:

Federal Code of Regulations, Volume 58, #9, Chapter 1910.146
California Code of Regulations, Title 8, Article #108
Butte Rescue Group – Confined Space Rescues –
Operational Procedures

Contents:
Confined Space Operational Guidelines
Confined Space Position Standards
Annual Minimum Training Standards
Annual Training Checklist
BIRG Confined Space Entry Permit with ORG Chart

410 INTRODUCTION

Confined Space Entry and Rescue represents one of the most challenging and dangerous rescue operations undertaken by fire departments and industry today. Nearly 60% of the deaths are to rescuers associated with secondary entries. Due to the inherent dangers of confined space entries, laws have been enacted at both the State and Federal level. The laws can be found in Vol. 58, No. 9 of the Federal Code of Regulations (FCR), Chapter 1910.146, Permit Required Confined Spaces; and at the State level, effective February, 1994, under Title 8 of the California Code of Regulations (CCR), Article 108. In addition this policy is a "guideline" of operations. Unique rescue situations may require flexibility to perform successful rescues. This policy will revised as necessary to accommodate equipment purchases and phases of implementation.

PURPOSE
To provide an outline of operations, procedures, responsibilities and minimum safety requirements to be followed while entering, exiting and working in confined spaces at normal atmospheric pressure.

RESPONSIBILITY
It will be the responsibility of each member to exercise appropriate command and control dictated by their rank in the implementation of this Operational Procedure. It will be the responsibility of the jurisdictional agency, where the incident occurs. To retain the entry permit on file for the appropriate time, as specified by Title 8 of the California Code of Regulations.

411 DEFINITIONS

A. Confined Space

1. Is large enough and so configured that an employee can bodily enter and perform assigned work; and

2. Has limited or restricted means for entry or exit; and

3. Is not designed for continuous employee occupancy.

B. Permit Required Confined Space
(Meets definition of A, with addition of any one of the following:)

1. Contains or has a potential to contain a hazardous atmosphere;

2. Contains a material that has the potential for engulfing an entrant;

3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or

4. Contains any other recognized serious safety or health hazards.

C. Lockout/Tag-out

1. The placement of a lock/tag on the energy isolation device in accordance with an established procedure, indicating that the device shall not be operated until the removal of the lock/tag.

D. Hazardous Atmospheres

1, Any atmosphere which may cause immediate or delayed death, injury or disease and exposures are toxic, poisonous, corrosive, flammable, or has the ability to be physically incapacitating or dangerous.

2. Hazardous atmospheres include: levels of flammability of 10% of the Lower Explosive Limit (LEL), oxygen atmospheres with levels below 19.5% or enriched atmospheres above 23.5%, or airborne combustible dusts that obscure vision at 5 feet or less.

E. High Angle

1. Refers to an environment in which the load is predominately supported by the rope
rescue system. The belay line shall be placed at the level of entry in order to serve as fall protection. Additional lines can be placed on an elevated attachment point.

.

F. Low Angle

1. Refers to an environment in which the load is predominately supported by itself
and not the rope rescue system (e.g. flat land or mild sloping surface).

G. Acceptable Entry Conditions

1. The conditions that must exist in a confined space to allow entry-type rescue and
ensure that personnel involved with a confined space rescue are properly protected from atmospheric hazards and can safely enter into and work within the space.

H. Engulfment

1. The surrounding and effective capture of a person by a fluid (e.g. liquid, finely
divided particulate) substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction or crushing.

I. Confined Space Entry

1. Includes ensuing work activities in that space and is considered to have occurred
as soon as any part of the entrants body breaks the plane of an opening into the space.

J. Confined Space Rescue Equipment

1. The equipment (including life safety rope, Class III harnesses, manually operated
lowering and lifting devices, anchoring systems, and other adjunct rescue equipment as appropriate) used for entry type rescue of persons from confined spaces. All equipment shall meet appropriate standards (where they exist) established NFPA 1983 and shall be certified by the manufacturer as equipment designed for rescue. All equipment must be used in a manner approved by the manufacturer.

K. Attendant

1. An individual stationed outside the confined space who is trained as required to monitor conditions, i.e. entrance/exit of authorized entrants, monitoring of atmospheric conditions, communicating with authorized entrants, etc. and is trained to Confined Space Operational Level.

L. Authorized Entrant(s)/Back-up Entrant(s)

1. An individual trained to the level of an attendant, with the addition of understanding the hazards faced, proper use of personal protective equipment, use of patient/victim extrication equipment and procedures, communication systems, etc. and is trained to the Confined Space Operational Level.

M. Entry Supervisor

1. An individual trained to the level of an Authorized Entrant. Entry Supervisors
may often be the ranking officer trained in confined space on scene. (S)he may have additional training of signs and symptoms indicative of exposure to potential hazards and will confirm that operations are consistent with applicable standards and is trained to the Confined Space Operations Level, having completed I.C.S. 200.

412 CONFINED SPACE DESCRIPTIONS

A. Open Topped Enclosures

1. Spaces with depths that restrict the natural movement of air (degreasers, pits,
waste water digesters, selected types or tanks and excavations).

B. Enclosures With Limited Openings

1. Spaces with extremely limited openings for entry or exit (sewers, casing, tanks,
manholes, vaults, and silos).

413 PRECAUTIONS

1. A major cause of confined space injuries and/or fatalities is the failure to recognize the incident for what it is … **A Confined Space Incident.**

2. Do not underestimate the seriousness of confined space incidents. More than
half the casualties of confined space incidents are rescuers.

414 CONSIDERATIONS

A. Hazard Identification

Hazards shall be identified for each confined space. The hazard identification process shall include, but not be limited to a review of the following.

1. The past and current uses of the confined space which adversely affect the atmosphere of the confined space.

2 The physical characteristic, configuration and location of the confined space.

3. Biological hazards.

4. Mechanical or physical hazards.

5. Engulfment Hazards.

6. Existing or potential hazards in the confined space such as:

Flammable and Toxic Environments (FATE)

a. Four distinct categories of hazardous atmospheres.

1. Flammable
2. Toxic
3. Irritants and/or corrosives
4. Asphyxiants

b. Common gases found in below grade or confined space operations.

1. Carbon dioxide

2. Carbon monoxide
3. Hydrogen sulfide
4. Methane
5. Sulfer dioxide

Note #1 A group of gases may stratify within a confined space. This is one reason why one person may survive exposure to gas on one level, while another dies from exposure to the same or a different gas at another level.

Note #2 Physical/mechanical hazards may also be encountered. Areas of concern are utility installations, certain types of machinery, area offering extremely limited work areas, etc.

415 RESPONSE

A. Any confined space that is determined to be a "confirmed" Confined Space Emergency will immediately receive a "Confined Space Response" that will include:

1. At least six (6) Confined Space Rescue Qualified Persons trained to the Confined Space Operational Level.

   Note: If initial response does not provide adequate numbers of confined space certified personnel a special call for technical rescue or any other equipment deemed necessary shall be made by the I.C.

416 PRE-ENTRY

A. Size-Up

1. Recognize the emergency as a confined space rescue incident.

2. Assign and start the entry permit. Activate the Incident Command System to the degree necessary to control the emergency. Accumulate information required to conclude the operation safely. Plan operations and alternatives carefully, considering hazards that may be faced specific to the confined spaces used.

3. Assign and/or have a Safety Officer activated to work in conjunction with the
   Entry Supervisor and Authorized Entrant(s) to ensure member safety.

Note: In situations where personnel on scene are minimal, it is appropriate for the safety officer to serve a dual role as attendant/safety officer or entry supervisor/safety officer.

B. Stabilize the Immediate Area

1. Set up an operations perimeter.

2. Confirm "**Lockout/Tagout"** condition for the affected confined space.

C. Eliminate Ignition Sources

1. Park apparatus outside the Operations Area.
2. It may be necessary to shut down plant operations in the immediate area.
3. Do not take equipment that could serve as an ignition source into the area.
   a. Conventional flood lights and hand lights are not intrinsically safe or explosion proof.

   b. Some portable radios are not intrinsically safe or explosion proof. Keying the mike may provide an ignition source in an explosive atmospheres. **Radios used in the immediate area must be approved intrinsically safe.**

D. Provide Lighting

1. Keep floodlights outside immediate area.
2. Use only intrinsically safe or explosive proof handlights in the operational area.

417 STANDARD OPERATING PROCEDURE

A. Develop a Contingency Plan – The operation should follow a clear and concise course of action with a back-up plan in place. The plan, including; hazard recognition, communication plan, P.P.E. needed, and self-rescue techniques shall be covered with entrant(s), back-up personnel, and attendants.

B. Entry and Exit – Each entry and exit point shall be evaluated to determine the most effective method for entry and egress travel distance. Then entry/exit point shall have an attendant posted who will note the time each entrant enters and exits.

C. Equipment – Determine what types of equipment is required to enter, retrieve the individual and exit the confined space in the safest manner possible. Authorized Entrants shall be attached to safety lines and be wearing full body harnesses. In situations where rescuers must descend more

than 5' below the entrance point, Entrants shall be attached to a retrieval system with fall restraint.

D. Hazard Evaluation – It shall be the responsibility of all "**Qualified persons**" at the incident to identify potential hazards. Any potential hazard identified shall be reported to the Safety Officer or Entry Supervisor ASAP. Hazards identified shall be evaluated by the Safety Officer or Entry Supervisor.

E. Isolation and Lockout/Tagout – All energy sources which are potentially hazardous to the confined space entrant shall be secured, relieved, disconnected and/or restrained **before** personnel are permitted to enter the confined space. Lockout/Tagout of equipment systems and processes shall be confirmed and secured prior to permitting entry into the confined space.

F. Protective Clothing- The level of PPE worn by an entrant shall be consistent with the hazards associated with the confined space. The decision of level of PPE worn shall be established by the IC, Safety Officer and Entry Supervisor.

G. Respiratory Protection

1. An SCBA or SAR must be worn by all personnel who enter the confined space when conditions dictate such use. The decision to not wear respiratory protection must be determined through the use of air monitoring equipment and a determination that conditions are stable and will not change. This decision shall be determined by the IC and Safety Officer with input from the confined space technicians at scene.

2. A standby team will be fully suited and ready to go in at all times. One standby member for each member in the confined space is required.

3 Members should not travel more than 300 feet in a confined space when using
extension hoses with external air supplies. If possible, an alternate entry/exit
should be explored.

4. Administering oxygen from resuscitators is not recommended in the confined space due to the possibility of creating an oxygen enriched atmosphere. If a decision to administer oxygen is made, then atmospheric conditions should be closely monitored.

Note: When respiratory protection is required, S.A.R. Breathing System should be used whenever possible.

Note: Due to the possible interruption or failure of the external air supply, Authorized Entrants should not exceed an internal travel distance that would preclude the ability of the attached ten minute escape bottle (or ten minute reserve air when using S.C.B.A.) to provide adequate reserve air to exit the confined space.

H. Monitoring the Atmosphere

1. Before an Authorized Entrant enters a confined space the internal atmosphere shall be tested with a calibrate direct-reading instrument. Testing shall be for the following conditions in the order given:

   a. Oxygen Content

   b. Flammable gases and vapors

   c. Potential toxic air contaminants

2. Testing shall be done at all levels of the confined space, and shall continue periodically with the results and time noted.

I. Ventilation

1. The confined space should be ventilated before the Authorized Entrant enters. Ventilation will be maintained during the operation if possible. Caution should be used when ventilating a confined space not to place the atmosphere with the lower and upper explosive limits.

2. When using mechanical ventilation, keep fans and ventilators away from vehicle exhaust.

3. When ventilating in a force display mode, be aware that the original atmospheric contents must travel somewhere, either farther down the underground system up through another manhole, out the original entry hole, etc. These exhausted gases may be explosive or toxic.

4. When ventilating in a forced exhaust mode, be aware that flammable or explosive gases can be ignited by the fan, and potential toxics exhausted must be monitored for concentration.

J. Communications

1. Voice and eye contact is preferred, although in many cases this is not practical. (Consider relay people if the distance is excessive).

2. Portable radios and hardwire systems can be used only if they are intrinsically safe.

3. Rope Signals

a. The "Oath" system shall be used.
One pull- Okay
Two pulls – Add rope or slack
Three pulls – Take up slack
Four pulls – Help

Note: Four pulls indicates an emergency situation. At least one back-up member should be dispatched to ascertain the situation.

K. Decontamination

1. The contents of the Confined Space should be evaluated to determine if there will be a need for decontamination of rescuers, victims, and equipment. If decontamination is required, a **"Decon"** corridor will be set up and a **"Decon"** officer appointed.

L. Victim Removal

1. If a victim is injured, the Authorized Entrant must weigh taking the time to stabilize the Injuries against permitting the victim to be further jeopardized by the conditions within the confined space.

2. Only life threatening injuries should be treated and this treatment should be weighed against remaining in the confined space.

M. Safety

1. To ensure a safe confined space entry operation the "Confined Space Rescue Entry Permit" shall be utilized and followed.

CONFINED SPACE RESCUE ANNUAL MINIMUM TRAINING REQUIREMENTS		
Position	**Requirement**	**Timeline**
Entry Supervisor	Review C.S.R. SOP	Annually
	Conduct (1) C.S.R. Drill	Annually
	Participate (1) R.S.I. Drill	Annually
Entrant/Back-up	Review C.S.R. SOP	Annually
	Participate in (1) C.S.R. Drill	Annually
	Participate in (1) R.S.I. Drill	Annually
Attendant	Review C.S.R. SOP	Annually
	Participate in (1) C.S.R. Drill	Annually
	Participate in (1) R.S.I. Drill	Annually
Air Monitor	Calibrate Air Monitor	Bi-Annually
	Review Characteristics of Common Gases CO_2, CH_4, H_2S, SO_2, O_2	Annually
Air Supply	Participate in (1) C.S.R. Drill	Annually
	Review Operations of Air Supply Equipment	Bi-Annually
Safety Officer	Review C.S.R. SOP	Annual
Rigger	Participate in (1) C.S.R. Drill	Annual
	Participate in (1) R.S.I. Drill	Annual
	Basic Knot Tying Review	Bi-Annual
	Set up-Raising and Lowering	Bi-Annual
	Systems with Tripod	Bi-Annual
	Systems with Tripod	Bi-Annual
	Set up Tripod	Bi-Annual
	Set up A-Frame	Bi-Annual

BUTTE INTERAGENCY RESCUE GROUP CONFINED SPACE RESCUE MINIMUM STANDARDS		
POSITION	REQUIREMENTS	DESIRED
AWARENESS	CONFINED SPACE AWARENESS	LOW ANGLE RESCUE
	BASIC EMS TRAINING	EMT
	HAZMAT FRO	ICS 1-200
OPERATIONAL	SFM CONFINED SPACE OPERATIONS	SFM High Angle Rescue
	SFM LOW ANGLE RESCUE	SFM Rescue Systems I
	EMT I	SFM TRENCH RESCUE
	ICS1-200	
	MEET FEDERAL, STATE AND LOCAL Regs.	
TECHNICIAN	SFM High Angle Rope Rescue	
	DEPARTMENT TRT MEMBER	
	*SFM TRENCH RESCUE	
	*FOR TRENCH RESCUE INCIDENTS	
	Annual entry	
SPECIALIST	SFM CONFINED SPACE OPERATIONS INSTRUCTOR	
	HAZMAT TECHNICIAN	

SECTION 500: AIR OPERATIONS

510 OVERVIEW/HISTORY

In the 1990's, Rescue 3 International trained that helicopters were generally considered "highest risk". There were few formal air rescue programs in existence and most of the technical air rescues being performed were by ad hoc pilots and crews who had little or no formal training.

In 1998, BCSO and BIRG formalized their air rescue program requiring trained and qualified pilots, crew, rescuers, and continued training in all aspects of air rescue. Cal Fire also has a certified air rescue program which mandates qualified and trained personnel.

Due to these programs and continued training, the use of helicopters in Butte County is no longer necessarily considered "highest risk". Risks regarding the use of BCSO and CAL FIRE helicopters must be weighed in conjunction with general location of the incident, location and condition of patient(s), difficulty and length of time for getting to the patient or equipment into or out of the area, weather, ground conditions, and dangers and length of time rescuers would be exposed to these risks when considering the use of a helicopter.

Use of helicopters outside the use of BCSO or CAL FIRE may be considered higher risk, based on our lack of familiarity with them, and should be carefully weighed against condition of patient and risk to rescuers.

The Butte County Interagency Rescue Group recognizes helicopters and other air resources as viable tools for use in a variety of applications.

511 MINIMUM GUIDELINES FOR AIR OPERATIONS

Table 1: Minimum Guidelines for Air Operations

Air Operations Minimum Guidelines	
Position	Requirement
Awareness	General Helicopter Safety Course (working around helicopter and Helispots/Landing Zones. Helicopter need not be present for this training).

Operational	1) Awareness Level Training 2) In-County Training Program Including: Cold Loads Hot Loads Internal Loading of Helicopter Use of Intercom and Seatbelts Take Off and Landing Procedures Emergency Procedures Helispot Manager or Equivalent Or Helicopter Crew Member Cert (HECM)
Technician1 HRT	1) Operational Level Training, maintenance and requirements 2) Butte County Sheriff's Office Modular Technician Course. (Attachment "A") Or CAL FIRE's Short Haul Rescue Program 3) OTE and SWR Skills Maintenance, Frequency of Training, and Testing as required by parent agency or BIRG to remain operational. 4) Swift Water - A minimum of SWRT 1 certification and Swift Water/Helo Ops. requirements (Attachment "A").
Specialist1 Crew Chief	1) Technician Level Training, maintenance and requirements 2) Butte County Sheriff's Office Modular Technician Course (Attachment "B") Or CAL FIRE's Rescue Supervisor Program ** May have to complete additional training as required by agency supplying aircraft

512 Skills Maintenance and Frequency of Training

Awareness – At least every three years

Operational – At least once per year

Technician*– At least three full flight operations per year and successful completion of (Attachment I)
(One tower training per year may be substituted as one flight).

Specialist* – At least four full flight operations per year and successful completion of (Attachment I)

(One tower training per year may be substituted as one flight, 2 of the 4 operations shall be flown in crew chief position).

* Participation in at least one of every three designated BIRG Air Ops trainings. If more than two consecutive BIRG Air Ops trainings conducted are not attended, a member immediately will be non-operational without notice and shall remain non-operational until he/she completes an approved training session and is reinstated by the BIRG Air Ops Unit Leader. The BIRG Air Ops Unit Leader may approve training outside of regularly scheduled BIRG trainings to meet this requirement. Periodic skill level testing and/or specific skills training may be required per BIRG. All Technicians and Specialist will maintain annual training standards in accordance to Attachment I (Air Operations Annual Training Checklist).

513 CONCURRENT TRAINING

Recognizing the close relationship Air Operations shares with technical rescue skills, active participation and training currency in Swiftwater Rescue and Over The Edge shall be maintained for operational deployment as an AirOps Technician or Specialist. Members shall maintain SWR and/or OTE Skill Maintenance, Frequency of Training, and Testing as required by their unit or and BIRG in those disciplines.

See Attachment “I” – Air Operations Annual Training Checklist.

514 DOCUMENTATION AND COMPLIANCE

All Technicians and Specialists will maintain training records in accordance to Attachment I (Air Operations Annual Training Checklist). All training records including (Attachment I) will be turned into the BIRG Air Ops Leader at calendar year end or as requested.

The Air Ops Crew Chief committee reserves the rights to reprimand or expel any member do to acts of misconduct, not adhering to the minimum qualification and/or training standards and/or participation, or if safety is an issue.

515 Requirements to Work in or Around the Aircraft

Personnel must have permission from their parent agency to work in and around aircraft(s). Such letter of permission must be submitted to the BIRG Air Ops Leader, from all agencies, prior to their personnel being accepted into the air ops program. This applies to Technician and Specialist levels. This may be on a ship-by-ship or pilot-by-pilot basis, depending upon agency policy.

The training levels equate to the need to work in or around the aircraft.

- Awareness – Able to work supervised around aircraft
- Operational – Personnel may be transported or work as Helispot Manager.
- Technician – For those that are going to be involved with technical air operations.
- Specialist – For those involved in technical air operations as a Crew Chief.

All personnel must maintain currency in training based upon their level of participation in or around aircraft and in compliance with (Attachment I).

All personnel must wear appropriate Personal Protective Equipment (PPE) based upon agency, ship requirements, and types of incident.

516 Helispots / Helibases / Landing Zones

This will vary by agency policy, ship, pilot or conditions. Helispots should be selected and managed in accordance with guidelines presented in the Helispot Manager course.

(Attachment “C” for Hand Signals used as reference card)

517 Rigging for Rescue Operations

Due to the serious nature of technical rescue operations using aircraft, only pilots and air operations personnel at a “Technician” level or higher shall be involved in its rigging. All aircraft rigging shall be safety checked by the pilot or qualified Specialist.

Butte County Sheriffs Helicopter H1Rigging;
Attachment “D”
Attachment “E”
Attachment “F”

518 Technical Operations

1. Helicopter “10 & 10s” (Attachment “H”)
2. Night Operations (Attachment “J”)

519 Requirements for General Reconnaissance

Air operations personnel at an “Operations” level or higher may fly in the ship for the purpose of “general” (i.e. non-technical rescue requirements) reconnaissance.

520 Requirements for Rescue Reconnaissance

Due to the serious nature of technical rescue operations using aircraft, only air operations personnel at a “Technician” level or higher may be involved in technical rescue reconnaissance. Personnel shall be at the “Technician” level or higher in whatever rescue specialties are involved (i.e. over-the-edge, swift water, etc.). When possible, the person should be the team leader or actual rescuer that will be involved in the technical rescue.

521 Crew Chief / No Crew Chief

The ultimate decision to use or not to use a crew chief shall be determined by agency pilot, mission or ship requirements. However, it is encouraged that Crew Chiefs should be used in the aircraft when it does not hamper operational viability. Otherwise, the Crew Chief should be in the immediate area to the technical rescue on ground to provide safety and support.

When Crew Chiefs are used, the Crew Chief shall have direct communications with the ground personnel using radio or hand signals.

522 Development of Plan at Scene

If the incident is away from the IC or staging, the aircraft may pick up an observer (Technician level or above) to perform reconnaissance of the incident. Pilot and Technician should make a determination as follows and report back to IC/Ops:

1. The rescue is an easy, safe, pickup type rescue and the helicopter can do it right away
2. The rescue should be done by the helicopter but more detailed primary plans or

backup plans need to be made or equipment needs to be picked up or configured.

3. The rescue is not helicopter viable, at which point the helicopter may be used to transport equipment or rescuers into or out of the area, act as a spotting platform or be released.

4. The rescue is not helicopter viable and the helicopter should not be used.

The final decision to affect a rescue using a helicopter should be a joint decision between the Incident Commander(s), Air Operations qualified rescue personnel, Safety Officer and the pilot. The pilot will make the final determination if the plan is viable for helicopter use. Use of the helicopter for technical rescue operations will only be considered and carried out by personnel who meet the Technician or Specialist qualifications and have maintained these qualifications as specified within these Guidelines.

523 Go, No Go Guidelines (Attachment "G" Briefing Card)

It is important that all involved personnel have the ability to assist in the "Go, No-Go" decision. This decision is dependent upon a variety of variables. One recommended checklist follows:

524 Twelve Standard Aviation Questions That Could Save Your Life

1. Is this flight necessary? Risk vs. Gain?

2. Who is in charge?

3. Are all hazards identified and have you made them known?

4. Should you stop the operation or flight due to:

   Communications
   Weather / Light Conditions
   Turbulence
   Personnel
   Conflicting Priorities
   Aircraft Capabilities

5. Is there a better way to do it?

6. Are you driven by an overwhelming sense of urgency?

7. Can you justify your actions?

8. Are there other aircraft in the area?
9. Do you have an escape route?
10. Are any rules being broken?
11. Are communications getting tense?
12. Are you deviating from the assigned operation or flight?

WHEN IN DOUBT – DON'T!

525 Pre-Flight/Operation Briefing: (Attachment "G" Briefing Card)

Consistent with safe aircraft operations, passengers unfamiliar with the specific aircraft that they are flying in shall be provided with a basic aircraft safety briefing prior to flight. No technical flight operations shall be undertaken without participating personnel being briefed on the specific flight operations. This briefing may be agency and aircraft specific. A sample briefing is shown below.

526 Crew/Passenger Pre-Flight Required Briefing

General Information:

1. Pilot Location
2. Aircraft Type
3. First Aid and Extinguisher Location
4. Ditching (Over-water only)
5. Operation
    a. Harnesses (All times)
    b. Doors (If installed)
    c. Comm. (If used)

General Safety

- Do not Approach/Exit until instructed
- Enter/Exit Hazards (Up-hill, Side Slope, Tail Rotor, Helo Movement)

- Loose Articles (Hats, Straps, Bandanas, Headsets, Etc.)
- Listen for instructions prior to taking any actions
- If you see/hear danger SPEAK UP!! (Aircraft, Obstructions, Mechanical)
- Be aware of flight controls (Pedals, Cyclic, Collective, Switches)

Emergencies

DO NOT PANIC

- Hands and feet inside of aircraft
- Jettison equipment only if instructed to by the crew
- DO NOT remove harness/attempt to exit until rotors have stopped
- Take the first aid and fire extinguisher with you when you exit

527 Types of Operations

DO NOT perform any operations unless briefed in advance and the crew is experienced in that type of operation

1. Transport/Recon
2. Toe-In/Hover Step
3. us materials.ternal Load
4. Dynamic/Static Water
5. Technical Night Operations

528 Over Water Operations

All personnel participating in extended over water operations shall have appropriate training in escape procedures in the event of a water emergency.

529 Risk Analysis Matrix – (Attachment “K”)

A risk assessment should be conducted prior to commencing any technical operation. The risk analysis matrix provides a format for complete and consistent decision making. If any conditions change during the course of the mission, the risk assessment should be reevaluated. This matrix format may be used for debriefs and post operation evaluation.

530 Attachments

A. Initial HRT Operational Training Check-Off

B. Initial Crew Chief Operational Training Check-Off

C. Helo Hand Signals

D. Stokes Rigging

E. Rope System Attachment and Hook Checks

F. Rescuer / Victim Attachments

G. Briefing Cards

H. 10 & 10 Procedures

I. Air Operations Annual Training Check List

J. Night Operations

K. Risk Analysis Matrix

Attachment "A"

Initial HRT Operational Check-off

HRT Trainee Name: _____ Start Date_____

Evolution, Skill or Knowledge	Date 1	Date 2
Basic Helicopter Awareness (required once)		
Helicopter Equipment Review (required twice)		
Helicopter Flight Controls & "Operational" Review (required twice)		
Rigging of Aircraft for Technical Operations (required twice)		
Land Short-Haul w/out Stokes (required twice)		
BIRG Approved Patient Packaging (required twice)		
Land Short-Haul w/Stokes (required twice)		
Toe-ins (required twice)		
Helistepping (required once)		
Ground Support and Helispot Management (required once)		
Dunker Training (required once - PRIOR to water related trainings)		
10-10 / Helicasting Insertions (static water) (required once)		
If active SRT, dynamic water short-haul (required twice)		
Other		

Instructions: A prospective HRT must complete all of the non-water portions of the above requirements before the trainee will be allowed to participate in over-land based real rescue operations. In addition, the water portions must be completed to participate in water-based real life rescue operations.

Items that denote a “required once” may be signed off during a single training. Items that denote a “required twice” must be performed or attended at separate trainings or drills.

Realistically, an HRT trainee should be able to obtain technician status for over-land operations in six months. An HRT trainee should be able to obtain technician status for water-based operations in less than a year.

All HRT training must be completed within 18 months from start date unless otherwise exempted by the Air Ops Crew Chief Committee.

Attachment “A” Supplement

Instructions:

1. Prior to being accepted into the HRT training program, a prospective HRT must:
2. Submit a letter of approval from their department to the BIRG Air Ops. Unit Leader.
3. Trainee shall maintain at least an Over-The-Edge Technician level and be an active member in good standings of their departments OTE team.
4. Trainee shall successfully complete a minimum of a BIRG approved Swift Water Rescue Tech. I class or equivalent.
5. A prospective HRT shall also complete all of the above requirements before the trainee will be allowed to participate in real life rescue operations.
6. Items that donate a “required once” may be signed off during a single training. Items that donate a “required twice” must be performed or attended at separate trainings or drills.
7. Realistically, and HRT trainee should be able to complete the over-land operations in six months and water-based operations in less than a year.

8. A trainee shall adhere to the same participation standards and requirements as a full BIRG HRT. If the minimum participation standards are not adhered to, at the discretion of the BIRG Air Ops leader and/or Crew Chief Committee, the trainee may be required to extend their training period or expelled from the HRT training program.

9. All HRT training must be completed within 18months from start date unless otherwise exempted by the Air Ops Crew Chief Committee.

10. Upon successful completion of the HRT training requirements, the Air Ops Crew Chief Committee shall review the trainee's qualifications and decide if trainee should be promoted to full HRT/Technician status or if further training is required.

11. The Air Ops Crew Chief committee reserves the rights to reprimand or expel any trainee do to acts of misconduct, not adhering to the minimum qualification and/or training standards and/or participation, or if safety is an issue.

Attachment "B"

Initial Crew Chief Operational Check-off

CC Trainee Name: _____ Start Date_____

Evolution, Skill or Knowledge	Date 1	Date 2
Must have completed all land and water based HRT items		
Teach Basic Helicopter Awareness (required once)		
Teach Helicopter Equipment Review (required once)		
Teach Helicopter Flight Controls and "Operational" Review (required once)		
Teach rigging of aircraft for technical operations (required once)		
Crew Chief for Pilot in Land Short-Haul (required twice)		
Teach BIRG approved patient packaging (required twice)		
Crew Chief for pilot Toe-ins (required twice)		
Teach ground support and helispot management (required once)		
Crew Chief for pilot in 10-10/Helicasting Insertions (Static Water) (required 3 times)		
Teach Dunker Training (required once)		
Crew Chief for pilot in dynamic water short-haul (required three times)		
Trained on fueling procedures for H1 and H2 with BCSO fuel trucks (required once)		

BCSAR Only:

Training on H1 radio, comm and navigation (required once)		
Training on H2 radio, comm and navigation (required once)		
Training on H1 generic Night Ops & NVGs (required once)		

Training on H2 generic Night Ops & NVGs (required once)		
Training on hand-held FLIR (required once)		
Training on H2 FLIR (required once)		
Training on H2 Rescue Rigging and Use (required once)		

Instructions: A prospective CC trainee must complete all of the above daytime, non-water requirements before the trainee will be allowed to participate in Crew Chief duties for daytime over-land based real rescue operations. Further, the CC trainee must complete all of the night operation requirements before the trainee may perform CC duties at night. Finally, all of the water portions must be completed to perform CC duties in water-based real life rescue operations.

Items that denote a “required once” may be signed off during a single training. Items that are required more than once must be performed or attended at separate trainings or drills.

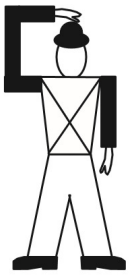
Realistically, a CC trainee should be able to obtain specialist status for all air operations in slightly over one year. All CC training must be completed within 18 months from start date unless otherwise exempted by the Air Ops Crew Chief Committee.

BUTTE INTERAGENCY RESCUE GROUP

Attachment "C"

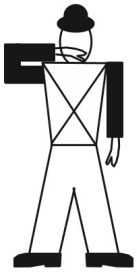
Butte County Helicopter Hand Signals

OK



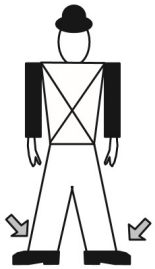
Hold palm of hand on top of head

Abort



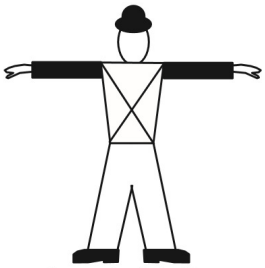
Draw hand across throat

10' From Ground



Kick feet together

Hold Hover

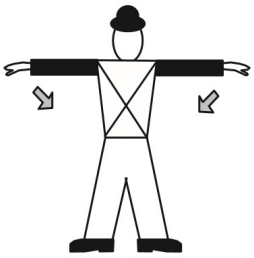


Arms extended with clenched fists

Transition to Horizontal Flight/Move Upward

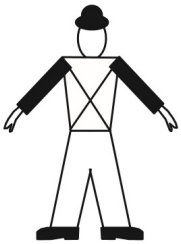
Spin finger to move upward. Point to direction of travel when ready to move horizontally ("tally -ho" signal)

Move Downward



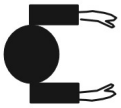
Arms extended, palms down arms sweeping down

Move Rearward



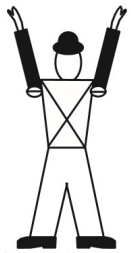
Arms downward with shoving motion

Land Here



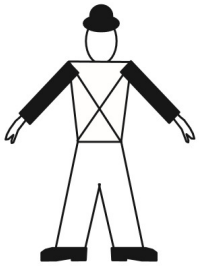
Extend arms with wind at back

Move Forward



Arms extended and wave copter toward you

Hold on Ground

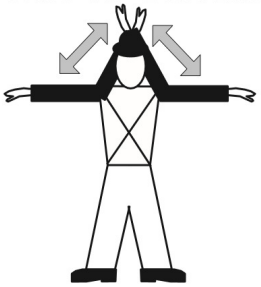


Extend arms at 45 degrees with thumbs down

Release Sling Load

Contact forearm with hand by sweeping arm across body

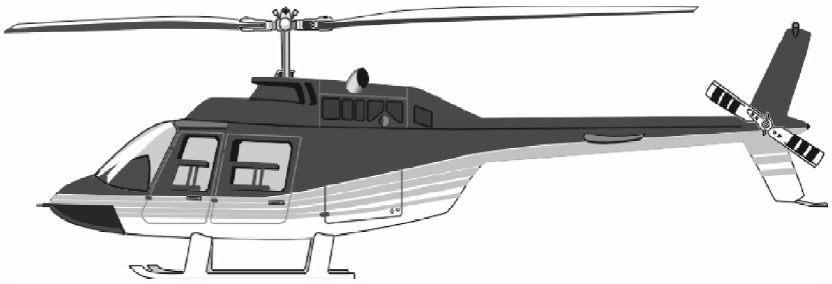
Wave Off - Don't Land



Waves arms rapidly over head overcrossing hands over head

Attachment "D"

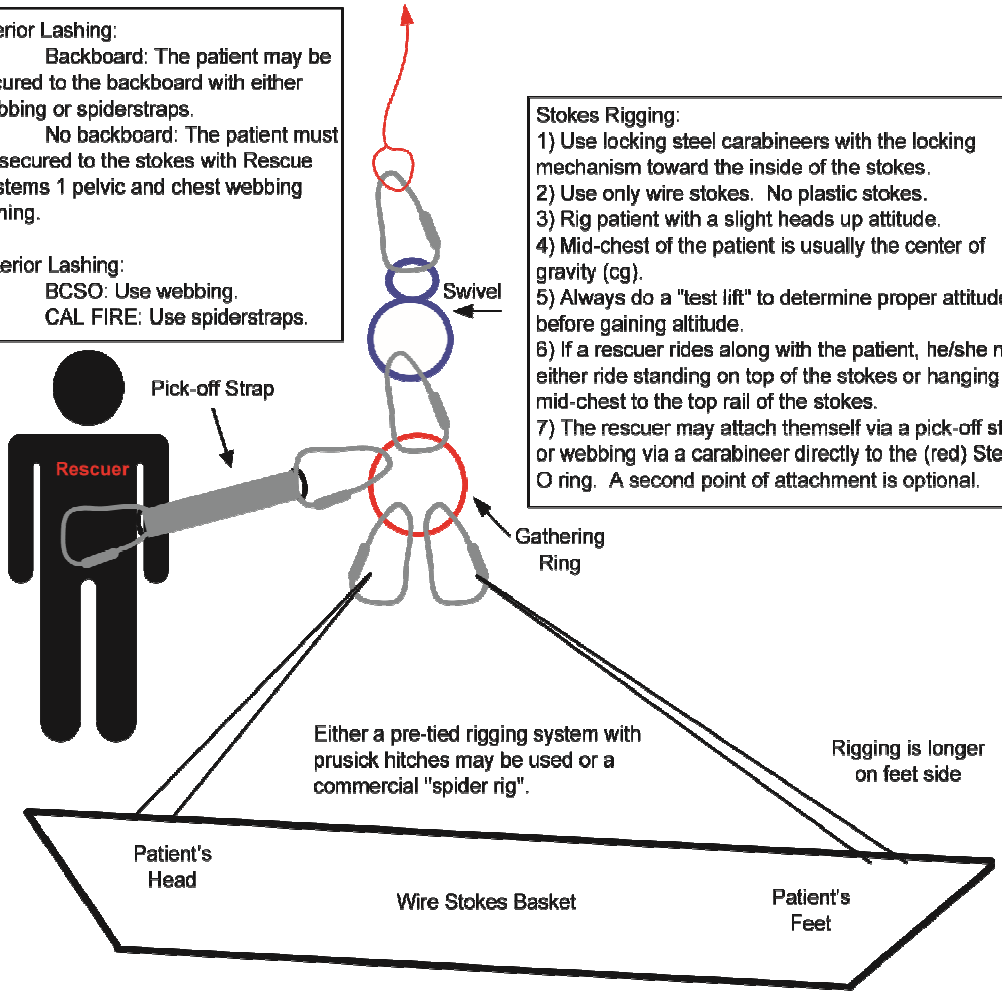
Stokes Helo Rigging



Interior Lashing:
Backboard: The patient may be secured to the backboard with either webbing or spiderstraps.
No backboard: The patient must be secured to the stokes with Rescue Systems 1 pelvic and chest webbing lashing.

Exterior Lashing:
BCSO: Use webbing.
CAL FIRE: Use spiderstraps.

Stokes Rigging:
1) Use locking steel carabineers with the locking mechanism toward the inside of the stokes.
2) Use only wire stokes. No plastic stokes.
3) Rig patient with a slight heads up attitude.
4) Mid-chest of the patient is usually the center of gravity (cg).
5) Always do a "test lift" to determine proper attitude before gaining altitude.
6) If a rescuer rides along with the patient, he/she may either ride standing on top of the stokes or hanging mid-chest to the top rail of the stokes.
7) The rescuer may attach themself via a pick-off strap or webbing via a carabineer directly to the (red) Steel O ring. A second point of attachment is optional.

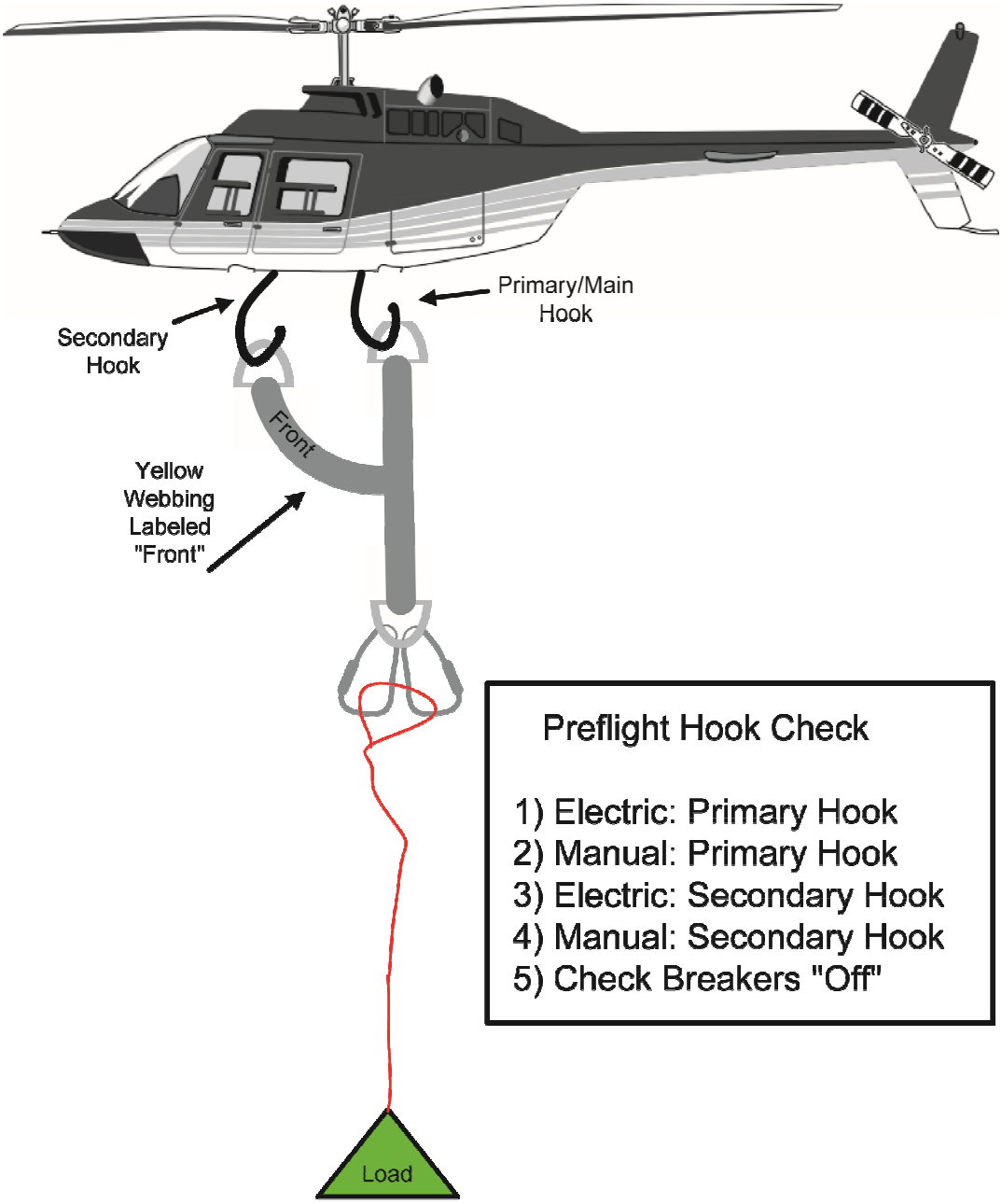


Patient Packaging:
- Mandatory Victim Flight Harness (Chest & Seat) in "Flyable Conditions"
- CAL FIRE will only use a CAL FIRE stokes
- Both interior and exterior lashing are required.
- Backboard: The use of a backboard is optional. If used, the backboard must be secured to the stokes.

revised; 06/05/07

Attachment "E"

Rope System Attachment / Hook Checks

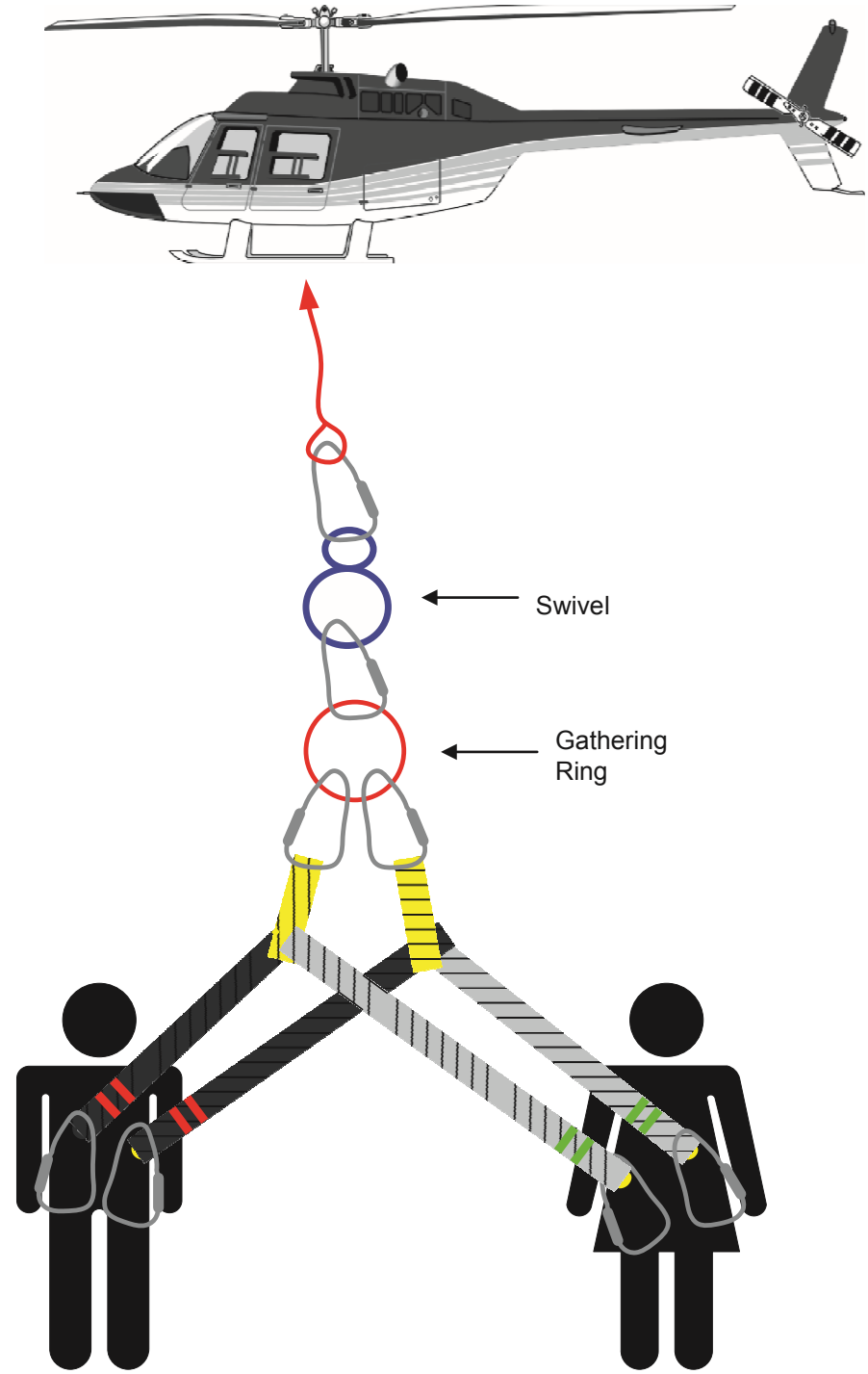


Preflight Hook Check

1) Electric: Primary Hook
2) Manual: Primary Hook
3) Electric: Secondary Hook
4) Manual: Secondary Hook
5) Check Breakers "Off"

Attachment "F"

Rescuer / Victim Attachment



Attachment "G"

Briefing Cards

Pre-Flight Briefing/ BCSO Ship:

General Information

1. Pilot Location
2. Aircraft Type
3. First Aid/ Extinguisher Location
4. Ditching (over water)
5. Operation
   a. Harnesses (all times)
   b. Doors (if installed)
   c. Comm. (if used)

General Safety

6. Do not approach/exit until instructed
7. Enter/Exit hazards
   (up-hill, side slope, tail rotor, helo movement)
8. Loose articles
   (hats, straps, bandanas, headsets, ect.)
9. Listen for instructions prior to taking actions
10. If you see/hear danger SPEAK UP
    (aircraft, obstructions, mechanical)
11. Be aware of flight controls
    (pedals, cyclic, collective, switches)

Emergencies

12. Do Not Panic
    a. Hands & feet inside aircraft
    b. Jettison equipment only if instructed
    c. Do not remove harness or attempt to exit aircraft until rotors have stopped
    d. Take first aid/extinguisher with you upon exiting aircraft

Types of Operations

13. Do not perform operations unless briefed in advance & crew is experienced in that operation.
    a. Transport/Recon
    b. Toe-in/Hover step
    c. Short Haul/External Load
    d. Dynamic/Static Water

Over Water Operations

14. All personnel participating in extended over water ops shall have appropriate training in escape procedures in the event of a water emergencies.

GO, NO GO GUIDELINES

1. Is this flight necessary? RISK vs. GAIN
2. Who is in charge?
3. Are all hazards identified & have you made them known?
4. Should you stop the operation or flight due to:
   a. Communications
   b. Weather / Light Conditions
   c. Turbulence
   d. Personnel
   e. Conflicting Priorities
   f. Aircraft Capabilities
5. Is there a better way to do it?
6. Are you driven by an overwhelming sense of urgency?
7. Can you justify your actions?
8. Are there other aircraft in the area?
9. Do you have an escape route?
10. Are any rules being broken?
11. Are communications getting tense?
12. Are you deviating from the assigned operation or flight?

WHEN IN DOUBT – DON'T!!

Attachment "H"

Helicopter "10 & 10s"

Procedures

1. When doing 10 & 10's, 2 rescuers are required. When Rescuers approach the helicopter, make sure the heavier Rescuer is on the port side (opposite side) of the Pilot.
2. Attach the Rescuers so that they stand as close to CG as possible using a rated strap with a carabiner. Attach to an appropriate rated attachment point on the ship.
3. After Rescuers are in place on the skid, the Crew Chief will confirm that their carabiners are locked and Rescuers are ready (proper PPEs, no loose straps, etc.). Use the "ok" sign to make sure that they are ready for flight. The Crew Chief will then communicate to the pilot, readiness for flight. Use of the "ok" sign can be used during flight to confirm Rescuers condition and readiness.
4. During approach to the drop off site and having confirmed with the pilot, the Crew Chief will give the "unhook your carabiner"sign, to the Rescuers, by twisting your hand together in a clockwise/counter-clockwise rotation. The Rescuers will remove their connecting carabiners and hand them to the Crew Chief who will secure Rescuer's straps and carabiners in a safe place inside the ship. The Rescuers will await the signal to position for insertion.
5. At final approach to the drop site, the Crew Chief will give the signal for the Rescuers to turn around and face the water, by pointing both of your pointer fingers in the air and rotating them – similar to a "talley-ho" sign.
6. When you are ready to insert the Rescuers, go to "hot mike" so that you can use your hands at the same time that you are talking so that the Pilot will know the timing of the insertion.
7. Counting out loud over the "hot mike", "1…2…3", while pounding your right fist (with the correct amount of fingers showing) into your left hand. Try to have your fingers perpendicular to the Rescuers, so that they can see the number of fingers that you are showing. The Rescuers shall insert on the #3 count.
8. Once Rescuers are in the water the Crew Chief will observe the Rescuers, watching for the O.K. sign and confirming that the Rescuers are OK.

General Notes:

1. The skids on the H2 flex more than H1. Make sure the Rescuers have enough slack in their attachment straps so that they are comfortable once the skids are in the air, and still able to undo their carabiners.
2. Rescuers may find it more comfortable to face the rear of the helicopter immediately prior to doing insertions.
3. Rescuers should remember to hold their helmet, eye protection, PFD, etc. immediately prior to entering the water.
4. Rescuers should gently “step off” the skid, not jump.

Attachment "I"

Air Operations

Annual Training Checklist

Minimum Skills						Date	Hrs
OPERATIONAL							
Helispot IDENTIFICATION							
Specs & Requirements							
Helispot SETUP & PREP							
APPROACHING THE HELICOPTER							
STOWAGE OF EQUIPMENT							
LOADING INTO THE HELICOPTER							
Seatbelts							
Communications							
EXITING THE HELICOPTER							
Seatbelts							
Stowage & Removal of Equipment							
Exit Path							
EXTERNAL COMMUNICATIONS							
Radio Comm							
Hand Comm							
BASIC EMERGENCY PROCEDURES							
First Aid Kit							
Fire Extinguisher							
When to exit aircraft							
What to do							
Hard landing/crash							
TECHNICIAN							
HELICOPTER LOADING & RIGGING							
Rigging for non-live load/equipment loading							
Rigging for live load or short haul							

Minimum Skills						Date	Hrs
In Pool/Dunker Training							
Rigging for water insertions							
Rigging for skid insertions							
TECHNICAL OPERATIONS							
Short Haul							
Sling Haul							
Helistepping/Toe Ins							
Water Insertions (10/10)							
Emergency Procedures							
OTHER							
SPECIALIST							
CREW CHIEF DUTIES							
Weight & loading management							
Fueling considerations							
Aircraft equipment removal (seats, doors, etc)							
Technical operations duties							
Communications with pilot							
Communications with crew							
Assisting passengers to and from ship							
with loading and unloading							
Spotter							
Communications with ground crews							
OTHER							
Fueling aircraft							

Attachment "J"

Night Operations

Night Flight Procedures – Helicopters

Nightime flight operations may include all techniques that are utilized during daytime flight, including live human load short-haul. The pilot-in-command will have the final decision regarding flight safety and mission completion.

Excluding an emergency, some unusual circumstance, or when taking off and landing, all night flights will remain above 500 feet above grade level (AGL) in the unincorporated areas and at least 1000 feet AGL in the incorporated areas of Butte County, i.e. City of Chico, Oroville, Gridley and Paradise.

This will allow for an added margin of safety and a reduction in citizen complaints.

The pilot may deviate at his discretion for operational efficiency. However, a hard deck of 500 feet AGL will exist except for takeoff and landing.

Night Pilot Currency Requirements – Helicopter

To fly any BCSO helicopter at night, the PIC must meet the FAR Part 91 minimum night flying requirements per FAA rules. In addition, the following restrictions apply:

- All Search and Rescue night flights will include the PIC and an appropriately trained crewmember.
- No pilot will make an offsite landing at night unaided. The only exception is if the landing area is designated. A designated Landing Zone is a landing area, suitable for night time landing, with a flat area approximately double the size of the helicopter. The landing area must have ground crew at the area and they must have made a hazard assessment. This assessment will include the identification of any hazards such as wires, dust, obstacles, wind direction and any other pertinent information. This information must then be relayed to the pilot. It is the pilot's responsibility to solicit this information from the ground crew. All night landing will be flat pitch.
- All non-NVG flights will be restricted to the valley (under 1500 feet). Mountainous flights will not be made at night unless the pilot is NVG qualified and wearing NVG's.

Night Vision Goggle (NVG) Qualifications:

1. Five (5) hours of initial flight instruction and six (6) hours of ground instruction with an approved instructor.
2. Pilot must have logged six (6) NVG events within the past sixty (60) days. An

event is a take-off, enroute and landing phase of flight.

3. If a pilot has not qualified within the sixty (60) days, the pilot has an additional sixty (60) days to become current by logging three (6) events without passengers.

4. If a pilot has exceeded one hundred twenty (120) days, the pilot must complete a re-currency check ride with an approved instructor.

Helicopter Operating Weather Minimums

The on-duty pilot is responsible for keeping abreast of current weather in the primary service area. The decision to accept or turndown a flight is exclusively the responsibility of the Pilot-in-Command (PIC). Under no circumstances will a pilot initiate a flight unless weather at departure, en-route and destination is at or above the weather minimums outlined in this Operational Directive. Weather minimums provided below are shown as ceiling height (feet) and horizontal visibility (in miles).

DAYLIGHT HOURS

1. Local Flying Area 500'/1
2. Cross Country/Mountainous 800'/2

NIGHT TIME HOURS

1. Local Flying Area 800'/3
2. Cross Country/Mountainous 1000'/3

NIGHT – WITHOUT NVG'S

1. Local Flying Area 1000'/3
2. Cross Country 1000'/5

ADDITIONAL

1. Local area is defined as 30 nautical miles from Oroville Airport excluding Mountainous Terrain. Mountainous terrain is defined as the areas above the 1500' contour line.

2. In the event that sub-minimum weather conditions are encountered in the course

of a flight the PIC will terminate the flight in the safest possible manner.

Attachment "K"

Risk Assessment Matrix

Technical Rescue Operations – Helicopter Risk Assessment

This risk assessment model is based upon the United States Coast Guard, Green-Amber-Red risk assessment tool. This model allows for a time critical risk assessment for the Incident Commander(s) to plan, organize, staff, direct, control, and evaluate the actions necessary to conduct safe and effective aerial night operations. This shall be the process to identify those inherent risks measured against the appropriate mitigations in place. This model can be applied in a variety of situations, from program to pre-mission risk assessment. It is not intended to replace pre-mission planning, briefings and debriefings, or post action follow-up, but provide an efficient risk management tool for dynamic environments.

Making risk decisions at the appropriate level establishes clear accountability. Those accountable for the success or failure of a mission must be included in the risk decision process. The higher the risk the more mitigation may be necessary. If significant differences in the same rating categories are identified all team members will re-evaluate the mission and address any mitigation prior to continuing with the mission.

It provides a more general analysis of the operational system and provides a qualitative rating scale for each of the categories that correspond to the identified areas of risk. It is important to remember that risk management is a process that continues throughout the mission and each assessment model allows management to set the acceptable risk standards as they apply to each mission.

Discussion is critical to understanding the risks and how they will be managed.

Application:

Compute the total level of risk for each hazard identified below. Assign a risk score of zero (0) (No Risk) through ten (10) (maximum Risk) for each element. Add the individual risk scores to come up with a Total Risk Score.

Note: This is a subjective estimate of risk.

Risk is rated 1 - low, through 10 - high, for each category. Additional mitigations should be considered for any category rated higher than 5.

Supervision

Supervisory Control considers how qualified the supervisor is and whether effective supervision is taking place. Even if a person is qualified to perform a task, supervision acts as a control to minimize risk. The higher the risk, the more the supervisor needs to be focused on observing and checking. A supervisor who is actively involved in a task is easily distracted and should not be considered an effective safety observer in moderate to high-risk conditions.

Planning

Planning and preparation should consider how much information you and other resources that you may be interacting with have; how accurate it is, and the amount of time available to plan for and evaluate the existing and emerging conditions.

Contingency Resources

If the plan experiences failure, what contingency is in place? Backup resources (personnel and equipment) that can assist if needed. An alternate plan to meet the incident objectives shall be evaluated.

Communication

Evaluate how well involved personnel are briefed and communicating (Crew Resource Management). An evaluation of the communication systems that are available should include; the technical capability, infrastructure, operational reliability, and organizational culture.

Required Resources

The selection of personnel for key Air Operations positions should evaluate the character and competence of the individuals used, specifically addressing their experience and qualifications in technical operations. On occasion individuals may have to be replaced during the operation, which will require an assessment of any new team members and how they will be able to interact with those already engaged. Selected equipment is capable and reliable to meet the mission requirements.

Mission Effectiveness

Does a high degree of success in achieving incident objectives exist without burdensome procedures or other external factors?

Environment

Consider factors affecting the performance of personnel, equipment, and the organization, including; time of day, wind and other weather conditions, topography, temperature and altitude. Evaluate specific factors such as narrow canyons, urban infrastructure, forest canopy, and site selection. However, they should be eyed with caution as the operational environment is very dynamic.

Incident Complexity

Evaluate the experience level of the crews, how many aircraft are involved, generally, the longer one is exposed to a hazard, the greater are the risks. The situation includes

considering how long the environmental conditions will remain stable and the complexity of the work.

Operation: Operational Period:

Objective(s): Date:

Supervision		
Supervisor has perfect knowledge about the mission, personnel, capabilities and limitations, and is able to apply the appropriate control to minimize risk	< 1 2 3 4 5 6 7 8 9 10 >	Supervisor has little knowledge about the mission, personnel, capabilities and limitations, and lacks skill, knowledge or ability to apply the appropriate control to minimize risk.
Planning		
There is a well designed plan that is reviewed and revised as needed to meet the demands for safety and efficiency and to account for adaption. Time is well managed.	< 1 2 3 4 5 6 7 8 9 10 >	There is no plan or the plan doesn't address many current adaptations made in response of demands for efficiency. Time constraints have a strong effect on ability to plan.
Contingency Resources		
Reliable alternative equipment and personnel are available, easily accessed and informed about the mission requirements.	< 1 2 3 4 5 6 7 8 9 10 >	The outcome depends on the equipment and personnel assigned completing the mission perfectly. Failure is not an option.
Communication		
There is a high level of trust in the organization and communications plan. This shall include known, accepted procedure in use of the equipment applicable to incident and aerial resources.	< 1 2 3 4 5 6 7 8 9 10 >	There is low trust in the organization or the personnel/communication equipment is unreliable based on the expected needs for the mission.
Required Resources		
Personnel with the requisite knowledge, skill and ability are available and in place. Equipment is appropriate for mission requirements. Selection and preparation completed well in advance.	< 1 2 3 4 5 6 7 8 9 10 >	Limited personnel available; the success of the mission depends on individuals juggling many responsibilities. Equipment capability is marginal.
Mission Effectiveness		

High degree of success in achieving incident objectives.	< 1 2 3 4 5 6 7 8 9 10 >	External factors preclude operational effectiveness
Environment		
Weather and visibility are conducive to the best possible chance for success in the mission. Operational tempo is appropriate for the mission.	< 1 2 3 4 5 6 7 8 9 10 >	Winds are unpredictable, temperature is extreme, low ceilings and visibilities, precipitation, sun angle creates strong shadows, etc. Mission tempo is too low or high.
Incident Complexity		
A single agency is involved with personnel from the same unit who regularly work together. Mission is straight forward and covered by standard operating procedures.	< 1 2 3 4 5 6 7 8 9 10 >	Multiple agencies are involved in a mission that defies definition or has ever been attempted. Personnel are new to each other and come from different cultures. Many leaders are emerging and working toward different objectives.

Mission Total:

Benefit Statement:

Operation Approved by:_____Title:_____Date:_____

Risk Assessment Worksheet

Risk		Score / Mitigations
Supervision	**0-10**	
Planning	**0-10**	
Contingency Resources	**0-10**	
Communication	**0-10**	
Required Resources	**0-10**	
Mission Effectiveness	**0-10**	
Environment	**0-10**	
Incident Complexity	**0-10**	
Total	**0-80**	

Green	Amber	Red
Score: 0-35	Score: 36-80	Score: 61-80
Low Risk Proceed with Mission	Moderate Risk Proceed with Caution	High Risk Implement Measures Prior to Proceeding

SECTION 600: DART

600 Purpose

Mission Statement: The Drowning Accident Response Team's mission is to save lives and recover evidence in water-related incidents.

600.1 Goals

1. To successfully rescue and resuscitate drowning victims.
2. To protect the lives and property of citizens in, on, under, or about the varied bodies of water.
3. To assist local public service agencies with underwater investigations and recovery of evidence and drowning victims.
4. To train members in specialized rescue and recovery techniques.
5. To educate the public in water safety techniques and reduce the number of drownings.

600.2 Public Safety Diving Association

The purpose of using the Public Safety Diving Association standards is to form our guidelines with a nationally recognized organization specializing in public safety diving. Although, it is obvious that all situations can't dictate a specific response due to the changing environments and circumstances that occur with each call or availability of resources but PSDA can give us a starting point in establishing a response to each need. The use of PSDA guidelines are to promote safety and advance training standards while following nationally recognized guidelines. Any guidelines listed and/or suggested by PSDA are not to be used as absolutes but as flexible recommendations based on generic situations.

Ultimately, it is the diver that will have the ultimate say prior to attempting each dive based on their personal comfort level, experience and training. Each diver shall have the right to refuse a dive without fear of repercussion if uncomfortable. Because calls vary drastically, it will be allowed to vary PSDA guidelines and/or use recreational standards when deemed safe to do so by both divers and dive supervisor.

601 Rescue and Recovery Operations

601.1 During a rescue operation (as described in the Glossary of Terms), Divers and response personnel will make all appropriate attempts to expedite and conduct any dive operation in a safe yet expedient manner. Obviously, there is more inherent risk during a rescue operation and a diver may have to begin a dive

without all usual personnel in place and without all normal dive guidelines being in place. This type of operation will again fall on the diver's discretion with the diver having the ability to refuse or abort the dive operation without fear of repercussion.

601.2 Methods used to determine a Rescue VS Recovery will be the "Golden Hour" The Golden Hour time line will or should start from the last known time the victim was last seen, NOT the time of callout. Travel distance and time will be considered in evaluating whether a diver(s) can be on scene within the hour time line.

601.3 At the end of the hour "Golden Hour" time frame **ALL** divers will be pulled from the water and the team will start preparations for a recovery.

601.4 During a recovery operation (as described in the Glossary of Terms), all reasonable attempts will be made to follow the safe practices of the PSDA or recreational dive guidelines based on availability of personnel and resources.

601.5 No recoveries will be conducted at night.

601.6 The minimum number of divers will be **3** for **ANY** recovery, 1 Diver, 1 Line Tender, 1 90% Diver. All practical attempts to have a 5 man dive team should be made prior to any recovery.

602 Application for team membership

602.1 Application procedure/probation

Any DART member receiving an inquiry regarding membership shall refer the applicant to the DART Team Representative for his agency and the DART team leader..

The new member shall be on probation for a period of twelve months subsequent to a majority vote by the dive team members. During this time period, the member may be dismissed by majority vote of the dive team members with or without cause.

602.2 Prerequisites

1) CPR certification from either the American Heart Association (AHA) or the American Red Cross (ARC).
2) Minimum of Standard First Aid certification from the American Red Cross.
3) Current dive logbook
4) Open water diver Certificate

602.3 Personal equipment required before joining

602.4 Agency issued equipment

Upon acceptance of an applicant, each agency will be responsible for providing the individual with the following:

1. Regulator with separate octopus - inflator line octopus (ex: Air 2) and spare air do NOT qualify.
    a. Pony tanks used as a redundant system will qualify as a separate octopus.
2. Minimum 1 air tank (minimum size 80 cubic feet)
3. Pressure gauge (computer highly recommended)
4. Compass
5. Depth gauge (computer highly recommended)
6. Minimum 2 cutting devices. A pair of cutting shears is also recommended
7. Two underwater flashlights
8. Rescue PFD with expandable tether and carabineer, blade knife, whistle, and strobe light
9. Swift-water helmet
10. Throw bag with floating rope
11. Seatbelt cutter
12. Pelican float
13. 2 Small floats

602.5 Equipment furnished by agency

1. While the dive team member is in his/her probationary period the following gear can be rented for the team member
    A. Hood, gloves, booties suitable for cold water (heavy duty hiking booties are preferred).
    B. Mask, snorkel, fins
    C. Weight belt (the release should be a right-handed release and the free webbing beyond the buckle should be 10-12 inches in length. Integrated weights are strongly discouraged for this type of diving).
    D. Buoyancy Compensator (BC) with a minimum of 30 lbs. of lift.
    E. Wet suit

2. Once the team member has successfully completed the probationary period the gear listed in section 1 shall be purchased for the member by their respective agency. The following shall be purchased in addition.

    A. Full dry suit suitable for cold water
    B. NAFTA approved full body harness
    C.Gear listed in attachment “D” should also be provided to the member

602.6 Training required within 1 year

New DART members should receive training and be approved by the Training Officer on the following subjects:

1. Helicopter awareness level
2. Altitude diving

3. Night diving
4. Full face mask underwater communication
5. Advanced open-water certification
6. Rescue Diver Certification
7. PSDA Level II minimum
8. Swift-water diver certification
9. Rescue Three, Swift-water 1 or equivalent.
10. Ice diving, whenever feasible due to current weather patterns

603 DART classification levels

Refer to Attachment "F"

604 Dispatch procedures

604.1 Levels of Response

The will be two types of responses made by the Butte County Interagency DART team. Rescue and Recovery

Rescue which authorizes a code 3 response (Lights and sirens as dictated by the member's agency departmental orders). The levels of response will be dictated by the time frame known as the "Golden Hour" the time frame for the hour starts from the last time the victim was seen, NOT from the time of callout. If the team member(s) cannot safely make it to the accident scene in the hour time line the response shall be considered a Recovery.

605 Offices & Committees

605.1 Agency Representative

The Agency Representative will be the spokesperson for the agency. He is also responsible for keeping track of the training records of his individual agency members. One member from each agency will be selected by each individual agency to represent that particular agency. It is up to each agency as to term and method of selection.

605.2 Team Leader – Must meet specialist qualifications as listed in water rescue (underwater) minimum training requirements page in BIRG manual. Team members will elect the Team Leader. Division/Group Supervisor and ICS Training will be required of all Team Leaders.

605.3 Assistant Team Leader - Team Members will Elect the Assistant Team Leader to assist in dispatching the team, training, and step in as Team Leader should they not be available.

606 Training

606.1 Instruction

1. Training: Training will be conducted on a monthly basis.
2. Instructor: The Team Leader is responsible for all training unless delegated. Whoever is responsible for the individual training session will either act as Incident Commander or designate an IC.
3. Safety Officer: Whoever is responsible for the training session will either act as Safety Officer or designate a Safety Officer.

606.2 Attendance

1. Team members must not miss two consecutive trainings. If a member misses two consecutive trainings, he can only respond as a support person (no in-water activities) starting from the date of the second missed training.
2. Attendance at the meeting only, does not count as attendance at the training.
3. Callouts, outside training, and non-emergency dives used in lieu of the regular scheduled training will be decided on an individual basis. The decision will be made by the Team Leader and the Agency Representative.
4. The Team Leader Officer will notify the Agency Representative of member(s) that miss two consecutive trainings. Members that miss more than six trainings in a calendar year will be reviewed by the team members in regards to staying on as an active member. The Agency Representative will be notified by the Team Leader of any member that misses more than six trainings in a calendar year.

606.3 Records

1. The team Training Officer will keep a record of the attendance and subject of the monthly trainings. The Butte County Sheriff's Office will record all training and certificates in an e-file for the DART team as well as individual team member Files. The Team Leader will provide a schedule of the forth coming year's training by no later than the December meeting. Divers will be responsible for having a log book and keeping it up to date. **Log books will be inspected by the team leader or their designated person at least once a year.**

2. All training shall be written on the Butte County Interagency Training Report. The team member tasked with the months training shall have the report written and turned in no later than 1 week prior to the training date. The report shall be turned in to the Team Leader or their designated team member.

606.4 Annual Skills Review

Each member shall pass an annual skills review or be ineligible for in-water activities. The Annual Skills Review must be completed by May 1st of each year. The Training Officer is responsible for establishing a list of skills that ordinarily will be completed in a one day pool session.

606.5 Annual Checklist

The Team Leader or the designated team member will be responsible for establishing a list of skills that must be reviewed throughout the year. This will be called the Butte County Interagency DART Training Matrix. These skills are not intended for a one day session, but are intended to be incorporated during our monthly drills throughout the year.

607 Communications

607.1 Radio

The preferred tactical net for all DART incidents shall be California Coordination (Calcord 156.075). This frequency is authorized by the Office of Emergency Services and is the preferred net because of the mixture of Law Enforcement, Fire, Medical, etc. When responding, it is desirable to bring your own radio with Calcord capabilities. When around water, Handie Talkies should be kept in waterproof pouches and firmly attached to your body unless the radio is designed for water use.

607.2 Line Tender

Refer to Attachment A

607.3 Hand Signals

Refer to Attachment A

608 Equipment

608.1 Underwater Communications

All personnel must receive training before using underwater communications equipment.

608.2 Required Night Diving Equipment

Mandatory night equipment: For all night dives, the following additional equipment is required for each individual diver (not each dive team).

1. A minimum of 2 flashlights.
2. A minimum of 1 chemical light or steady marker light/strobe light (If possible, each team should have a different color to facilitate identification of different teams working in the same area.)
3. A minimum of one strobe light must be displayed on shore.

608.3 Supplied Air Operations

1. Divers using surface supplied air shall be equipped with a diver carried, independent, reserve, breathing gas supply.
2. Each surface supplied diver shall be hose tended by a separate dive team member.
3. Divers using surface supplied air shall maintain appropriate communications with the surface tender via rope, underwater communications equipment, or direct visual contact.
4. The surface supplied breathing gas supply shall be sufficient to support all surface supplied divers in the water for the duration of the planned dive, including decompression.
5. During surface supplied diving operations when only one diver is in the water, a standby diver in addition to the hose tender shall be utilized.
6. Surface supplied air diving shall not be conducted at depths greater than 66 feet.

608.4 Air Quality

1. All air shall be Compressed Gas Association (CGA) Grade E.
2. All air compressor intakes shall be located away from exhaust or other contaminants. This is especially critical with mobile systems.
3. All air compressor systems shall be tested at regular intervals.
4. No nitrox or re-breather systems shall be used.

608.5 Personal Equipment Maintenance

Personnel will properly maintain all individually assigned and personally owned equipment. Dive computers are strongly recommended over dive gauges.

Regulators, Buoyancy Compensators, **Computers and/or gauges shall be inspected and signed off as being in proper working condition by a certified technician on an annual basis**.

Tanks shall be visually inspected annually by a certified technician and hydrostatically tested at least every five years as required by the Department of Transportation.

Used SCUBA equipment, especially regulators, BC's and computers shall be serviced prior to its first use. Any discrepancies will be corrected as soon as possible (i.e., proper lubrication, washing, patching, storage included). **A record of all cylinder inspections, hydro's and regulator servicing will be kept by the Agency Representative and the individual member.**

609 Aviation

Refer to the Rescue Group Air Operations Guidelines.

610 General guidelines

1. Ultimately, it is the diver that will have the ultimate say prior to attempting each dive based on their personal comfort level, experience and training. Each diver shall have the right to refuse a dive without fear of repercussion if uncomfortable.

2. The Dive Group Supervisor decides when to dive and may terminate the dive at any time for safety or other operational reasons.

3. All equipment and/or property is to be considered expendable in comparison to human life.

4. **Oxygen and an EMS trauma bag shall be available at all dives**, including training dives and swift-water trainings.

5. An appropriate dive table or dive computer must be available at the dive location. Diving that results in exceeding the no decompression limits of the dive computer or dive table at any time during the dive is prohibited. Safety stops are recommended on all dives below 60 feet.

6. Assistance for the victim's family shall be provided for by Chaplains, Red Cross Counselors, etc. The Butte County Critical Incident Stress Debriefing Team (CISDT) is for our team member's use, not the public.

7. Nothing is this section shall prohibit a member from making a solo dive if he feels safe in doing so and feels that waiting for additional personnel would jeopardize the safety of the victim(s). This would be in rescue mode only and the diver should be tethered if possible. This situation is very unlikely and should only be attempted with a known victim in relatively calm conditions with few obstacles such as entanglements and/or entrapments. On planned dives, safety divers are required. It is suggested that all divers have some sort of buddy. This may be accomplished by a Rope Tender or hard wire/wireless communications.

8. Unless it compromises the safety of another diver already in the water, it is the responsibility of the diver to terminate the dive without fear of penalty whenever the diver feels it is unsafe to continue.

9. All dives must be terminated while there is still sufficient tank pressure to be on the surface with 500 psi. If diving in a full face mask, this requires that the diver has enough air to make a surface swim to the shore before removing mask with the required 500 psi minimum reserve.

10. Prior to conducting a dive, a briefing should be conducted to cover pre-dive safety checks, the dive profile/plan, missions specifics, potential risks, access/egress routes, locations of additional safeties such as downstream and

upstream protection, environmental conditions, times expected to complete mission, type of search, review of signals, air pressures etc. are defined. Other items included in the briefing should be the location of the nearest hyperbaric chamber, hospitals and emergency procedures for both divers and victims if applicable.

11. Each diver shall conduct a functional check of his diving equipment in the presence of his Dive Buddy or Handler.

12. No diver shall be required to be exposed to hyperbaric conditions against his will except when necessary to prevent or treat a pressure related injury.

13. No diver shall be permitted to dive for the duration of any known condition which is likely to adversely affect the safety and health of the diver or other dive team members.

14. If personnel are available, each diver getting suited up should have a Handler. This person is responsible for helping the diver dress, getting them to their location, recording their times on air, etc. This person constantly knows where the diver is and acts as their personal Safety Officer.

15. Underwater divers will not be utilized either above or below dams during periods of fast water unless it is safe to do so. Underwater divers will enter fast water to perform an immediate rescue and in the recovery mode only when safe to do so.

16. Ice rescue operations, as defined in this document, are diving operations that take place anytime there is ice on the surface of a body of water. Ice rescue operations are extremely hazardous and extreme safety and caution should be used. A safety rope should be attached to anyone working on the ice. During sub-surface rescues two rescue ropes will be utilized. One will be used as a safety line and the other as a guide rope. A separate line tender will be used for each. Equipment should be certified for cold water. Personnel must have had training in ice diving conditions. Strobe lights should be affixed to the boat based dive anchor for boat based operations, or near the entry point for ice operations.

17. Where an enclosed or confined space is not large enough for two divers, a diver should be stationed at the underwater point of entry and an orientation line should be used when necessary. It is also preferred that the waiting diver provide a guide light/strobe to mark the exit.

18. The “Sport Dive Flag” also known as the "Diver Down" flag (red and white striped) shall be prominently displayed when necessary.

19. Diving is not permitted beyond a depth of 120 feet.

20. With the completion of a dive, each diver shall:

A. Report any physical problems or symptoms of decompression sickness or air embolism.

B. Perform an equipment check and report any problems or malfunctions to the Diving Supervisor and their Agency Representative.

C. In the unforeseen event diving outside the no decompression limits occurs, the divers shall remain awake for at least one hour after diving and in the company of a dive team member who is prepared to transport him to a hyperbaric chamber if necessary.

21. The Dive Group Supervisor or Incident Commander shall conduct a Post Incident Review following each operation to include:

A. A primary survey of active divers and tenders.

B. A post incident critique of the operation.

C. Stress management/defusing to be considered for all personnel.

D. Assure decontamination of all equipment, and place back in service as soon as possible.

E. Assure that a DART Incident Report is filled out and forwarded to the Secretary.

22. The Incident Commander of the incident shall ensure completion of all reports.

23. During transition from rescue to recovery mode, the dive team shall exit the water operation in order to regroup, re-assess and re-brief for the recovery operation. This is done in order to re-evaluate the operation based on its risk vs. gain aspect and to promote as safe an environment as possible. Rescue mode of operation will prevail up to 60 minutes from the time of confirmation of the submersion incident by the first public safety agency personnel; i.e.; EMS, Fire, Law Enforcement. Recovery will consist of at least 3 divers.

611 Hazardous materials

611.1 General

DART does not get involved in "Haz-Mat Diving", but on occasion, does have to deal with hazardous materials while working in contaminated waters. These materials may be chemicals such as oil, fuel, pesticides, fertilizers and industrial waste, or they may be biological such as blood-borne pathogens. The areas that we dive occasionally contain some or all of these hazardous materials. These concentrations are normally low enough not to be of concern. The possibility of contamination from these materials increases with the concentrations. Increased concentrations will occur when water flows are low or eddies and currents do not allow for the contaminates to disperse. The potential for exposure to blood-borne pathogens increases when the victim is in an advanced stage of decomposition.

Team Leaders, the Chief of Operations, the Safety Officer and/or the Hazardous Materials Team will evaluate the site during a mission for the potential of chemical and biological contamination. If there is a potential for moderate to heavy contamination by a hazardous material, these procedures will be followed:

1. Divers will only dive in a dry suit with a full face mask. No wet suits or half-face masks.
2. Line Tenders and anyone coming in contact with wet equipment will wear rubber gloves.
3. The Team Leader and Safety Officer will inspect each diver and safety diver before they enter the water.
4. Whenever possible, the diver will enter upstream of the accident site.
5. Upon exiting the water, Divers will be decontaminated.
    a. The Fire Department may be requested to provide decontamination. In cases of gross contamination, a Hazardous Materials Response Team will be requested for consultation and possible decontamination.
    b. If moderate to large concentrations of oil, gas, or diesel fuel are present, the diver will be scrubbed down with a soap solution and rinsed.
    c. If biological hazards are present, the diver will be sprayed down with a bleach solution and then hosed off after 3 to 5 minutes.
    d. All these procedures will take place before the seal is broken on a full face mask or dry suit when possible.
6. All wet equipment will be washed down and scrubbed with soap and/or bleach solution if necessary before being placed back in service.
7. The Incident Report will note that divers were washed down, what was used, the duration of the wash down, and what chemical and/or biological substance was present, if known. This information is essential should a diver become sick, develop a rash, etc. Each diver exposed shall fill out an individual exposure report.
8. As soon as possible, the team member should shower and thoroughly scrub skin and scalp with an anti-bacterial soap.
9. In the event of gross contamination, personnel will evacuate upwind a minimum of 250 feet to prevent further exposure. Potentially contaminated equipment will be left behind until such time as the Hazardous Materials Team releases it back to DART or deems the area safe.
10. If a team member feels these safety procedures are warranted, they can request them at any time during the mission.
11. It is recommended that the diver will wear latex or nitrile gloves under their neoprene dive gloves

611.2 Decontamination

Most of the DART personnel are personally and financially responsible for their equipment. This equipment is extremely delicate and expensive. Anytime a vehicle is in the water, there is a chance of contamination with hydrocarbons, battery acids, etc. Simple scrubbing with a mild soap is usually all that is required. An Engine Crew can be quite helpful in this situation. If the contamination is truly a Hazardous Material, then of course the runoff must be

contained and disposed of properly. If there is a spill into the water, Hazardous Material Specialists and equipment may be required.

Decontamination will take place anytime any work is being done in water which may be suspected of having any contaminates such as sewage, hydrocarbons, pesticides, fertilizers, or bio-hazards. This would include floodwaters and/or anytime we are working with a submerged vehicle.

Decontamination will take place before any meals are eaten and at the end of each work period.

611.3 Possible Contamination

Signs and symptoms usually occur within 2-3 days. Any open wounds should be observed for infection which may include pain, swelling, or redness around the affected area. Systemic signs and symptoms may include diarrhea, dehydration, fever, nausea and vomiting. If a perceived exposure has happened, an exposure form shall be filled out.

612 Incident Command System

612.1 General Guidelines

All DART operations shall follow the Incident Command System.

612.2 Dive Group Supervisor

The Dive Group Supervisor should be a DART member and should have Division Group Supervisor training.

612.3 Team Leader

Team Leaders will be at the specialist level or higher as listed in water rescue (underwater) minimum training requirements page in BIRG manual.

612.4 Safety Officer

A Safety Officer shall be assigned to all DART incidents. It is recommended that the individual have DART experience.

612.5 Staging

With multiple agencies and off-duty individuals in private vehicles responding to the scene, staging is important otherwise the scene can quickly become cluttered and the staffing unaccountable. On larger incidents, a Staging Area Manager should be assigned. Due to the large amount of personal equipment, divers may be setting up and organizing their gear closer to the incident than the designated Staging Area.

612.6 Public Information Officer

1. Identify a spokesperson - Team PIO or Agency Representative. These people can then facilitate interviews with divers on incident if situation allows.
2. Give credit to all agencies involved, especially jurisdictional agency.
3. Releases must be cleared through the Incident Commander.
4. Release of minor/moderately injured patient's name, where they are from, general description of injuries (we do not diagnose) and destination hospital is all releasable information. It is best to clear release of injured minor/s name with parent of legal guardian.
5. Release of deceased or critically injured victim's names must be coordinated through the Sheriff's Office.
6. Do not speculate.
7. Do not release information on cases under investigation by any law enforcement agency.
8). Customer Service - go the extra mile! Remember resources such as the American Red Cross and the Salvation Army for counseling and other service.

612.7 ICS Matrix

A sample ICS matrix for a typical DART call is included in Chapter 16, Forms.

613 Watercraft operations

613.1 General

Personal Flotation Devices (PFDs) are required to be provided for every person riding in a boat. Wetsuits and/or Buoyancy Compensators are not PFDs. All crafts and operators shall conform to California Harbors and Navigation's Code.

613.2 Personal Water Craft (PWC)

All operators must have the PWC Fire Marshall certified class or equivalent. A list of all authorized operators is located on the BCFD/CDF PWC trailer. A PFD must be worn at all times by anyone on a PWC.

613.3 Public Agency Boats

Public Agency Boats shall consist of Search and Rescue, Butte County, Parks, etc. Operators must have had a boat handling course.

613.4 Personal Boats

DART members whose personal equipment includes a watercraft shall have any damage incurred during training or an incident covered by the individual's department.

613.5 Private Citizen's Boat

A Private Civilian's boat may be used if the response time dictates an advantage. All crafts and operators shall conform to California Harbors and Navigation's Code.

614 Written records and documents

614.1 General

Reports made by team members while on DART missions are of the utmost importance and constitute a legal document. They may be made available to the public at any time. These reports should be completed at the first available opportunity. This will provide the most accurate account of the incident. Because of their importance, accuracy is crucial. In the event that legal problems arise, a completed, legible report can help protect the DART members and the Team. Forms must be completed in a literate and legible manner. This will aid in the aforementioned legal aspects, and will provide a valuable tool for the development of meaningful statistics.

614.2 Incident Report

It will be the responsibility of the scene's Incident Commander to make sure that a DART Incident Form is completed. Copies of all records will be maintained by the team training officer.

614.3 Training

The Training Officer will keep a record of all trainings and participants. All members will also maintain a record of their individual training in their personal dive logs.

614.4 Equipment

Each agency Representative will keep records on DART and personal equipment including: date issued/purchased, description, serial number, hydro inspections, annual maintenance, etc.

614.5 Personal Dive Log

Each diver shall log every dive, training and emergency call. Any training shall be included in the log whether it actually incorporates diving or not. Example: classroom training, swift water, floods, helicopter, etc.

The diving log shall include at least the following information:

1. Name of diver, partner, and/or lead diver
2. Date, time, and location of dive
3. Diving modes used
4. General nature of diving activities
5. Approximate underwater and surface conditions
6. Maximum depths, bottom time, and surface interval times
7. Diving tables or dive computers used
8. Details of any accidents or potentially dangerous incidents.

614.6 Pre-plans

The goal is to have preplans for all water areas in the county. Individual agency plans should be shared by all participating DART agencies. During training, special effort shall be made to look at the pre-plan and review it with the team as part of the training

614.7 Standard Operational Guidelines

Standard Operational Guidelines Committee will meet on an as-needed basis to update the Standard Operational Guidelines.

615 Safety

A) Safety equipment
B) Downstream protection
C) Upstream protection
D) Ambulances
E) Rehabilitation
F) Deviations from guidelines

615.1 Safety Equipment

Personal Flotation Devices (PFDs) are mandatory for everybody within 10' of the water. This includes media, tow truck drivers, law enforcement, medics, etc. Swift-water helmets must be worn near running water. Don't wear fire helmets or turnouts near the water. Wearing no helmet at all is better than wearing a fire helmet. If you are going into the water for any extended period of time, a dry or wet suit is recommended even in the summer.

615.2 Downstream Protection

On a moving body of water, downstream protection is required for the safety of the victim(s) and the rescuers. A minimum of two trained personnel with throw bags, PFDs and swift-water helmets is required. At least one person shall have communications.

615.3 Upstream Protection

A minimum of one person with communications should be posted upstream of the rescue looking for boats and snags drifting downstream that could interfere with any rescue efforts.

615.4 Ambulances

With a victim in the water, an ambulance (either ground or air) should be standing by to transport once the team locates and delivers the patient**. It is also recommended that an ambulance standby in case of any diving accidents anytime that there are divers in the water on an active call-out.** It is important that the ambulance be staged where emergency crews have quick access in case of a located victim or an injured rescuer. In most cases, one ambulance can fill both the needs of the victim(s) and the rescuers.

615.5 Rehabilitation

In all your concern for the victim, don't forget about the rescuers. Be aware of hyper and hypothermia for divers and people in the water. Backup divers who are standing by in full gear can become quite warm. Fatigue is another major problem. Don't make divers walk or swim long distances before putting them to work. Arrange for a vehicle and/or boat to get them and their equipment to their working area as quickly as possible.

615.6 Deviations from Guidelines

Any diver may deviate from the recommendations of this manual to the extent necessary to prevent or minimize a situation which is likely to cause death, serious physical harm, or major environmental damage.

616 General Equipment and Resources

Personal Protective Equipment:	PFDs and swift-water helmets Dry suits/wet suits including hood and gloves if needed
Downstream and Upstream Protection	
Incident Command System:	Dive Group Supervisor Safety Officer (Safety Log) Dive Group Assistant Safety Officer Staging Area and Staging Area Manager Public Information Officer
Communications:	Tactical Net: Calcord (156.075)
Additional Resources:	Medics (for victim and standby for divers) Volunteers Station coverage Search and Rescue vehicle Rescue 5 Chico Rescue 2 Rescue 44 Breathing Support 43, Chico Fire Breathing Support Search and Rescue boats Paradise Support 1 Hand crews Law Enforcement Personal Watercraft Mercy San Juan Hospital compression chamber in Sacramento, CA

	Travis Air Force Base compression chamber in Fairfield, CA Chico compression chamber (contact info to be obtained by Corky)
Air Support:	Sheriff's Office Helicopter Enloe Flight Care CDF CHP National Guard Coast Guard
Rehabilitation:	Hypo/hyperthermia Dehydration
Decontamination:	Hazardous Material Specialists

Post Incident/debriefing/defusing

Incident Report

617 Forms/checklists (See attachments "G"-"M")

Training Matrix	(Attachment "H")
Incident Report	(Attachment "I")
Safety Log	(Attachment "K")
Annual Equipment Log	(Attachment "L")

SECTION 700: Water Rescue

700 Purpose

The purpose of this S.O.G. is to provide personnel with a standard plan for handling water rescue incidents. Emphasis is placed on safety of rescuers prior to committing to an attempted rescue.

Scope

This S.O.G. covers the basic responsibilities and duties to be followed in attempt to achieve a safe, successful water rescue.

This S.O.G. is not a substitute for rescue training. It is intended to provide general guidelines for water rescue response and to emphasize safety issues related to these incidents. Supervisors are responsible for insuring that personnel operate within the scope of their training and experience.

As in all responses, priority for rescue must be:
a.) Self-Rescue
b.) Rescue of fellow responders
c.) Rescue of victims

710 Definitions

Swiftwater rescue refers to the rescue of live victims from flowing water in which the current, depth, floating or submerged hazards, contamination, or other risks exist for rescuers or victims.

Static Water rescue refers to the rescue of live victims in other bodies of water such as lakes, ponds and reservoirs where the current is not a consideration in rescuer safety.

Rescue refers to the acts involved in removing a live person from a place of danger to a place of safety.

Recovery refers to the retrieval of a deceased person. Rescuers must assess conditions to determine if they are performing a *rescue* or a *recovery*. Rescuers must make every attempt to reduce danger themselves or others in the performance of a recovery. Recovery should be coordinated with representatives of the Sheriff's and/or Coroner's office.

711 Preplans

River and flood channels should be preplanned by local units to determine:

a) Travel routes and all access points to both sides (note locked gates and dirt sections where mud will impede progress)

b) Hazards such as low head dams, strainers, etc.

c) Underground sections

d) River crossing points

e) Helispots and aerial hazards (power lines, etc.)

f) Current speed and vector

g) Eddies and pools (good rescue points)

h) Downstream companies and staging locations

i) Place for spotters (upstream and downstream

j) Legitimate site to perform rescues

k) Other noteworthy features

712 Water Rescue General Standard Procedures

Emergency response

All rescuers entering the water must be in full PPE, which includes a PFD,helmet, a dry or wet suit, solid soled shoes, a knife and a whistle. Only members of the technical rescue team or properly trained and equipped personnel working at the direction of members of the technical rescue team or the technical rescue team leader may enter the water. Engine company personnel without a complete set of PPE and without current and proper training should act as shore based rescuers.
Water rescue activities can be categorized in order of risk to the rescuer as follows: Search, Talk, Reach, Throw, Go ,Tow, Row ,Helo

Awareness Level

Search: Determine if an actual rescue exists by searching the banks. If the victim is capable of safely rescuing himself and merely needs

instruction from rescuers, this may be done.

Talk: Talk the victim to shore.

Reach:
A hand, pike pole, or other item can be reached to the victim by a rescuer from shore.

Throw:
A throwbag or rope can be thrown to the victim who is then pulled to safety by the rescuer. Utilize a 50'-75' section of rope if available. A PFD or other flotation device can be thrown to the victim to assist in flotation. It is considered optimal to have numerous throw bags located at intervals along the shoreline.

Operations/Technician Level

Go:
The practice of entering the water to affect a rescue. The tactics employed might include contact rescue, shallow water crossing , or the use of a river board for rescue or river search. These tactics should be done in teams of at least two rescuers with downstream safety in place and a back up team on stand bye , if available.

Tow:
A live bait rescue attempt. A rescuer will have a rope attached to the release harness on their PFD and swim or be belayed to a victim. Once in contact with a victim they will be retrieved by the rescuers on shore. A Tow rescue implies more risk because of the use of a rope in water and the reason a live bait rescue was chosen. If the conditions are such that a live bait system is required such as night rescue, swift current or a severe hydraulic, there is a greater risk to the rescuer and victim.

Row
Rescuers utilizing a watercraft will conduct a search, affect a rescue or transport victims, assist divers or transport rescuers or victims across a body of water. The watercraft can be either a paddle raft or powered boat. The personnel operating in that boat should be familiar with its operation and emergency procedures.

Helo:
A helicopter with properly trained crew can be used for both static water and swiftwater rescues. Rescuers should be familiar with helicopter operations and with emergency procedures specific to that helicopter.

713 Safety

No persons wearing turnouts are allowed within 10' of the waters edge. PFD, SW or rescue helmets will be utilized. Even static water sources pose a threat to would-be rescuers, inlets, outflows, submerged outflows and holes pose a threat of drowning. Victims will be placed in PFD's and helmets when being removed from their vehicle or other static position when being moved through or over the water.

Down Stream Safety System (DSSS)

Whenever victims or rescuers are in the water, a down stream safety system will be utilized to provide a primary or back-up safety to recover those in the water. The type and complexity of the downstream protection will be determined by the incident. Common methods are rescuers with throwbags and tensioned diagonals .

Upstream Spotters

Upstream spotters will be used to observe for debris flowing down stream into the rescue scene that would pose a threat to the victims or the rescuers. They will have radio communications with the Operations or Rescue group Supervisor. For night operations, they shall have adequate lighting to perform their task.

Hydraulics or Low Head Dams

At no time will rescuers enter low head or visible hydraulics to effect a rescue. Rescues will be made from the shore . Low Head dams offer no options for rescuers to escape the powerful hydraulic. Options for affecting a rescue from a low head dam are:

1.) Throw a rope to the victim
2.) Throw the victim some flotation
3.) Inflated fire hose
4.) Highline rope system
5.) **Unstaffed** boat on tether or highline
6.) Helicopter rescue

Ropes

With one exception, no lines will be perpendicular to the water, any line crossing the water will be at a minimum of 45 degrees. The exception will be when using the down stream V rescue method. Rescuers must ensure that they stay on the upstream side of the lines. Rescuers should not stand on coils of line and at no time should they wrap lines around their hands, arms, legs or body while tensioning or pulling lines.

Decontamination

At any time rescuers come in contact with storm water runoff, all PPE will be decontaminated by brushing down with hot, soapy water (Anti Bacterial) and rinsed with clean water prior to removal. All other equipment will be cleaned with hot soapy water, rinsed and air dried.

714 Shore Based Operations

Shore based rescues will be limited to Search, Talk, Reach, and Throw.

Search

Shall occur to locate victims reported in the water, but with their location unknown.

Perform a size-up; Determine number, age, description, condition and last seen location of victims and their vehicles.

Establish the ICP and keep witnesses there.

Rescuers should try to isolate the river and prevent the entry of untrained and/or unequipped personnel and civilians that may interfere with rescue operations. Do not allow additional victims to be created.

Request additional resources. This may include a Chief Officer, Operational or Technical level units, medics, etc.

Request ECC to dispatch units to downstream river access points where floating victims might be rescued. Consider lead-time, response time, and the speed of the current to determine how many points and how far downstream to cover.

Perform a hasty downstream search, but keep rescuer safety as a priority and don't over commit your resources. No one is allowed within 10' of the water unless in full water rescue PPE, no structure turnouts allowed.

Prepare ICS 201 brief for incoming resources. Keep track of actions taken and times if possible.

If accessible, after searching an automobile or structure indicate the search by painting an "X" symbol on the vehicle or structure, and paint the date and time of the search and who performed the search.

Talk

Shall be used to encourage victims to remain on or in a safe location or to get victims already in the water close to shore, so that shore based efforts can be made.

Reach

Shall be used to offer a fixed object such as a pike pole, ladder, river sticks, inflated fire hose or similar device to pull or aid the victim from the water.

Throw

Shall be the use of throw bags 50' or 75' feet. Throwbags or rescue rope can be thrown to the victim to aid in removing them from the water. This can also include throwing floatation devices such as can buoys, cinch ring or inflated flotation rings attached to a rope.

715 In Water Rescue Guidelines

Go or strong swimmer rescues will consist of a swimmer entering the water untethered, rescue swimmer utilizing a river rescue board, tethered rescue swimmer and a rescue swimmer on a down stream V line. In all cases, the rescuer will be supported by upstream spotters, throw baggers down stream and the use of a down stream safety system (DSSS).

Strong Swimmer Rescue

Shall consist of a rescue swimmer in full PPE who will enter the water, swim to the victim, make physical contact, secure the victim and bring themselves and the victim to within reach of shore rescue resources.

Go

Entry into the water by trained and properly equipped rescuers. Go rescues involve swimming to or walking to victims and removing them from the water. Shallow water crosses utilizing a pike pole or a group of rescuers is a good tactic to access victims. Go rescues where the rescuer is swimming to rescue the victim should be undertaken with great care. The rescuer must assume that the victim cannot assist in their own rescue.

Tow

Tow rescues involve a live bait rescue where rescuers are attached to a rope via the harness integrated into their PFD. Tow rescues represent an increased risk to the rescuer and victims because of the decision to go "live bait". This is usually

done because of swift current, nighttime operations, multiple victims, a large and dangerous obstacle or hydraulic downstream of the incident or the desire to establish a line across the river. Examples of live bait operations are; two point rescuer on tether(V lower) , live bait swim, or live bait tensioned diagonal. Rescuers utilizing live bait must be proficient in the use of the release harness on their PFD.

Row

Paddle Boat Operations

Paddle boats should be self bailing rafts .The crew should be at least three rescuers if in paddle set up, or two rescuers if the frame is on the boat. There should be one paddle captain in the boat who is responsible for the operations of the boat. All persons in the boat must be in full PPE . The boat crew must have had a briefing about basic paddling and paddle commands as well as emergency procedures prior to conducting a rescue.

Tethered Boat Operations

The crew leader will be located at the rear center of the boat. Communications with the shore will be a combination of hand or paddle in combination with whistle signals. Tethered operations can occur on a Tyrolean high line, 2 or 4 point (preferred) side tether and can be used in water moving at speeds up to 15 mph although the haul team will find operations difficult at water speeds in excess of 10 mph. Crew members will need to stay mid-boat and stay off the bow.

River Board Rescue

Shall consist of a rescue swimmer in full PPE utilizing a river board or other approved device who will enter the water, contact the victim, secure the victim to the floatation device themselves and the victim within reach of shore rescue resources.

Tethered Rescue Swimmer

Shall consist of a rescue swimmer in full PPE who will enter the water with a throw bag line or other small diameter rescue rope attached to their PFD at the blow-out strap. They will swim out, will make contact and secure the victim. They will then adopt a ferry angle towards the side of the bank that they entered and assist in getting the victim to the shore. The rescuer tending the line on the

shore will gently brake the line after victim contact is made and assist in swinging the rescue swimmer and victim to the shore. The shore rescuer should be aware that he/she could be pulled into the water if they do not have secure footing.

Down stream V

Shall consist of a rescue swimmer in full PPE who will have a rope of sufficient length to cross the waterway plus at least a third more, passed through the blow-out ring. The rescuer will position themselves in the current upstream from the victim and allow the shore rescuers to walk the line(Minimum 4 on each side) so that they make physical contact with the victim. After securing the victim, the shore crew will advance the line upstream to clear the obstruction and then one side will hold position while the other side continues upstream and converts the line into a tension diagonal. The current should then carry the rescuer and victim to the shore. This method can be used for victims on vehicles, rocks, trees or bridge pilings in fast moving water.

716 Boat Rescue Guidelines

Definitions:

Inflatable Rescue Boat:
An IRB is a inflatable boat with an outboard motor attached . These boats should have a shallow draft and have a transom to support the motor. All boats with an outboard motor shall be equipped with a prop guard. No swimmers will be deployed or recovered when the prop guard is not in place.

Rescue Raft:
A rescue raft is an inflatable self bailing raft or cataraft. These boats are powered by a team a paddlers or an oar frame. These boats can be used to access victims or be used in conjunction with a rope system such as a high line or two or four point boat on tether.

PWC:
Personal watercraft are jet powered watercraft . PWC's may have a rescue sled attached to them and may be capable of operating with up to three persons on them.

Air Boat:
An airboat is a flat bottomed boat powered by a large propeller to the rear. The boat is steered by changing the direction of airflow through the propeller.

Rigid Hulled Rescue Boat:
A rigid hulled rescue boat is boat with a rigid hull and an inboard or outboard motor. These boats may be powered by prop or a jet drive motor. They may be piloted from a console or from the rear of the boat with a yoke on an outboard motor.

717 Rescue Boat Training Requirements:

Individual Agencies will be responsible for setting and maintaining their own training policies on boat operators.

718 Response Capabilities

Water Rescue Awareness Unit

1) Minimum of 1 person who is trained in water rescue awareness.

2) Acceptable tactics

Awareness level water rescue units are capable of sizing up the incident, requesting resources, conducting shore-based searches, talking to victims and assisting operational and technical units.

Water Rescue Operational Unit

1) Minimum of 2 operational and 2 awareness trained rescuers.

2) Available for immediate response

3) Possess water rescue operations equipment compliment

4) The water rescue operational unit shall be trained and certified to the I level of:

River and Flood Rescue Operations
Low Angle Rope Rescue (or equivalent)
First Responder or higher

5) Acceptable Tactics

Operational level water rescue units are capable of shore based rescues and assisting technical level units.

Water Rescue Technical Rescue Unit

1) Minimum of four personnel including the leader

2) Available for immediate response

3) Possess water rescue technical equipment compliment

4) The Water Rescue Technical Rescue Unit shall trained and

Currently certified to the level of:

River and Flood Rescue Operations
River and Flood Rescue Technician
Low angle Rope Rescue
First Responder or higher

5) Acceptable tactics

Technical level water rescue units are capable of performing both shore based and in water contact rescues.

719 Certification and Recertification

All personnel will be certified to the identified training level prior to assignment to a water rescue station

All personnel assigned to a water rescue team will be required to attend update training that pertains to their level of certification. This training can be accomplished by attending drills or training sessions with the rescuers own agency or outside agencies. Eight hours a year of water rescue specific training is required. Other classes that are recommended are Low Angle Rescue, Rescue Systems 1 or Rescue Systems 2.
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720 Incident Termination

A Patient Care Report must be completed for each victim rescued, whether or not they are transported to a facility.

A narrative of the type of rescue performed and the names of the rescuers is to be completed by the incident commander.

The water rescue tactical worksheet shall be completed and turned in to the Incident Commander by the Rescue Group Supervisor prior to release from the incident.

Exposure reports shall be completed for all personnel who entered the water.

APPENDIXES

A) Tactical Worksheet
B) Water Rescue Operational Equipment Compliment
C) Water Rescue Technical Equipment Compliment

SECTION 800: Urban Search and Rescue

STANDARDS

CSFM Low Angle Rope Rescue Operational

CSFM Rescue Systems 1 & 2

CSFM Confined Space Operational

Hazardous Material First Responder Operations

First Responder medical or above

RECOMMENDED TRAINING

NASA Collapsed Structure Rescue

REFERENCES

Army Corps of Engineers US&R Shoring Operations Guide 2nd Edition 2009

CMC Confined Space Entry and Rescue, Second Edition

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III. Operational Guidelines

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- **E.** Shoring
- **F.** Rescue Safety / Patient Packaging

G. Response Capabilities

H. Certification and Recertification

I. Incident Termination and Documentation

IV. Attachments

INTRODUCTION

The Urban Search and Rescue Unit has responsibility for providing the skills necessary to accomplish all aspects of technical rescue in collapsed structure environments. These skills build off of the framework established in the Over the Edge (OTE) and Confined Space Units.

Technical rescue operations often carry a high level of risk and may be performed under extreme conditions. Based on this, it is imperative that individuals performing these operations are highly trained and maintain these skills. This guideline will continue to be revised as is determined necessary by either BIRG or as requested by signature agencies.

This guideline is not intended to address all possible techniques utilized in US&R nor address the skill level of rescue technicians at scene. It is the responsibility of the individual rescue techs and their hosting agency to determine the skill level of that individual and act accordingly.

This guideline covers the basic responsibilities and duties to be followed in an attempt to achieve a safe and successful rescue.

This guideline is not a substitute for rescue training. It is intended to provide general guidelines for US&R response and to emphasize safety issues related to these incidents. Supervisors are responsible for insuring that personnel operate within the scope of their training and experience.

This document outlines the current tactical considerations and general strategies that should constitute a foundation for productive rescue operations. All personnel should have a solid understanding of the general rescue procedures.

1. Team Leaders must tailor the strategy and tactics to fit the general situation and specific problems encountered.

2. It is incumbent on the Incident Commander and Team Leaders to implement coordinated search tactics and strategy, collect and collate related information, and develop an effective overall rescue plan of action.

As in all responses, priority for US&R must be:

d.) **L**ocate
e.) **A**sses
f.) **S**tabilize
g.) **T**ransport

I. PURPOSE

The purpose of this guideline is to provide personnel with operational guidelines, procedures, responsibilities, minimum training, and safety requirements to ensure efficient and safe operations at urban search & rescue incidents. Emphasis is placed on safety of rescuers prior to committing to an attempted rescue

II. DEFINITIONS

Recovery
Refers to the retrieval of a deceased person. Rescuers must assess conditions to determine if they are performing a *rescue* or a *recovery*. Rescuers must not endanger themselves or others in the performance of a recovery. Recovery should be coordinated with representatives of the Sheriff's and/or Coroners office.

Rescue
Refers to the acts involved in removing a live person from a place of danger to a place of safety.

Confined Space Rescue.
Rescue operations in an enclosed area, with limited access/egress, not designed for human occupancy and has the potential for physical, chemical or atmospheric injury. Many US&R incidents will fall under guidelines of confined space rescues. Precautions must be taken to ensure spaces are free from toxic environments.

Emergency Signaling System.
Loud, identifiable and prearranged signals sounded to alert personnel at the incident site of hazardous conditions or information that requires immediate attention.

Heavy Floor Construction.
Structures in this general construction category are typically built utilizing Cast-in-Place (CIP) concrete construction consisting of heavy, concrete floors. Steel reinforcing bars (rebar) are most commonly used to provide the tension resistance within each concrete member, but post-tensioned steel cables may also be employed. These structures may be built utilizing concrete beam/column frame to provide "Moment Frame" resistance or concrete shear walls to provide "Box Type" resistance to earthquake forces and strong winds. Heavy Floor Construction may include any occupancy type. Occupancies most often found are offices, schools, apartments, hospitals, hotels, parking structures and multi-purpose facilities. Highway bridges and overpasses are a special form of very heavy floor construction.

Heavy Wall Construction
Structures in this general construction category are “Box Type” structures typically built with heavy, fire resistant exterior walls and lightweight wood floors and roof. The exterior walls are constructed of Reinforced Masonry (RM), Unreinforced Masonry (URM), or Tilt-up Concrete (TU). The adequacy of the interconnection of the walls and floors plus roof usually determines how well these structures resist the effects of earthquake forces and strong winds. State law in California requires URM structures be strengthened to reduce the collapse potential of these vulnerable walls in major earthquakes. Heavy Wall Construction occupancies may include office, commercial, educational (gymnasiums), industrial and warehouse buildings as well as multi-family residential and institutional structures.

High Angle Rope Rescue.
An environment in which the load is predominately supported by the rope rescue system.

Highline System.
A system using rope suspended between two points for movement of persons or equipment over an area that is a barrier to the rescue operation, including systems capable of movement between points of equal or unequal height.

Light Frame Construction.
Structures in this general construction category are typically built with a vertical load resisting system of closely spaced wood or light gauge metal studs for bearing walls and joists for floors and rafters for roof. The lateral resistance is provided by wall and floor sheathing, which enables these “Box Type” structures to remain square and plumb providing a high degree of structural flexibility to applied lateral forces from earthquakes and strong winds. Light Frame Construction occupancies may include single family and multi-unit residential buildings, low-rise commercial, institutional, and light industrial.

Low Angle Rope Rescue.
An environment in which the load is predominately supported by itself and not the rope rescue system (e.g., flat land or mild sloping surface).

Pre-cast Concrete Construction.
Structures in this general construction category are typically built utilizing modular pre-cast concrete components that include floors, walls, beams, columns and other sub-components that are field connected upon placement on site. Floor and roof components are normally reinforced using pre-tensioned steel cables that are bonded to the concrete as it is cast around the cables in the precasting factory. Individual concrete components utilize imbedded steel weldments and cast-in-place, topping slabs for the interconnection that provides for structural stability. These interconnections are very

critical, since inadequate ones have led to widespread collapse problems during past earthquakes. These structures are usually built using a regular grid of columns and beams and most often have concrete or masonry shear walls to provide “Box Type” resistance to earthquake forces and strong winds. Pre-cast Concrete Construction occupancies may include commercial, office and multi-use or multi-function structures including parking structures and other large facilities. Highway bridges and overpasses may be constructed using pre-cast concrete segments, or using pre-cast beams in combination with cast-in-place concrete slabs.

Protective system.
A method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching, shield systems, and other systems that provide the necessary protection as per California Code of Regulations, Title 8, Section 1540. Excavation

Regional US&R Task Force.
A 29 person team specially trained and equipped for large or complex urban search and rescue operations. The multi-disciplinary organization provides five functional elements that include Supervision, Search, Rescue, Medical, and Logistics. The Regional US&R Task Force is totally self-sufficient for the first 24 hours. Transportation and logistical support is provided by the sponsoring agency and may be supported by the requesting agency.

Search Marking System.
A standardized marking system employed during and after the search of a structure for potential victims and their condition.

State/National US&R Task Force.
A 70 person team specially trained and equipped for large or complex urban search and rescue operations. The multi-disciplinary organization provides seven functional elements that include Supervision, Search, Rescue, Haz-Mat, Medical, Logistics and Planning. The State/National US&R Task Force is designed to be used as a "single resource", however each element of the Task Force is modulized into functional components and can be independently requested and utilized. A State/National US&R Task Force is accompanied by an Incident Support Team (IST) when deployed out of state. The IST provides overhead management and logistical support to the US&R Task Force while on deployment. State/National US&R Task Forces responding from other states will work with the local incident command structure through the IST.

Steel Frame Construction.
Structures in this general construction category are typically built using some type of steel beam and column system that is configured in a grid pattern. Lateral resistance against earthquake and severe wind forces is provided either by specially designed frames or diagonal bracing. Steel Frame Construction occupancies may include Prefabricated Metal buildings mostly one story, light industrial buildings; Low Rise, non-

fireproofed buildings and other structures that include one and two story commercial, office, large industrial facilities, institutional structures, and convention and sports arenas with high, exposed roof systems; and High Rise, multi-story fireproofed buildings configured with fire sprinklers, standpipes, smoke proof stairs, and other fire protection systems. Fireproofing may consist of sprayed on fiber, layers of gypsum board, or in older buildings, concrete and masonry encasement.

Structure/Hazards Marking System.
A standardized marking system to identify structures in a specific area and any hazards found within or near the structure.

US&R Company.
Any ground vehicle(s) providing a specified level of US&R operational capability, rescue equipment and personnel.

US&R Crew.
A predetermined number of individuals with common communications and a leader, organized and trained for a specified level of US&R operational capability. They respond with no rescue equipment and are used to relieve or increase the number of US&R personnel at an incident.

US&R Type-4 (Basic) Operational Level.
Represents the minimum capability to conduct safe and effective search and rescue operations at incidents involving non-structural entrapment. Personnel at this level shall be competent at surface rescue that involves minimal removal of debris and building contents to extricate easily accessible victims from damaged, but non-collapsed structures.

US&R Type-3 (Light) Operational Level.
Represents the minimum capability to conduct safe and effective search and rescue operations at structure collapse incidents involving the collapse or failure of Light Frame Construction. This level is also capable of conducting low angle or one person load rope rescue.

US&R Type-2 (Medium) Operational Level.
Represents the minimum capability to conduct safe and effective search and rescue operations at structure collapse incidents involving the collapse or failure of Heavy Wall Construction. This level is also capable of conducting high angle rope rescue (not including highline systems), confined space rescue (no permit required), and trench and excavation rescue.

US&R Type-1 (Heavy) Operational Level.
Represents the minimum capability to conduct safe and effective search and rescue operations at structure collapse incidents involving the collapse or failure of Heavy Floor, Pre-cast Concrete and Steel Frame Construction. This level is also capable of

conducting high angle rope rescue (including highline systems), confined space rescue (permit required), and mass transportation rescue.

Victim Marking System.
A standardized marking system employed to identify the confirmed or potential location of a victim not readily visible and/or not immediately removed.

III. OPERATIONAL GUIDELINES

A. SIZE-UP

Assess the Operational Area for:

a. Existing and potential conditions
b. Building, number of floors and number of potential victims
c. Number of structures involved, construction types
d. Type of occupancies

Identify existing resources
Evaluate environmental, physical, and special factors
Determine magnitude of incident

B. STRATEGY AND TACTICS

EVALUATING RESCUE OPPORTUNITIES

One of the critical responsibilities of the Rescue Team Managers and Squad Officers determining, evaluating and prioritizing rescue extrication operations involving live, entrapped victims.

There are generally five phases of rescue operations at collapse incidents:

Phase One: Assessment of the collapse area.

1. Area searched for possible victims (surface/buried)
2. Evaluation of the structure's stability
3. Utilities must be evaluated and shut down for safety.

Phase Two: Removal of all surface victims as quickly and safely as possible.

Phase Three: All voids and accessible spaces searched and explored for viable victims.

1. An audible call out system can be used during this phase
2. Only trained canine or specially trained personnel should be used in voids/accessible space searches.

Phase Four: Selected debris removal (using special tools/techniques) may be necessary after locating a victim.

Phase Five: General debris removal is usually conducted after all known victims have been removed.

When initial resources arrive at an assigned site location, they may find a variety of complex situations:

1. a single site disaster (i.e., collapse of one major structure or a disaster area small in size)
2. large multi-site emergency

The management and coordination of the rescue team will depend upon the situation(s) and needs at the location, coupled with the available local resources and whatever progress has been made (if any) to that point. As such, in the event that a trapped victim has been located in a void, rescue operations may begin during Phase Three or Four, depending upon the conditions at the site.

Anytime rescuers are working in voids or accessible openings, all work in progress above, below or around the site should cease until rescuers and victims exit the void or opening. Proper communications must be maintained during these operations.

The most perplexing strategic decisions will probably involve choices between multiple rescue opportunities that surpass the local rescue resources capabilities given number or personnel and time. In this situation, personnel must prioritize rescue opportunities. Factors include:

1. Victim(s) viability and longevity
2. Degree of difficulty and duration of each rescue
3. Possible end results of rescue efforts (i.e., a single rescue operation yielding the extrication of two or more victims, etc.)
4. Safety considerations for rescue personnel

RESCUE SITE MANAGEMENT AND COORDINATION

Size-up actions and site control activities should occur simultaneously. The Incident Commander with the help of the first arriving Team Leader should review the situation and safety issues and begin formulating a plan of action to effect the rescue(s). Assistance may be required from Civil Engineers and Hazardous Materials Specialists.

The type(s) of collapse should be noted. This will help to determine potential victim locations and potential secondary collapse hazards.

1. "V"
2. Pancake
3. Cantilever
4. Lean-to-floor

At the same time, the remaining Rescue Team Members should begin to take firm control of the immediate site. This should include:

1. Hazard assessment and mitigation
2. Shut down of all utilities
3. Establish Hot Zone
4. Rescue work zone should be clearly defined
5. All bystanders removed
6. Equipment assembly area/cutting work station organized

Size-up and site control activities should be completed before rescue operations begin.

Once the size up is completed and the plan of action developed, a short team briefing should be conducted. A sketch of the site features and rescue operation should be made. The team briefing will improve the Team's ability to plan ahead for the required tools, materials and tactics. In addition, safety considerations, structural concerns, hazard identification, emergency signaling and evacuation procedures should be addressed.

C. SEARCH AND MARKINGS

Physical Void Search

The physical void search method of locating potential victims may be used by the Technical Rescue Team and during the initial stages of the rescue operation and at other times as deemed necessary by the Incident Commander and/or Team Leader

To be effective the physical void search must be organized and conducted in a logical and systematic manner to reduce duplication of effort and to locate as many victims as possible in the shortest amount of time while visually assessing all accessible void spaces.

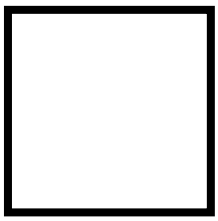
Hailing Search Method

Since the ability to locate victims by actually seeing them during a void space search is limited, the Hailing Search Method is also used during the physical search.
The area is quieted and a bull-horn or other hailing method is used to provide direction to potentially trapped victims. Team members listen and attempt to pin-point the location of any noises being made in response to the directions.

STRUCTURE/HAZARDS MARKINGS

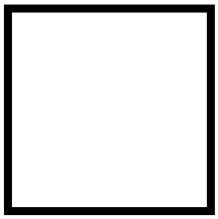
All Search markings will be made in accordance with the Army Corps of Engineers US&R Shoring Operation Guide 2nd Edition 2009

Make a large (2' x 2') square box with orange spray paint on the outside of the main entrance to the structure. Put the date, time, hazardous material conditions and team or company identifier outside the box on the right hand side. This information can be made with a lumber marking device.



9/12/93
1310 hrs.
HM - nat. gas
SMA - E-1

Structure is accessible and safe for search and rescue operations. Damage is minor with little danger of further collapse.

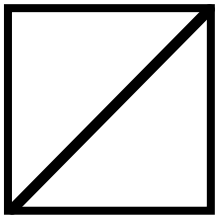


9/12/93
1310 hrs.

HM – none

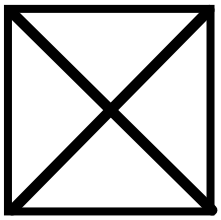
SMA - E-1

Structure is significantly damaged. Some areas are relatively safe, but other areas may need shoring, bracing, or removal of falling and collapse hazards.



9/12/93
1310 hrs.
HM - nat. gas
SMA - E-1

Structure is not safe for search or rescue operations. May be subject to sudden additional collapse. Remote search ops may proceed at significant risk. If rescue ops are undertaken, safe haven areas and rapid evacuation routes should be created.



9/12/93
1310 hrs.
HM - nat. gas
SMA - E-1

Arrow located next to a marking box indicates the direction to a safe entrance into the structure, should the marking box need to be made remote from the indicated entrance.

SEARCH MARKING SYSTEM

Search Markings must be easy to make, easy to read, and easy to understand. To be easily seen, the search mark must be large and of a contrasting color to the background

surface. Orange spray paint seems to be the most easily seen color on most backgrounds and line marking or downward spray cans apply the best paint marks. A lumber marking device may be used to write additional information inside the search mark itself when it would be difficult to write the additional information with spray paint.

A large distinct marking will be made outside the main entrance of each building, structure or area to be searched. This "Main Entrance" search marking will be completed in two steps. First, a large (approximately 2') single slash shall be made starting at the upper left moving to the lower right near the main entrance at the start of the search. The search team identifier and time that the structure was entered shall be marked to the left of the mid point of the slash and the date shall be marked near the top of the slash on the opposite side.

When the search of the entire structure is complete and the team exits the building, a second large slash shall be made in the opposite direction forming an "X" on the Main Entrance search marking. Additional information summarizing the entire search of the structure will be placed in three quadrants of the "X". The left quadrant will already contain the search team identifier and time when the team first entered the structure. In the top quadrant enter the time the search team exited the structure under the date. Change the date if different from date the structure was entered. The right quadrant is for any significant hazards located inside the structure. The bottom quadrant is for the number of live “V” or dead “~~V~~” victims still inside the structure. Use a small "X" in the bottom quadrant if no victims are inside the structure.

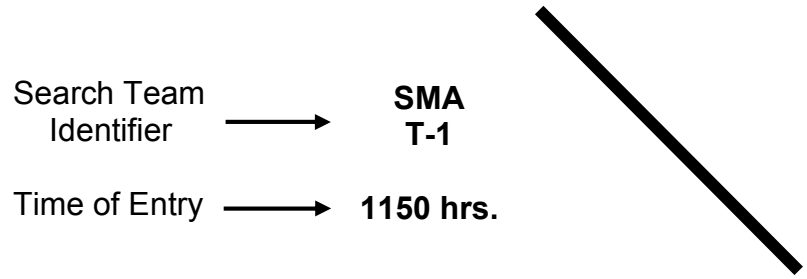
If the search of the entire structure is incomplete, make a circle (approximately 1’ diameter) in the middle of the single slash. The left side will already contain the search team identifier and time when the team first entered the structure. At the top end of the slash enter the time the search team exited the structure under the date. Change the date if different from date the structure was entered. On the right side, mid point of the slash, is for any significant hazards located inside the structure. The bottom end of the slash is for the number of live “V” or dead “~~V~~” victims still inside the structure. Use a small "X" at the bottom if no victims are inside the structure.

During the search function, while inside the structure a large single slash shall be made upon entry of each room, area or floor. After the search of the room or area has been completed, a second large slash shall be drawn in the opposite direction forming an "X". The only additional information placed in any of the "X" quadrants while inside the structure shall be that pertaining to any significant hazards and the number of live “V” or dead “~~V~~” victims, as indicated by “V” for live and “~~V~~” for dead.

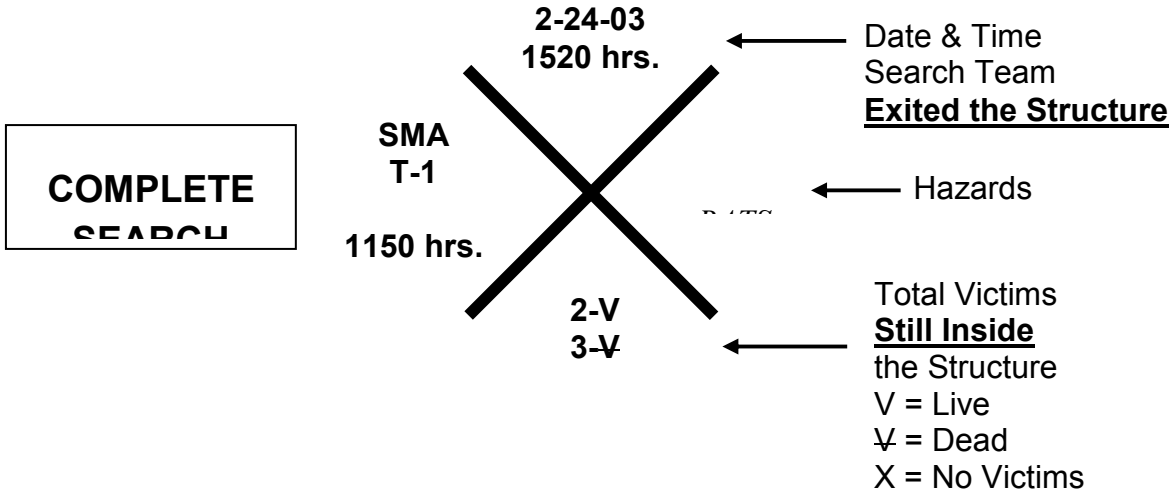
SEARCH MARKINGS

Main Entrance Search Marking- <u>WHEN YOU ENTER</u>

2-24-03 ←——— Date of Entry

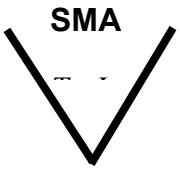


Main Entrance Search Marking- <u>WHEN YOU EXIT</u>

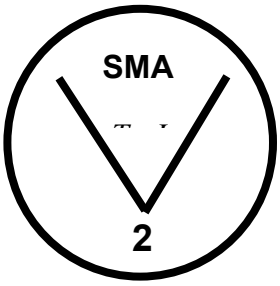


VICTIM MARKING SYSTEM

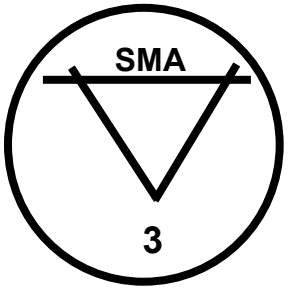
Make a large (2' x 2') "V" with orange spray paint near the location of a **<u>potential</u>** victim. Mark the name of the search team or crew identifier in the top part of the "V" with paint or a lumber marker type device.



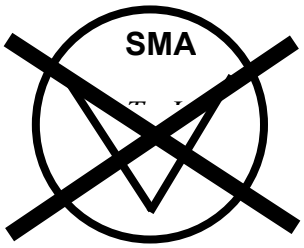
Paint a circle around the "V" when a potential victim is **confirmed** to be **alive** either visually, vocally, or hearing specific sounds that would indicate a high probability of a live victim. If more than one confirmed live victim, mark the total number of victims under the "V".



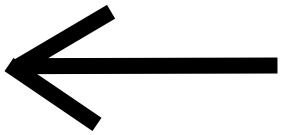
Paint a horizontal line through the middle of the "V" when a **confirmed** victim is determined to be **deceased**. If more than one confirmed deceased victim, mark the total number of victims under the "V". Use both the live and deceased victim marking symbols when a combination of live and deceased victims are determined to be in the same location.



Paint an "X" through the confirmed victim symbol after **all** victim(s) have been removed from the specific location identified by the marking.



An arrow may need to be painted next to the "V" pointing towards the victim when the victim's location is not immediately near where the "V" is painted.



D. EMERGENCY SIGNALING SYSTEM

Because of the high potential of secondary collapse, dangerous conditions, and the need to communicate other important information, an emergency signaling system should be adopted and in use by all personnel at the incident site. Emergency signals must be a loud identifiable and prearranged signal sounded when hazardous conditions or information requires immediate attention. Emergency signals can be made using devices such as a whistle, air horn, vehicle horn or bell. Each structure or larger operations may need to have its own distinct emergency signal device when multiple rescue operations are taking place in the same area to reduce confusion.

Supervisors should identify and inform assigned personnel of a designated Place of Assembly and/or Safe Zone for a roll call to be conducted should an evacuation signal be sounded. A place of assembly is usually a safe location outside the evacuation area. A Safe Zone is usually a safe location within a building or disaster site that can be entered within the evacuation area. When an evacuation signal is sounded, all supervisors must conduct a roll call of their assigned personnel and communicate the results of the Personal Accountability Report (PAR) to their supervisor who provides this information to the ICP.

Evacuate the area	**Three short blasts (two seconds each)**
Cease Operations / All quite	**One long blast (three seconds)**
Resume Operations	**One long and one short blast**

E. SHORING

All Shoring will be made in accordance with the Army Corps of Engineers US&R Shoring Operation Guide 2nd Edition 2009 unless otherwise dictated by on-site Civil Engineer

Shoring should be considered any time structural stability is compromised. It is important that the type of construction is determined, with emphasis placed on separating whether brittle or ductile behavior is expected. Judgments should be made based on what types of forces are expected after the initial event. Responders should always consider 'risk vs gain' in determining whether to enter the compromised area and the types of shoring to utilize.

Shore selection and lumber dimensions shall be based on "Design Dead Loads for Building Materials" as displayed on page 1-30 or by on-site Civil Engineer.

Types of Shoring

Class 1: One Dimensional

Class 2: Two Dimensional

Class 3: Three Dimensional

BASIC SHORE CONSTRUCTION SEQUENCE (Page 2-1):

In very dangerous areas it would be prudent to reduce risk by quickly installing Class 1 Spot Shores. Follow with Class 2 (two or more post) Vertical Shores. In some cases these Class 2 Shores may be installed as the initial shoring. Finally assure that all shoring has all posts braced in two directions creating Class 3 shores. An efficient way that this can be achieved is as follows:

- Place T or Double T shores initially if very dangerous
- Then place pairs of 2-post vertical shores, 4 feet apart
- Finally tie the 2-post vertical shores together as laced posts.

Vertical Shores: Construction of vertical shores is covered in Section 2. Design loads for shores are based on height. Maximum post heights are specified and further guidelines are illustrated on page 2-7 “Notes for vertical Shoring Diagrams”

Horizontal Shores: Construction of horizontal shores is covered in Section 3.

Window and Door Shores: Construction of Window and Door Shores is covered in Section 2 page 2-33 and 2-41.

Raker Shores: Construction of raker shores is covered in in Section 3. All raker lengths shall be based on insertion point as illustrated on page 3-1.

ORDERING LUMBER AND MATERIALS

Every effort should be made to utilize good quality on-site materials when possible. In the event that more lumber is needed than is available on initial arriving resources. The following resources may be requested to augment your tools and materials. Inventories of the following resources are displayed in Appendix ?

1. BCFD Trailer #2 Insert Lumber Cache
2. Payless Lumber Cache 530-895-3228
3. Meeks Lumber Cache 530-342-1882
4. Rescue 44 Insert Lumber Cache
5. Chico Fire Rescue 2 Insert Lumber Cache
6. Chico Fire Truck 1: Lumber Cache
7. BCFD Truck 74: Eight 4x4, Eight 2x4, Eight Gussets, Wedges, cribbing
8. OFD Truck 1 Lumber Cache

EQUIPMENT AND MATERIALS MANAGEMENT

The overall effectiveness of a large US&R incident operation is greatly dependent upon the prompt availability of the tools, equipment, and supplies. The set-up, organization, and management of the tool and supplies is of fundamental importance. The tools, equipment and supplies should be organized according to their function.

It is imperative that an effective inventory and tracking process be administered. Rescue personnel must be effectively trained in, and adhere to, all procedures related to equipment issue, tracking and retrieval.

The limited number of specialized tools may require them to be shared between one or more rescue sites during simultaneous operations.

F. RESCUER SAFETY

Safety Gear

Safety clothing shall be left to the discretion of the incident commander based on the threats and hazards present. Strong consideration should be placed on complying with Cal-OSHA, ANSI, and NFPA (See attached appendix)

Safety Measures

Many collapsed structures fall under permit required confined space and present a potential for further collapse, toxic atmosphere, and fall protection. The rescue team leader must address these hazards and mitigate them. In some situations, a tag line may further endanger rescuers, but should be used if it does not increase the risk.

Decontamination

At any time rescuers come in contact with storm water runoff, all PPE will be decontaminated by brushing down with hot, soapy water (Anti Bacterial) and rinsed with clean water prior to removal. All other equipment will be cleaned with hot soapy water, rinsed and air dried.

Whenever possible a sample of the water will be taken for analysis where personnel came in direct contact if contamination is suspected.

Exposure reports will be filed by those who had direct water contact.

G. RESPONSE CAPABILITIES

Rescue Awareness Unit

Minimum of 1 person who is trained in RSI. Awareness level rescue units are capable of performing size-up of the incident, requesting resources, conducting surface-based searches, talking to victims and assisting operational and technical units.

Rescue Operational Unit

Minimum of 2 people that are available for immediate response

- Low Angle Rope Rescue Operational
- CSFM Rescue Systems I
- CSFM Confined Space awareness
- Haz-Mat FRO
- First Responder Medical or above

.

Rescue Technical Team

Minimum of Six personnel including the team-leader that are available for immediate response. All of the team members should be trained to the Technician level:

- CSFM Rescue Systems 1 & 2
- CSFM Low Angle Rope Rescue Operational
- CSFM Confined Space Operational
- Haz-Mat FRO
- First Responder medical or higher

Technical level rescue units are capable of performing both surface rescue as well as light to moderate entrapment.

H. CERTIFICATION AND RECERTIFICATION

All personnel will be certified to the identified training level prior to assignment to a US&R rescue responses. US&R Operational and Technician level team members must attend an annual US&R refresher drill for recertification.

I. INCIDENT TERMINATION AND DOCUMENTATION

A Patient Care Report must be completed for each victim rescued, whether or not they are transported to a facility.

A narrative of the type of rescue performed and the names of the rescuers is to be completed by the incident commander and forwarded to the Department Chief, Committee Chair and Unit Head within 48 hours.

The rescue tactical worksheet shall be completed and turned in to the Incident Commander by the Rescue Group Supervisor prior to release from the incident.

Exposure reports shall be completed by the Rescue Group Supervisor/Team Leader for all personnel who entered the collapse zone.

The Incident Commander will conduct an on site debriefing to obtain all needed Information prior to releasing any resources from the scene. At the close of the debriefing, a post incident analysis would be appropriate. The IC shall prepare an incident summary to include: Situation found on arrival, actions taken to mitigate all hazards, victim status and what actions were taken to affect the rescue. All documentation including PCR's and incident action summary will be forwarded to the training and safety chiefs for review within 72 hours. Documentation will be maintained in the Safety Office in an open file, not to be archived.

IV. ATTACHMENTS

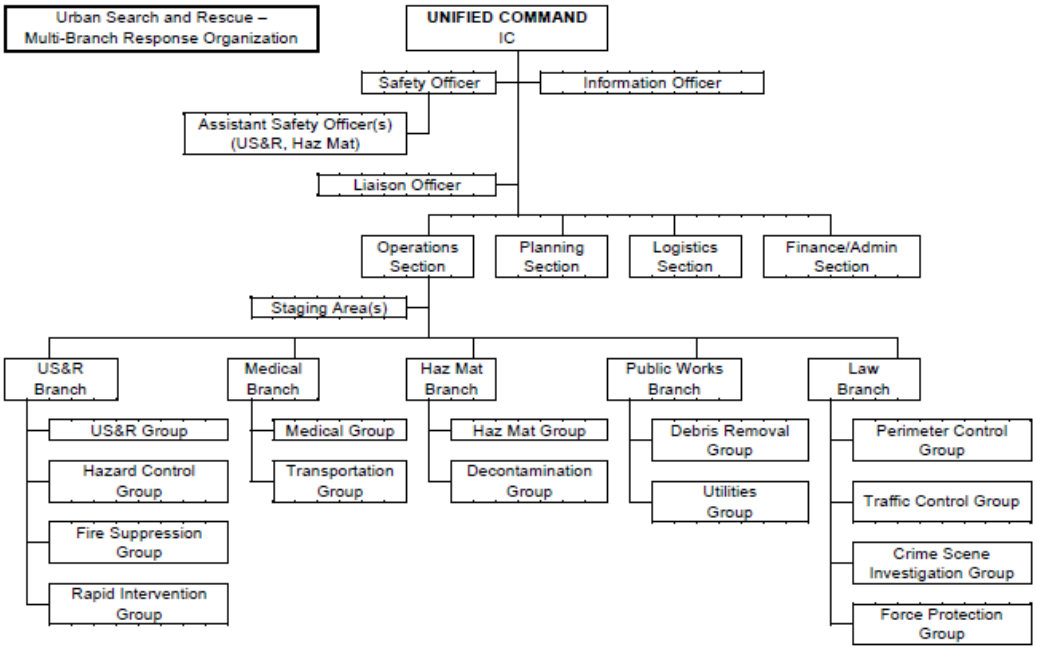
Appendix 1: US&R Flow Chart

Appendix 2: Equipment Lumber Inventories

Appendix 1

US&R Organization Flowchart

January 2004 ICS-US&R-120-1



US&R Multi-Branch Response Organization (example): The Incident Commander has assigned a Finance/ Administration Section. The Operations Section has established five Branches with similar functions to better coordinate and manage resources. The Planning, Logistics and Finance/Administration Section have several Units operational to support the large amount of resources at the incident.

Appendix 2

Building Collapse Tactical Checklist

- ☐ Assure all utilities are secure.
- ☐ Provide sufficient illumination.
- ☐ Provide sufficient ventilation.
- ☐ Clear area of personnel not directly involved in the search and rescue operation.
- ☐ Station Safety Officer in a position to observe any unsafe conditions.
- ☐ Keep apparatus and equipment away from the structure.
- ☐ Stop all traffic for 200 yards in all directions to avoid vibrations.
- ☐ Control spread of fire caused by cutting torches.
- ☐ Assure all search and rescue personnel are properly protected.
- ☐ Rescuers to work in pairs, assigned to teams and relieved according to the operational plan.
- ☐ Coordinate activity when there is more than one operation.
- ☐ Control hazardous materials.
- ☐ Provide for atmospheric monitoring in all confined spaces.
- ☐ Prohibit smoking on site and hot zone.
- ☐ Be alert for overzealous rescuers.
- ☐ Avoid unnecessary disturbance of loose debris.
- ☐ Do not remove natural shores and supports, such as doors and beams which have fallen and are supporting debris.
- ☐ Do not cut timbers which support debris.
- ☐ Work around heavy obstructions when possible instead of cutting through them.
- ☐ When working around a victim, remove debris by hand to avoid further injury.
- ☐ It is safer to reach entrapped victims from above.

SECTION 900: Technical Animal Rescue

900 Purpose

The purpose of this document is to provide personnel with a standard plan for handling incidents involving animal technical rescue. Emphasis is placed on safety of rescuers prior to committing to an attempted rescue. This material is based on NFPA 1670 Chapter 17, Animal Technical Rescue, and California State Fire Marshal FSTEP Technical Large Animal Rescue.

901 Scope

This document covers the basic responsibilities and duties to be followed in an attempt to achieve a safe, animal technical rescue. Evacuation of animals during a disaster will not be addressed in this document. For information on evacuation of animals during a disaster, consult Butte County Public Health Policy and Procedure #6104 (2-24-10).

This document is not a substitute for rescue training. It is intended to provide general guidelines for animal rescue response and to emphasize safety issues related to these incidents. Supervisors are responsible for insuring that personnel operate within the scope of their training and experience.

As in all responses, priority for rescue must be:

1. Self-Rescue
2. Rescue of fellow responders
3. Rescue of human victims
4. Rescue of animals

902 Definitions

Animal Technical Rescue: the use of technical rescue gear and procedures to extricate a trapped or injured animal

Evacuation: the removal of animals from an endangered area via standard (non-technical) techniques

TLAR: Technical Large Animal Rescue, California State Fire Marshal FSTEP Class

Large Animals: horse, livestock, commonly found on ranches and in rural areas

Companion Animals: cats, dogs, commonly found in urban residences

903 Animal Control

The local Animal Control or Animal Services Department has the legal responsibility for animals in their jurisdiction. They are an excellent resource for personnel trained to deal with animals. It is highly recommended that all emergency services develop a working relationship with their local animal services.

904 Veterinarian/Registered Veterinarian Assistant

It is helpful that a medically trained professional be available at scene. That being said, very few Veterinarians are trained in technical rescue. Take special precautions to have the owner contact the Veterinarian so that it is clear that they will be responsible for the payment of services.

905 Certification

The minimum required training to be able to safely perform a technical animal rescue is:

- The appropriate BIRG prerequisite for the discipline being used (OTE, Swiftwater, Air Ops, etc.)
- Animal First Aid (3-hour minimum)
- NFPA 1670 Chapter 17 Requirements
    - Animal behavior, approaching, capture and restraint, euthanasia, safety, etc.

If the rescue is considered to be a "large" animal rescue, then the following additional class (or equivalent) is required:

- California State Fire Marshal FSTEP Technical Large Animal Rescue

906 Recertification

The following are the recommendations for continuing education:

- Animal First Aid - every two years
- Large Animal Rescue 8-hour Refresher - every two years

907 Request for Animal Rescue Services

In the event of a technical rescue that has an animal component, resources are available through the Butte County Department of Public Health. Resources include Animal Control, and the North Valley Animal Disaster Group.

908 Personal Protective Equipment

Any personnel working around animals (including owners and medical personnel) will be required to wear the proper personal protective equipment suggested by the Safety Officer including long pants, closed toes shoes, and gloves and helmets when appropriate. When dealing with animal first aid use universal precautions to safeguard from possible zoonoses.

909 Safety

Large animals can kill a human with a single kick. It is essential to be acutely aware of the proper areas to avoid while being around these animals. Small animals, even a small, usually friendly animal, can bite aggressively when they are injured. It is critical to take precautions such as muzzling, hobbling, or sedation, when dealing with any injured animal

SECTION 1000: Appendix

Appendix A - **REQUEST FOR POLICY/STANDARD CHANGE**

APPENDIX "A"

REQUEST FOR POLICY/STANDARD CHANGE

BUTTE INTERAGENCY RESCUE GROUP

REQUESTED CHANGE:

_____

_____

STEPS:

[ ] 1. Request for Change Submitted to Appropriate Unit.

_____ _____
Date Requested By

[ ] 2. Unit [ ] Approval [ ] Denial of Request.

_____ _____
Date Signature

[ ] 3. Rescue Group Management Team Approval.

_____ _____
Date Signature

[ ] 4. Butte County Fire Chiefs Association Approval.

_____ _____
Date Signature

[ ] 5. Sheriff's Approval

_____ _____
Date Signature

[ ] 6. Training Period/Program

_____
Date Completed

[ ] 7. Implementation Date: _____