



DESIGN & DELIVERY

of

Tactical Decision Games Sand Table Exercises



LEADERSHIP TOOLBOX REFERENCE
TDGS/STEX Workbook
September 2002

Preface

The intent of this workbook is to assist facilitators in the design and delivery of Tactical Decision Games (TDGS) and Sand Table Exercises (STEX). The first part of this workbook focuses on the design of specific exercises, while the second part focuses on delivery techniques that will enhance the success and effectiveness of the exercises. TDGS/STEX properly designed and delivered, will allow firefighters on your unit to practice situational assessment, to consider and select courses of action, and to practice communicating those decisions.

This is a product of an ongoing training and information exchange between the National Interagency Fire Center and the U.S. Marine Corps University. The Leadership Committee of the NWCG Training Working Team sponsored this project. Project team members were:

Rich Caballero	Bureau of Land Management - NIFC
Jim Cook	U.S. Forest Service - NIFC
Brian Eldredge	Bureau of Land Management – NIFC
Curtis Heaton	U.S. Fish and Wildlife Service
Ted Mason	Bureau of Land Management - NIFC
Dennis Pratt	U.S. Forest Service - Sawtooth National Forest
Larry Sutton	Bureau of Land Management - NIFC
Greg Vergari	U.S. Forest Service - Region 4

Based on “The How To of Tactical Decision Games” by Major John F. Schmitt, United States Marine Corps, 1994. Marine Corps University publications.

Contents

Introduction	3
<u>Part I – Design</u>	
Designing Tactical Decision Games.....	6
How TDGS Work.....	6
How to Design a TDGS.....	9
<u>Part II - Delivery</u>	
Delivering Tactical Decision Games	11
The Facilitator Role.....	11
Facilitation Techniques.....	13
Appendix A –	
Example TDGS/STEX #1	16
Example TDGS/STEX #2	18
Example TDGS/STEX #3	20
Example TDGS/STEX #4	22
Example TDGS/STEX #5	24
Appendix B - STEX Facilitator Guide	26
Appendix C – STEX Props & Accessories	28
Appendix D – STEX Table Plans	29

Introduction: Why Play When There's Work To Do?

- Time: July 10, 1530 hours
- Place: West facing, brush and grass covered slope in the foothill country near Prescott, Arizona.
- Weather: Temperature 92°; Winds are up-slope 5 to 8 mph; Sky is mostly clear with some developing cumulus clouds.
- Situation: You are the leader of a six-person squad tasked with patrolling and holding a lined section of a 150 acre wildland fire that started three hours ago. Your Crew Boss has expressed confidence in your ability to hold that section. Squad members are hot and tired but remain enthusiastic after two hours of initial attack hotline activity. The Squad has reassembled after containing spot fires generated by embers from reburn activity within the original containment line. You observe continued reburn activity. Your lookout reports two and possibly three new spot fires 100' and 150' directly down slope from your position.

What is your selected course of action? Make a decision within the next 10 seconds.

Did you make the call? Did you want more information? Did you look for the right answers in the following paragraphs? Did you dismiss this as just another paper fire that isn't the real thing because you've seen the real thing and you know what to do here?

Analytical Decision-making

Most of us are familiar and comfortable with the concept of making a well-reasoned decision based on carefully gathered facts balanced with assigned values and weighed against expected outcomes. We gain certainty that through methodical analysis we have arrived at the best possible decision. This analytical decision-making model should work well if the facts are not variable, the decision-making environment is held constant, there are no time constraints, and human factors are limited to our personal values. The essential factors in analytical decision-making are careful analysis and reasoning power. If only you could get everyone to be quiet and you could get away for a while to make that 10 second decision.

Intuitive Decision-making

If you were able to make a 10 second decision in the scenario presented above, chances are you exercised your experience gained on the fireline and the skill of intuitive decision-making. The essential factor in intuitive decision-making is experience. That experience allows recognition of similarities to previous situations. A pattern of typical cause and effect develops to allow a decision that does not require analysis or reason.

You simply know what to do. The more experience gained in applying a variety of patterns, the more likely you'll know what to do, even if you've never seen the real thing.

Tactical Decision Games

There is no substitute for experience of the real thing, but it can be hard to come by and tragically unforgiving. Fortunately there exists a supplement to the school of hard knocks. Pattern recognition skills can be improved, and tactical decision-making can be practiced and refined. Tactical decision games (TDGS) are basically role-playing paper exercises and in the case of sand table exercises (STEX- see below) can incorporate three dimensional terrain models. The reason for doing TDGS is to provide firefighters with an opportunity to 1) practice the decision-making process, and 2) practice the proper communication in regards to their decisions. TDGS provide a simple, adaptable, and effective method of repeatedly challenging a firefighter with tactical situations that include limitations of time and information. By requiring a solution to the situation and the ability to communicate it in the form of clear instructions, the firefighter will gain precious experience and skill in actual tactical decision-making.

Recent course development for wildland firefighter training has included, Lessons Learned: Fatality Fire Case Studies, Human Factors on the Fireline, and Fireline Leadership. These courses have appropriately focused attention on the variable that traditional fire suppression courses have overlooked and the one variable that will always determine the outcomes of fire suppression activity; human factors and the decisions they influence. TDGS are a logical step in blending the skills and tactics taught in conventional wildland fire courses and lessons learned from the newest body of human factors coursework.

Because the purpose of TDGS is to build breadth of experience in decision-making and communication, it is important to employ this process frequently at the crew level. In addition to developing individual decision-making skills, the practice will allow crewmembers to learn from each other and to gain an understanding of how each crewmember makes decisions. Each game played, like every fire experienced, will add to the collective reservoir of experience in the wildland fire community.

The Sand Table Exercise

The Sand Table Exercise (STEX) is a tactical decision game that employs a three-dimensional terrain model with various props to represent either assets or liabilities. Advantages of the STEX over the two-dimensional maps other exercises employ include: enabling the learners to "experience" the terrain features of their problem; engaging learners by engineering a learning environment that fosters proximity; eye contact; free movement and presents the learner an almost irresistible attraction to get their hands on

the problem. Another benefit is the lesson of perspective that many fireline firefighters don't have the opportunity to experience or learn. The sand table impresses the importance of "top-sight", the ability to see how individual pieces of the problem fit into and affect the whole, thus preparing squad and crew level firefighters for tactical and strategic command. The sand table presents some challenge of portability but when conditions and logistics allow, it is the medium of choice for TDGS.

PART I

Designing Tactical Decision Games

How TDGS Work

1. TDGS are Simple...Keep them Simple.

- **Role-Playing.** The players are put in the role of a leader of a given unit in a given situation with given resources and a given scenario.
- **Limited Information.** The players will not have as much information about the scenario as they might like. This is an important feature of TDGS; uncertainty, confusion and complications are basic characteristics of tactical decision-making.
- **Limited Time.** The players will have limited time to make a decision, since this is also a feature of making tactical decisions.
- **Face a Dilemma.** The scenario puts the players in a tactical situation requiring some sort of decision; a problem requiring a solution. Despite the above limitations, the players must come up with a workable solution.
- **After Action Review (AAR).** The players analyze or discuss their solution as a means of drawing out the lesson of the experience.

2. The Primary Objectives of TDGS

- **Exercise decision-making skills in a tactical context.** This is the fundamental objective!
- **Practice communicating decisions.** Players must communicate decisions using the standard briefing format outlined in the Incident Response Pocket Guide (IRPG) and by giving clear text instructions.
- **Provide vicarious experience to develop pattern recognition skills.** Experience is the only way to develop the pattern recognition skills that are essential for effective decision-making. Since actual fire experience may be limited and involves certain risk, TDGS provide a substitute.

3. Additional Benefits

In addition to the primary objectives, TDGS offer several secondary benefits:

- **Illustrate tactical concepts.** Effective use of fire suppression methods and techniques, resource capabilities and resource deployment, etc. can be explained as part of the post scenario discussion.
- **Develop implicit understanding.** By building a sense of teamwork and a shared way of thinking among members of a unit, TDGS become a way of working out informal SOP's or contingencies.

4. The "Rules" of TDGS

There are only three Rules:

- **Time Limit.** Since fireline tactics are usually a time-compressed activity, a time limit is essential. Players should feel as though they have less time than they need to make a decision.
- **Decisions as Instructions.** Briefings and clear text instructions are the correct way to express tactical decisions, so TDGS solutions should take the same form. Players will be expected to explain their decision afterward, but the rule is "decide first, then discuss". The objective is to encourage decisiveness.
- **No School or Facilitator Solutions.** There are a number of ways to solve any tactical problem, so there should not be any "school" answers. What decision a player made is less important than why they made it. In fact, since creativity is a prized trait in tacticians, unusual solutions should be encouraged and recognized.

5. Ways to Play TDGS

Three basic methods may be used:

- **Solitaire.** The player solves the problem like solving a crossword puzzle or brainteaser.
- **Seminar.** A group of players, led by a designated facilitator, solve the problem (as individuals) and then discuss and compare solutions. The ideal group is anywhere from 4-12 players.
- **Dynamic, Multi-Resource.** A more advanced version where a fire situation evolves along a timeline. Players represent adjoining forces and must respond to changing situations. The facilitator uses their judgment to assess outcomes of individual solutions and coordination of solutions. Facilitator controls evolution with the purpose of generating new tactical challenges.

6. Workbook focus is on the Seminar Format.

There are several advantages to using TDGS in a seminar format:

- **Interactive.** The seminar format allows the opportunity for discussions about tactical issues and concepts. Players get an immediate feedback on their solutions from the facilitator and from peers.
- **Sitting in the Hot Seat.** Players feel the pressure of having their tactical skills on public display. Most people are naturally competitive and will be motivated to perform well in a group setting.
- **Learn from Others.** There are a number of ways to solve any tactical problem. Players have the opportunity to see how others solved the same problem and can incorporate those lessons into their own tactical repertoire.
- **Practice Giving Instructions.** During TDGS, as in real-life situations, tactical decisions must be expressed in the form of clear instructions. Giving clear, concise instructions is a skill that improves with practice. The seminar provides a setting for practicing that skill under time pressure.
- **More Fun.** The seminar, if done properly, is simply a more interesting and satisfying experience. The more interesting the experience, the better the learning.

7. Limitations

TDGS are a very useful training and education tool, but they have limitations to be aware of:

- **One Move.** Except in the Dynamic version, TDGS represent a single "snapshot in time" and require the players to make only one move. Therefore TDGS do not capture the on-going interactive nature of tactics.
- **Don't Have to Execute.** TDGS and STEX are paper or sand box fires. What matters in the end is execution, which is something TDGS don't require. It is important to keep this in mind, because execution is one of the things that make tactics so difficult.
- **Works best at the Initial Attack/Extended Attack/Division level:** That is not to say they don't work above or below those levels, but they are more difficult to design. At higher levels, decision cycles tend to be longer, thus the scenario must describe a situation developing over a long period of time. At lower levels, maps tend to require micro-terrain details.
- **Special Operations.** Intricate firing plans, jump/rappel site selection, extensive water shows, etc. generally require a lot of detailed, technical information and are consequently difficult to design.

How to Design a TDGS

1. TDGS as a Story

- **Think of TDGS as short action stories.** Set the stage, introduce the characters, add more and more info (some of it confusing) and build to a problem that begs for a solution. Instead of telling how the story turns out, stop right at the climactic moment and require the player to finish the story.
- **Explore Different Techniques.** There is no single best way to design good TDGS. The trick is to find a technique that works for you as a facilitator.

2. Format the TDGS

- **Tell the players who they are.** When they read or hear the scenario, they'll know what point of view to take. For example: "You are an Engine Captain assigned to Strike Team 1721 with the Structure Protection Group."
- **Describe the Scenario.** Provide information on terrain, weather, fuels, fire behavior (intensity, rate and direction of spread), and overall strategy set by incident commander or other management guidance. Go from general to specific. It is important to model good briefing procedures. For example: If the TDGS is a squad leader level problem, describe the division situation, then the crew situation, and then the squad's situation. Utilize the briefing checklist in the IRPG but omit the information regarding the specific tactical mission and contingency plans. Tell the players what resources they have available. Give the players the information needed to make the necessary decisions for the given situation, but don't make their decision for them.
- **Describe Events Chronologically.** The last event described should be the event that puts the finishing touches on the dilemma; it should be the thing that makes clear that a decision should be made.

3. Potential Sources for TDGS

- **History.** Use historical fire case studies found in available training courses. Use Incident Action Plans from previous fires. Use local fire history or evidence of local fire scars as a basis for development.
- **Own Experience.** Caveat: with this and the above source, don't fall into the trap that historical ending or personal solutions are the "right" solutions. Be prepared to learn as much as the players. Remember the third rule of TDGS – “No School or Facilitator Solutions”
- **Create a Dilemma.** Start with a basic problem common to fire operations. Fill in the situational details.

- **Random Topographic Selection.** Select a piece of terrain from local surroundings or from topographical maps that represents a typical local fire suppression challenge. Apply a situation to your chosen terrain. This can be effective in familiarizing initial attack forces with local response areas, initial attack SOP's, and pre-attack planning.

4. Basic Types of TDGS

- **"Here is the Mission."** Format the TDGS. Provide the situational factors. The object then becomes to come up with a plan for accomplishing the mission. This is the simpler form of TDGS.
- **"Now What?"** This type of TDGS involves the above, plus more. As the player begins to execute the plan some unforeseen event occurs which changes the whole scenario. The object is to react to the new situation in a way that is consistent with the higher commander's intent or established policy. One way to create a "Now What?" TDGS is to create a "Here's the Mission" TDGS, solve it yourself, and then have something go wrong with the execution of the solution.

5. Design a Problem, Not a Solution

- **Start with a Problem in Mind.** It is usually better to start with a problem and allow the players to create solutions than it is to start with a solution and work backward to create a scenario to support it. In the latter case, the scenario usually turns out to be obvious and contrived - almost like a leading question for which there is only one "right" answer. The problem you start with must lead players directly to the decision-making and communication training objectives you have identified for your TDGS session.
- **Create Uncertainty.**
 - **Lack of information.** Some information is simply missing.
 - **Ambiguity.** Information is unclear, inconclusive, or even contradictory.
- **Create Friction.** Things don't always go as planned or expected. Challenging TDGS incorporate a healthy dose of Murphy's Law. Units get lost, communications break down, equipment fails, and/or fire behavior changes dramatically. Consider the experience level of players when designing complexities so that you don't set players up for failure.

6. Review and Evaluate

- **Design Evaluation into TDGS.** In addition to the After Action Review (AAR) players use to analyze their solutions and draw tactical decision-making lessons, consider an AAR of the TDGS process itself to derive lessons for designing and facilitating future games.

PART II

Delivering Tactical Decision Games

The Facilitator Role

1. The Facilitator's Responsibilities

- **Prepare for the Exercise.** The facilitator must have a thorough knowledge of the scenario being presented and be prepared to address a variety of possible decisions made by the players.
- **Present the Scenario.** First, the facilitator presents the scenario to the group. Orient the group to the map or sand table and explain the scenario. Answer questions the players may have about the situation. The facilitator should answer questions about the scenario which the players would reasonably have knowledge of, but the facilitator should not eliminate all uncertainties. "Sorry, I don't know the answer to that" is a reasonable answer to many questions.
- **Choose Player(s) to Present Solutions.** Generally, it is better to select a player to present solutions than to ask for volunteers. Players should not feel like they can escape the challenge by simply not volunteering. They should feel like they have as much chance as anybody else does, since this adds to the stress. The facilitator should attempt to identify players who try to make excuses or actively try to avoid presenting a solution and ensure their involvement.
- **Enforce the "Time Limit" rule.** Time compression creates stress.
- **Enforce the "Decisions as Instructions" rule.** Assign other players roles as the recipients of instructions or communications. Players must simulate giving their instructions either face-to-face or over the radio. Do not allow "I would of done this..." statements. Use the Briefing Checklist format found in the IRPG.
- **Question the Thought Process.** One of the most important things the facilitator does is probe the player's thought process in order to get the player to explain their rationale. Useful questions include:
 - "Why did you do this or that?"
 - "What was your overall assessment of the situation?"
 - "What would you have done if...?"
 - "What were your assumptions about the situation?"
 - "What is your biggest concern about your plan?"
 - "What information from the briefing was critical to you and why?"
 - "What risks are you taking? Explain your Risk vs. Benefit analysis?"

- **Draw-out Lessons.** Finally, the facilitator should summarize the lessons that the session has illustrated. Use the After Action Review format found in the IRPG to increase player familiarity with that reference.

2. The Traits of a Good Facilitator

- **Enthusiastic Delivery.** This is perhaps the most important trait. If the facilitator is enthusiastic about the subject, enjoys TDGS, and believes in the value of TDGS as a learning tool, their feelings will be contagious to the players.
- **Prepared and Tactically Knowledgeable.** In order to lead the discussion and provide a useful review, the facilitator must know the subject matter. This skill is especially important since there is no single correct “school” solution to these problems. The facilitator should be familiar with the particular scenario and be able to discuss it intelligently. Usually, the best ways to gain that familiarity are to have designed the scenario or to have played it. The facilitator should not have a “correct” tactical answer to the problem in mind. There should, in fact, be no real right answer. By the facilitator endorsing one tactic over another, we run the risk of inadvertently giving the players a “school” solution to a problem. This may lead the player into thinking that given a similar situation, certain tactics are the only possible solution for that particular scenario. The facilitator needs to remember that we are not teaching tactics but rather a decision making process. The facilitator needs to reinforce the process, not the tactics, so the players will gain ownership in the process. While recognizing that there may be several right answers that could actually work on the ground, facilitators must be able to identify plans that would obviously fail or are not safe or tactically sound. Preparing discussion points for common solutions and for obviously unsound or unsafe solutions is recommended.
- **Adapt to the Unexpected.** Since there is no “school” solution to TDGS, the facilitator must be able to think on his/her feet. No two seminars (even using the same TDGS) will turn out remotely the same. Players will invariably come up with unexpected questions or solutions. The discussion will present unexpected opportunities to provide impromptu lessons about key tactical concepts. The facilitator must be able to adapt quickly to unforeseen circumstances resulting from player developed plans or contingencies. For example, in an initial attack scenario the player IC resolves the scenario by calling for retardant instead of calling for additional engines identified in the scenario briefing. The facilitator must be prepared to provide additional inputs (either constraints or additional objectives) if necessary to involve these additional resources.
- **Keep it Interesting.** The facilitator keeps the session interesting by keeping the discussion moving briskly, by involving as many of the players as possible, and by making relevant and useful points. Without trivializing the subject matter, it is generally a good idea to "leave them wanting more". In other words, not to beat

each point to death but to break off discussion before saturation point. A good sign is when the players are still debating as they leave the TDGS.

- **Don't Dominate the Discussion.** A good facilitator does not lecture, but has the ability to help the players recognize the lessons themselves, facilitating learning rather than trying to impart it. In general, the less talking the facilitator must do the better the session is going.
- **Review Without Being Critical.** Offering constructive criticism is essential. While there may be no absolute right or wrong answers, some solutions have more merit than others and the facilitator must be able to make those judgments. At the same time, the facilitator should offer reviews in ways that do not embarrass any player in front of the group. A blend of candor and tact is required.
- **Manage the Group.** This means the ability to get as many people involved in the discussion as possible. The facilitator should prevent individuals from dominating the discussion. This is especially important when the group consists of widely different experience levels. It is important to set a tone of open candor, regardless of seniority.

Facilitation Techniques

1. The Art of Asking Questions

- **Active Listening.** It is important that a facilitator knows when to ask questions, how to ask and answer questions, and how to defer questions or bounce them off the rest of the group. In essence the facilitator must combine appropriate questions with active listening.
- **Socratic Teaching Method.** The Socratic method of teaching is an effective technique to consider when delivering TDGS/STEX. This method is effective because one of the most important things the facilitator does is probe the player's thought process in order to get the player to explain their rationale. The Webster's Dictionary defines Socratic as:

Socratic: of or relating to Socrates, his followers, or his philosophical method of systematic doubt and questioning of another to elicit a clear expression of something supposed to be implicitly known by all rational beings.

- **Avoid Leading Questions.** This will cause the player to believe there is a “textbook” answer you are looking for. Examples of questions to avoid:
 - "Wouldn't this have been a more effective course of action?"
Suggested change: "Did you evaluate any other alternatives?"
 - "Do you really think that will work?"
Suggested change: "On a scale of 1 to 10, what do you think is your probability of success? Explain?"
 - "So by using airtankers, you really think you can still use direct attack on this flank?"
Suggested change: "What would you do if the airtanker drops missed the target?"
 - "Don't you think that hill is too steep for a dozer?"
Suggested change: "What information did you use in choosing a dozer for this assignment? Is there anything else you should consider before using a dozer?"
- **It's About Decision-making.** Remember that TDGS are exercises in decision-making, not an academic test on choosing a predetermined “correct” tactic from a list of alternatives. Your questions should help the players focus on their decision-making thought process. They should help the players clarify what information inputs are consciously and subconsciously important to them and how that information was used in the decision-making process.

2. Teaching to the Objective

- **Specific Objectives.** It is essential that TDGS are set-up with specific learning objectives in mind. It is the facilitator's responsibility to ensure that the exercise and discussions do not stray away from the purpose of the training. The facilitator should refrain from lecturing and allow the participants to teach each other. Remember, the main purpose of TDGS is to understand and exercise the decision-making process in a tactical context and to properly communicate their decisions. Be prepared to ask thought provoking questions when the discussion slows down and to cut discussion when the point has been made and requires no additional discussion. Guide the discussion, keeping the focus on the objectives in a logical sequence. Avoid detailed examination of events not directly related to major training objectives.

3. Briefing & Clear Instructions

- **Communication Using the Briefing Checklist.** The briefing format outlined in the IRPG and clear text instructions are the means by which fireline leaders should convey their decisions to others. Although this standard format helps to organize information, the content and substance are what is important in giving clear instructions. Clear instructions should convey the following essential information:
 - Overview of the situation including elements or anticipated changes in the situation that could significantly influence the actions of the unit.
 - The mission and commander's intent – what the task is, why it needs to be done, how to do it, and what the intended end result of the action is.
 - Coordinating instructions - what each unit is to do and when.
 - Communication methods to be used between individuals and between adjoining forces.
 - Identification of known hazards and planned controls for those hazards.

Appendix A

EXAMPLE TDGS/STEX #1

OBJECTIVE:

Players must decide how the fire can be safely approached and then verbally communicate their decision to the appropriate individuals. The objective should not be revealed to experienced players.

SCENARIO:

You are the leader of an initial attack module (SELECT: Engine, IHC squad, Helitack crew, SMJ Sticks, etc.) being activated for a dry lightning storm that has ignited several fires in your response area. The module has not worked together for very long but you know they have been trained well...you did it yourself. This is the module's first fire and everyone is excited about getting out and throwing some dirt. The module consists of four firefighters – yourself, one second season firefighter, and two rookie firefighters. You are equipped with one chainsaw, two backpack pumps, a full compliment of hand tools, and a two-way radio.

The Fire Management Officer is swamped; several of the new fires appear to be growing larger. He calls you in and gives you the specific location information for the fire. His instructions are to “Keep this one small, I’ll try to get you some help if you need it, but for now you are on your own. Call the dispatcher with a size-up and keep me posted. Hey! Let’s be careful out there.”

As you travel to the fire (SELECT: Mode of travel consistent with module type) you note the weather and fuel conditions (DESCRIBE: Typical local conditions for mid-season and map distance scale). Also during your travel out to the fire you hear the Aerial Recon tell dispatch that your fire looks to be about a ½ acre in size with some flame showing. After walking about ½ mile from your drop off point traveling south through a saddle, you and your module are finally able to see the smoke from the fire, it is below you and to your right (DESCRIBE: How the smoke column looks). The time is 1000.

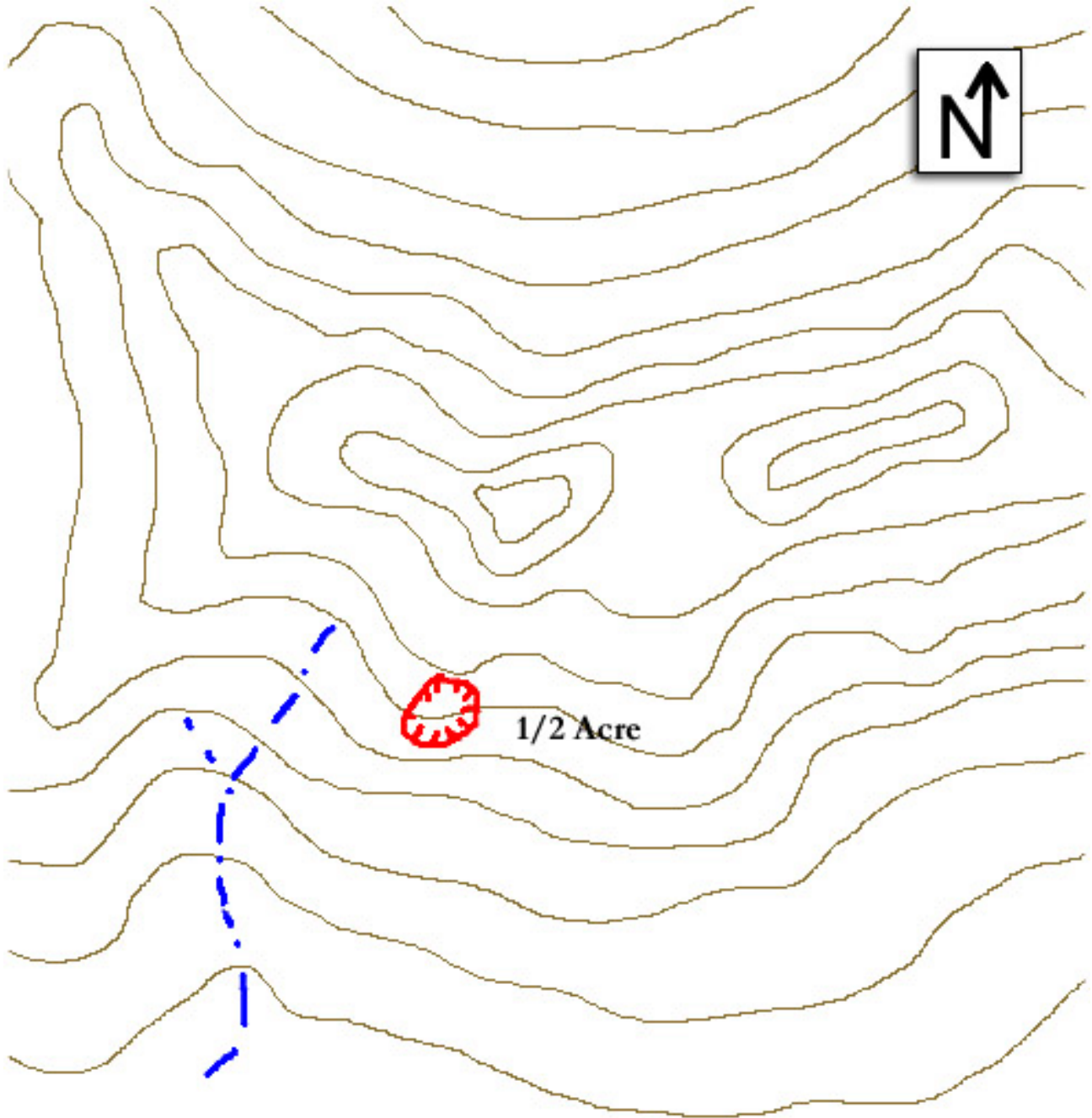
EXECUTION:

Allow 5 minutes for the players to decide on their course of action.

Select player(s) to communicate their decisions to their subordinates (other players assuming the roles of crewmembers).

The “Murphy’s Law Suggestions” listed below can be added as “What Ifs” at any time during the scenario to raise the stress level of the leader or use one of your own:

- The fuels make foot travel difficult or fuels are continuous cured grass
- Time of day is late in the burning period
- Cannot see any sign of the fire during the approach
- Wind shifts or increases
- Other crewmembers voice differing opinions
- The facilitator role plays a concerned Dispatcher or FMO demanding feedback



TDGS/STEX
#1

--- Fire Perimeter
-.- Wet Drainage

EXAMPLE TDGS/STEX #2

OBJECTIVE: Players must decide between an offensive strategy or a defensive strategy and how to assign their resources...and then verbally communicate their decisions to the appropriate individuals. The objective should not be revealed to experienced players

SCENARIO:

You are a Task Force Leader in charge of severity Task Force Alpha. The task force was formed yesterday and is a real mixed bag of experience. These resources have never worked together before and you think this may be a tough assignment. The task force is made up of three Type 3 Engines; one Type 2 Water Tender; one Hotshot Crew; and one Type 2 Handcrew.

The ordering unit has been experiencing new fire starts from lightning over the previous two days. The local FMO meets you first thing in the morning giving you travel and communication instructions and the run down on the fire situation: “My I.A. forces are shot. I had to pull my folks off the Fish Creek Fire due to fatigue. I want to turn it over to you as the Incident Commander with Task Force Alpha as your resources. We caught several of the new starts last night but this Fish Creek Fire worries me. I’m getting concerned about those structures. I’ve ordered air tankers but who knows when we’ll see them. I’ll try to get out to the fire this afternoon, keep me informed on your progress and good luck.”

As you travel to the fire you note the weather and fuel conditions (DESCRIBE: Typical local conditions for mid-season and map distance scale). As you get near the location given to you by the FMO you see smoke at the top of a hill south of the road (DESCRIBE: How the smoke column looks). An individual alongside the road flags you down. It is the Initial Attack IC. She tells you the following: the fire is about 30 acres with a couple of small spot fires; the fire settled down real well after midnight; they got line around about 25% of the fire’s edge; the fuels in front of the fire provide good spread potential; and there is a small community north of the fire. Your task force has followed you out to the fire and they are impatiently awaiting your orders. The time is 1000.

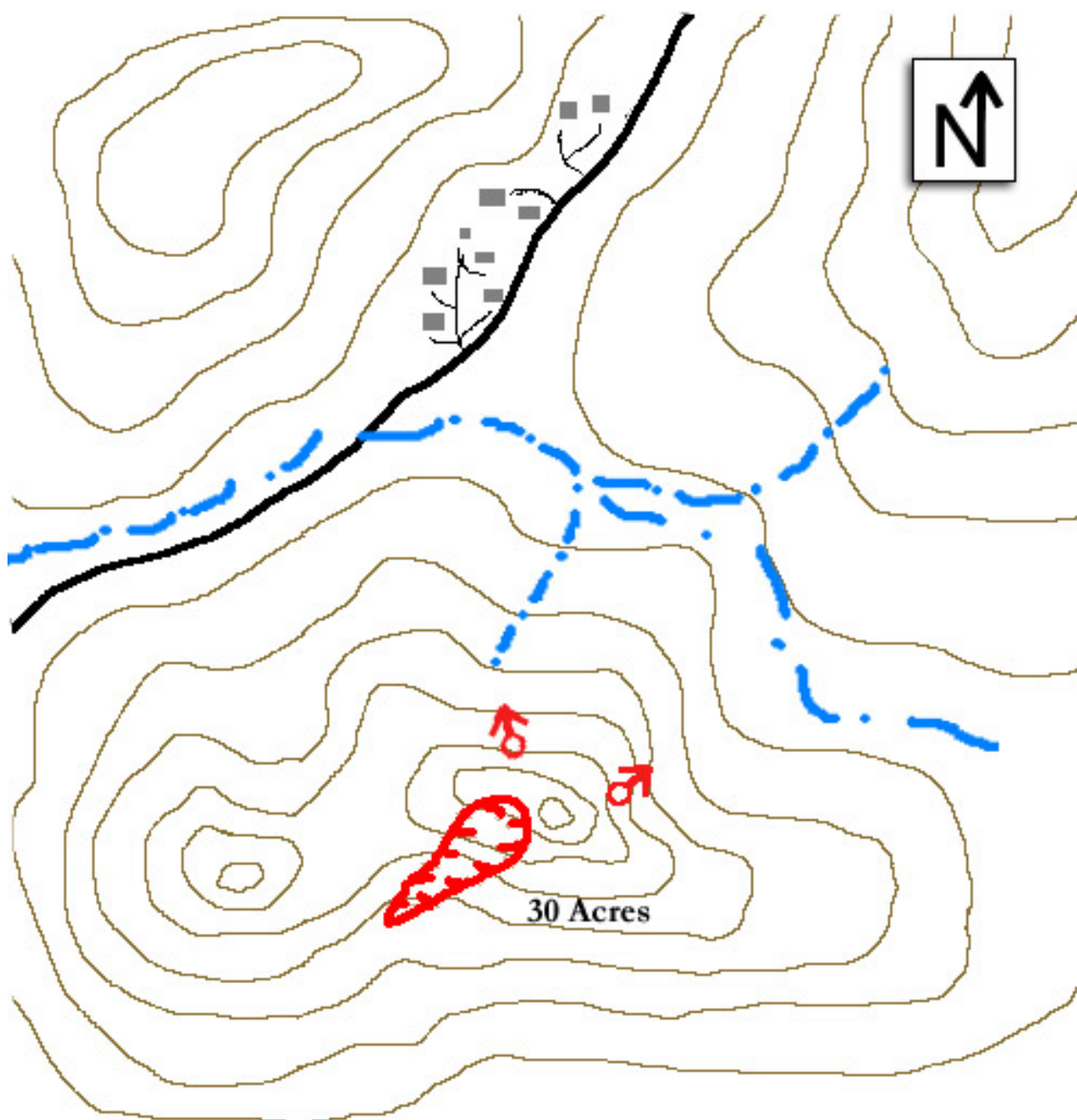
EXECUTION:

Allow 5 minutes for the players to decide on their course of action.

Select player(s) to communicate their decisions to their subordinates (other players assuming the roles of crewmembers).

The “Murphy’s Law Suggestions” listed below can be added as “What Ifs” at any time during the scenario to raise the stress level of the leader or use one of your own:

- Engine breaks down
- Time of day is later in the burning period
- A new fire start is discovered nearby
- Wind shifts or increases
- Two of the engine crews are very inexperienced
- Hotshot Superintendent is adamant about burning out the road immediately



TDGS/STEX
#2

-  Fire Perimeter
-  Spot Fire
-  Structure
-  Road
-  Wet Drainage

EXAMPLE TDGS/STEX #3

OBJECTIVE: Players must decide if the situation is defensible and how to assign their resources...and then verbally communicate their decisions to the appropriate individuals. The objective should not be revealed to experienced players

SCENARIO:

You are a Division/Group Supervisor assigned to Division A of the Fish Creek Fire. Your division has the following resources assigned: one Strike Team of Type 3 Engines with a Strike Team Leader; two Type 2 Water Tenders; one Hotshot crew; one Type 2 Handcrew without chainsaws; one Type 2 Dozer; a Safety Officer; a Field Observer; and your division has been given top priority for water drop support from a Type 1 Helicopter.

Several large fires have resulted from last week's lightning storm. The Fish Creek Fire is one of those fires. The fire is threatening a small community and resources are stretched thin throughout the region. The Operations Section Chief picked you up for a recon flight. It was quick and Ops seemed very concerned about your division, "You've got to hold Division A! We've got some strong south winds predicted today. If we lose that road...well I don't think I need to say anything more. I'm really counting on you to hold that road and protect those structures and the community farther to the north. I can get you a little time with the air tankers but we have to release them to initial attack at 1200. That Type I helicopter is yours to use." Ops looked you in the eye and said, "You and your folks are the only chance we have to hold this thing, I will try to get you whatever resources you need."

As you travel to the fire in your vehicle you note the weather and fuel conditions (DESCRIBE: Typical local conditions for mid-season and map distance scale). From the transition meeting you know the fire is 3000 acres. The fire displayed minimal spread during the previous night. It is 10% contained with good spread potential as Red Flag conditions are forecast for that afternoon for winds exceeding 25 m.p.h. out of the south. The fire is threatening the small community just north of your division and another large and affluent community, two miles north of the fire (INDICATE LOCATION: Off table/map). You have just arrived in the vicinity of the small community just north of the fire about 10 minutes ahead of the rest of your division resources. You can see the fire edge south and upslope from your location (DESCRIBE: How the smoke column looks). As far as you can tell, you are the only one around. The time is 1000.

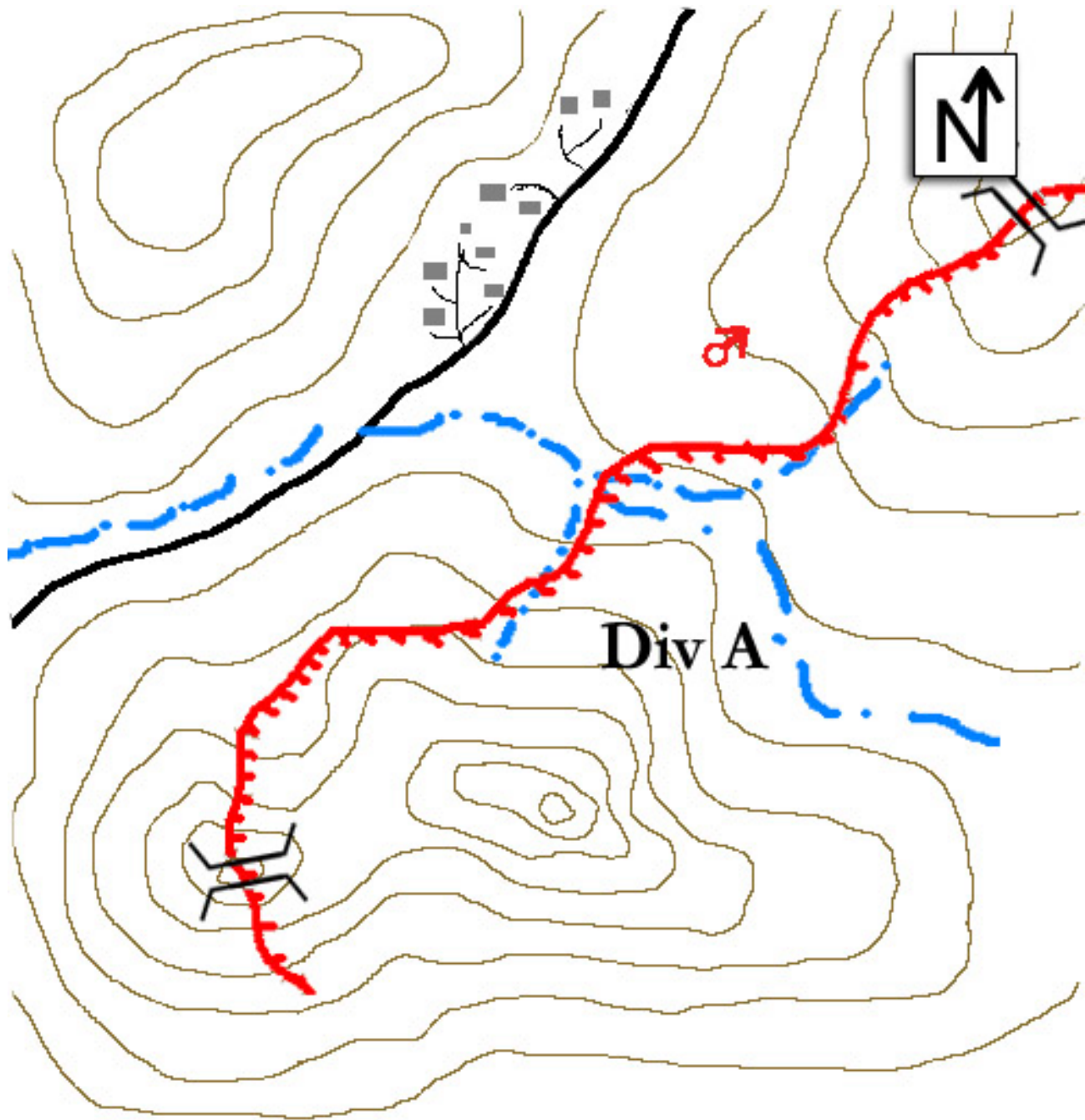
EXECUTION:

Allow 5 minutes for the players to decide on their course of action.

Select player(s) to communicate their decisions to their subordinates (other players assuming the roles of crewmembers).

The "Murphy's Law Suggestions" listed below can be added as "What Ifs" at any time during the scenario to raise the stress level of the leader or use one of your own:

- The route in is a narrow winding dirt road
- Time of day is later in the burning period
- You get a flat tire and cannot drive around
- The Red Flag Warning is canceled
- Water tender operators have no PPE
- Nervous homeowner



TDGS/STEX
#3

-  Fire Perimeter
-  Spot Fire
-  Structure
-  Road
-  Wet Drainage

EXAMPLE TDGS/STEX #4

OBJECTIVE: Players must decide if their priority is to manage the entire incident or initiate immediate suppression action...and then verbally communicate their decision to the appropriate individuals. The objective should not be revealed to experienced players

SCENARIO:

You are an Incident Commander Type 3 responding to the Round Mountain Fire. This is a new fire start in your local response area. The fire is 7 miles southwest of a small town. You are enroute in an agency contract helicopter and have two other helitack firefighters on board. You fly toward the fire along a dirt road that departs the main highway near the town and leads to the southwest into the bottom of a valley below where the fire is located. The road continues on past the fire. A Strike Team of Type 4 Engines has been ordered and is on the way, E.T.A. is 15 minutes to the main highway turnoff. From the air you see there is a narrow bridge on the dirt road between the main highway and the fire. You have questions about the bridge's load limit and its ability to support fire engines loaded with water.

As you approach the fire you see there is a wide valley bottom with ample safe places to land the helicopter. Being a local firefighter, you are aware of the weather and fuel conditions (DESCRIBE: Typical local conditions for mid-season and map distance scale). In your recon over the fire, you estimate the fire to be about 10 acres. You can see an active flame front on about half of the fire perimeter (DESCRIBE: How the smoke column looks). You see there is a Rural Fire Department engine company on-scene, two of the individuals from this engine company are wearing short pants and no boots. They are fighting the fire. You also notice what appear to be soldiers attempting to put out the fire. Various military vehicles are parked near the fire. You are circling over the fire and have no radio communication with anyone currently on the fire. The time is 1000.

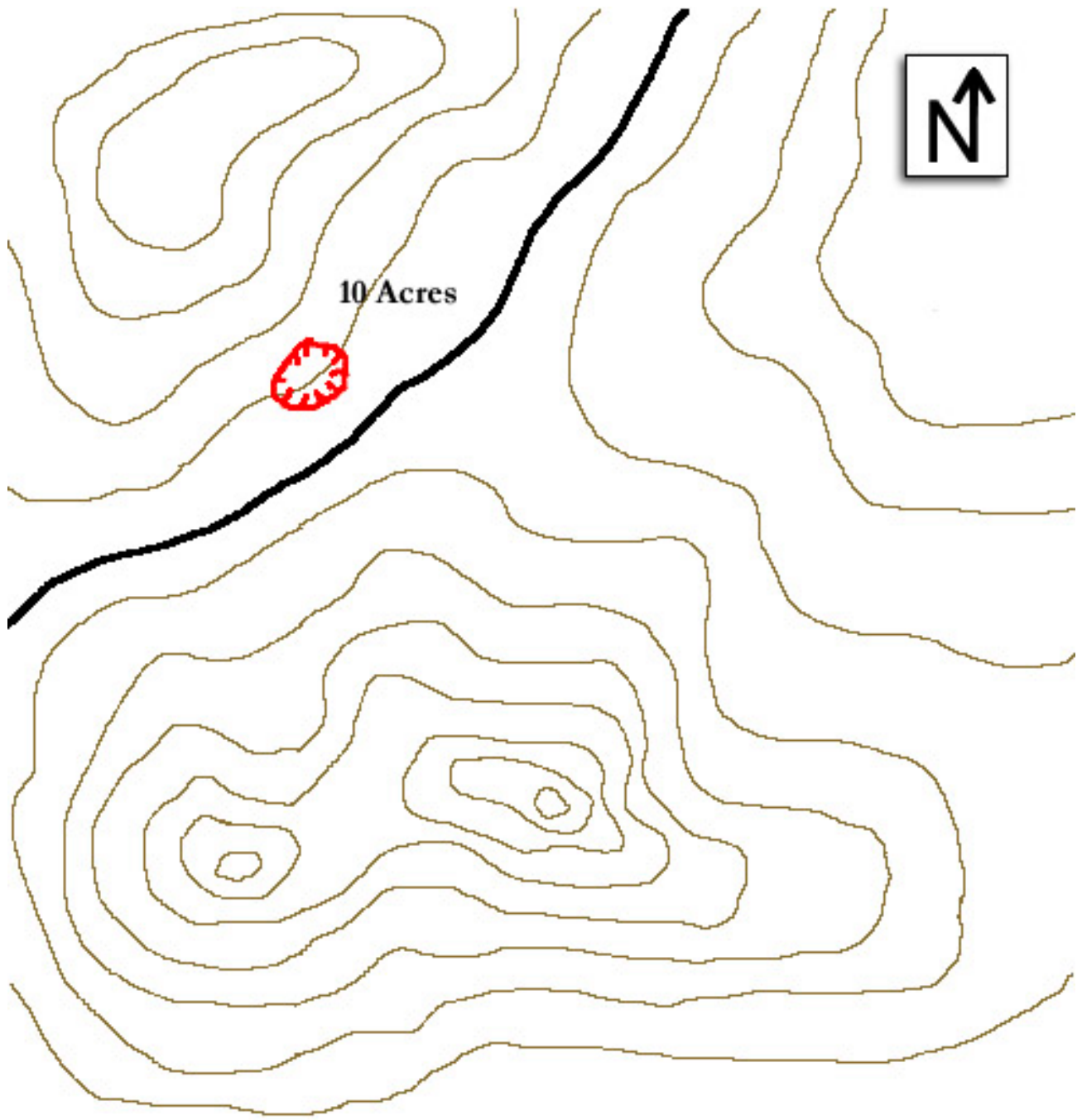
EXECUTION:

Allow 5 minutes for the players to decide on their course of action.

Select player(s) to communicate their decisions to various fire personnel (other players assuming the roles of crewmembers and/or other personnel on the fire).

The "Murphy's Law Suggestions" listed below can be added as "What Ifs" at any time during the scenario to raise the stress level of the leader or use one of your own:

- You are advised by the locals that the bridge can barely support a pickup truck
- Time of day is later in the burning period
- An ambulance appears on-scene with lights and siren running
- There are no air tankers available
- A squad of soldiers is working directly upslope of an active spot fire
- A civilian vehicle is scene driving rapidly away from the fire area



TDGS/STEX
#4

Fire Perimeter
Road

EXAMPLE TDGS/STEX #5

OBJECTIVE: Players must decide how to handle a downhill line construction assignment and how to assign their resources...and then communicate their decisions to the appropriate individuals. The objective should not be revealed to experienced players

SCENARIO:

You are the Strike Team Leader for two Type 1 Handcrews. The Strike Team is made up of two crews that frequently work together and you are the Crew Superintendent of one of the crews. Your identifier is Strike Team 6501G. You have been dispatched to the Peak Fire.

When your Strike Team arrived at the ICP you were sent directly out to the fireline with instructions to report to Division A at Drop Point 3. The fire escaped initial attack yesterday afternoon and this is the first operational period on the incident for both your Strike Team and the Incident Management Team that has taken over the fire. When you link up with the Division Alpha Supervisor, you find out that the fire is about 1500 acres and broken into four divisions. At this time you also get a briefing on the weather and fuel conditions (DESCRIBE: Typical local conditions for mid-season and map distance scale). Your instructions from Division Alpha are as follows: "Division A is the priority on the fire. By holding this side of the fire we think we can keep it out of some country where it would become very difficult to catch the fire. I need you to drive your crews up to the top of the Division in your crew buggies, tie into the end of the completed dozer line on the ridgetop, and start punching handline down the ridge from the radio tower site. Only handcrews can work that upper section below the main ridge. There are two dozers due here anytime now at Drop Point 3. When they arrive I will have them start working up from the bottom, it is good dozer ground there. There is plenty of parking at the radio tower site and it should be a good safety zone. I'd like to have this line tied together by the end of the shift, I think the fire will allow us that much time. Give me a call when you start in on your line construction."

As you drive up toward the radio tower site you see the fire has laid down (DESCRIBE: How the smoke column looks). Arriving at the radio tower site, you get the vehicles parked and size up the area as a safety zone. You walk over and locate the ridge and looking down you are unable to see any fire activity, but visibility is very obscured by lots of drift smoke. The time is 1000.

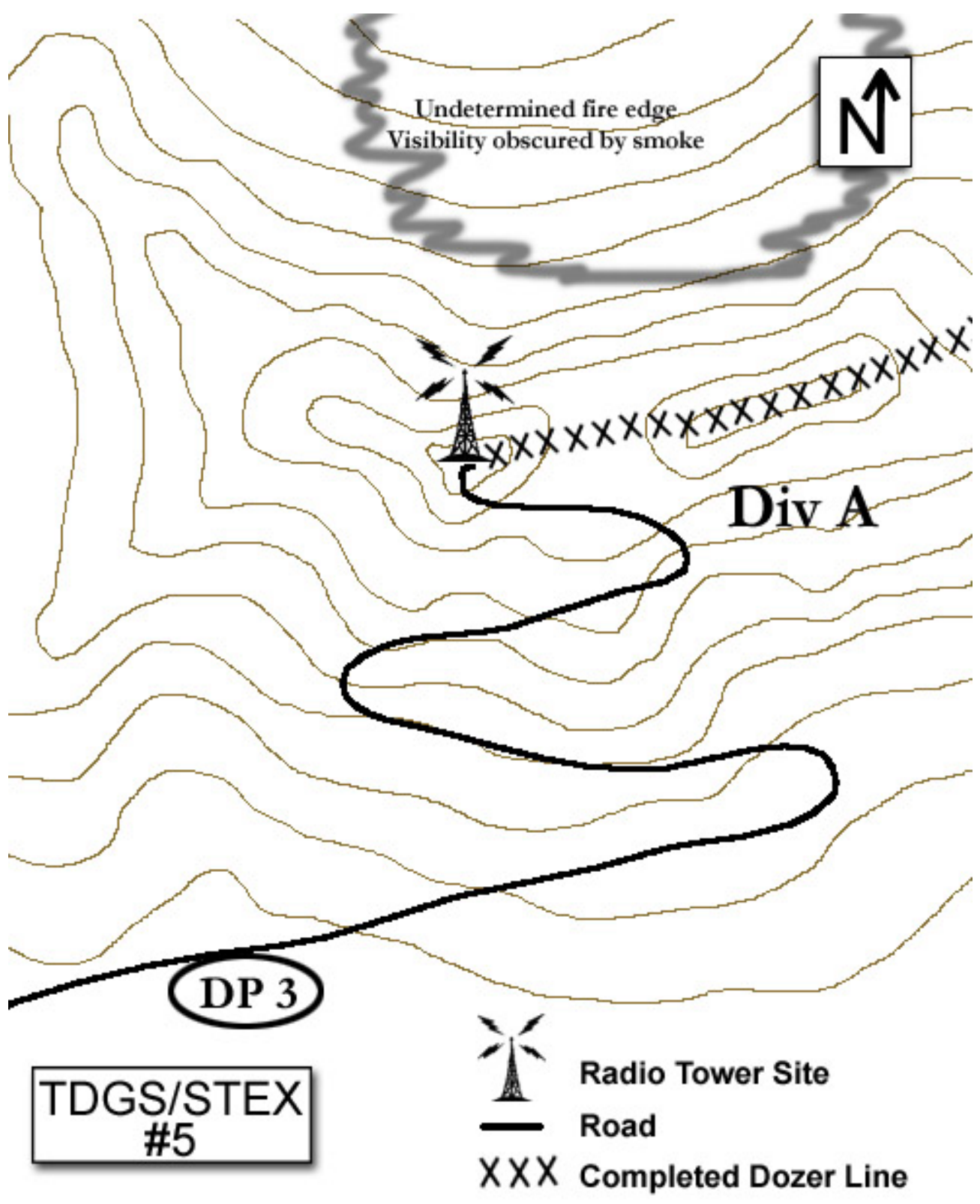
EXECUTION:

Allow 5 minutes for the players to decide on their course of action.

Select player(s) to communicate their decisions to various fire personnel (other players assuming the roles of crewmembers and/or other personnel on the fire).

The "Murphy's Law Suggestions" listed below can be added as "What Ifs" at any time during the scenario to raise the stress level of the leader or use one of your own:

- The parking area is small and marginal for a safety zone
- Time of day is later in the burning period
- The fire approaches Division A faster than expected
- The dozers never arrive on Division A
- Technicians for one of the radio stations are on-site a very anxious about the fire
- Loss of radio communication with Division A Supervisor



Appendix B

STEX Facilitator Guide

(Print and laminate this guide)

Prior to Exercise

- ✓ Design STEX with clear objectives in mind.
- ✓ Develop and prepare STEX scenario briefing.
- ✓ Prepare Sand Table with desired terrain features, oriented to actual compass points. Designate directions and the scale of the table width and length.
- ✓ Provide sufficient props to represent scenario and allow players to demonstrate solutions through resource movement.

✓ Ensure players have note taking materials and the Incident Response Pocket Guide

✓ Introduce players to STEX objectives and format.

✓ Define "Rules" of the STEX

- Time Limit
- Decisions issued as clear instructions (briefings, radio comms, etc)
- No "School" Solution

During Exercise

- ✓ Introduce the scenario. Avoid reading, issue as a briefing. Maintain eye contact with players.
- ✓ Anticipate and answer reasonable additional questions, but do not prolong scenario briefing.
- ✓ Signal start of time limit.

✓ Are you still answering questions or "coaching"? Stop it!

✓ Signal time is up.

✓ Select a player to provide a solution, do not rely on volunteers.

✓ Direct selected player to issue decision as instructions to other players assigned to "subordinate roles".

✓ Is the decision being delivered as instructions? No theoretical or conceptual "would have" "should have" or "could have" discussions allowed!

✓ After instructions have been issued, check role-playing subordinates' feedback to ensure instructions were understood.

✓ Select players for additional solutions, repeating process.

After Action Review

- ✓ **Question the thought process. Ask:**
 - **Why did you do this or that?**
 - **What was your situational assessment?**
 - **What would you have done if...?**
 - **What were your assumptions about the situation?**
 - **What is your biggest concern about your plan?**
- ✓ **Are you dominating the discussion? Stop it!**
 - ✓ **Are you managing the entire group? Make sure all players are engaged!**
- ✓ **Draw out lessons. Summarize and accentuate them. Facilitate and moderate constructive criticism and encourage debate.**
 - ✓ **Resist offering “Your Solution” unless that is the best avenue for a positive lesson. Your influence could wrongly infer there is only one right answer and inhibit independent solutions.**

Post Exercise

- ✓ **After-Action Review of the STEX objectives:**
 - **Exercise decision-making skills in a tactical context.**
 - **Practice communicating decisions.**
 - **Provide experience to develop pattern recognition skills.**
 - **Illustrate tactical concepts.**
 - **Develop implicit understanding within the group.**
- ✓ **Reinforce lessons learned by offering an historical account of a similar scenario.**
- ✓ **Encourage evaluation of your performance as facilitator.**
- ✓ **Solicit suggestions for future STEX.**
- ✓ **Encourage continued debate and re-play. Make the Sand Table accessible for free-play.**

Appendix C

STEX Props & Accessories

A number of props and accessories may be used for Sand Table Exercises. The possibilities are unlimited. The short list provided below will get you started:

- Spray paint (various colors to represent fuel types, water, roads, fire edges, etc - blue, black, brown, yellow, green, red) 6 cans
- Small wood blocks (to represent structures) 6
- Polyester or cotton batting (to represent smoke) Small bag
- Toy plastic figures (to represent firefighters/crews) 12
- Toy fire trucks (matchbox size or maybe a little bigger) 3-5
- Toy dozers (matchbox size or maybe a little bigger) 1-2
- Toy helicopters and airplanes 1-2 of each
- Yarn or Pcord (white, red, black) 10 ft. each color
- “Will-be-back” clock (to show time elapsing) 1
- 12” x 3” Arrow (to indicate wind direction) 1
- Spotlight (to show solar heating on various slope aspects) 1
- Tarp (to cover sand from varmint/cat use during storage) 1
- String or cord to create map grid overlay 15 ft.

Another option is to develop paper icons for various resources and adhere them to a set of poker chips using various colors of the chips to denote air, personnel, and fire equipment type resources.

Appendix D

STEX Table Plans

Bottom Frame (figure 1)

- | | |
|------------------------------------|-----------------|
| (a) Bottom frame sides (2) | 2 x 4 x 82 1/2" |
| (b) Bottom frame cross members (4) | 2 x 4 x 38" |

Top Frame (figure 2)

- | | |
|---------------------------------|-------------|
| (c) Top frame sides (2) | 2 x 4 x 92" |
| (d) Top frame cross members (4) | 2 x 4 x 41" |

Legs (figure 3)

- | | |
|---------------------------|-----------------|
| (e) Legs (4) | 4 x 4 x 26 1/2" |
| (f) Bottom frame supports | 2 x 4 x 5" |
| Heavy-duty 4" wheels (4) | |

Sand Box

- | | |
|----------------------|-----------------|
| (g) Long sides (2) | 2 x 6 x 98" |
| (h) Shorts sides (2) | 2 x 6 x 47 1/2" |
| (i) Bottom | 4' x 8' x 3/4" |

Directions:

Build the frame on which the sand box rests:

Cut bottom frame sides (a) and bottom frame cross members (b). Attach sides to cross members as depicted in figure (1) using 2 1/2" wood screws (counter sink all screws throughout construction).

Cut top frame sides (c) and top frame cross members (d). Attach sides to cross members as depicted in figure (2) using 2 1/2" wood screws.

Cut legs (e) and bottom frame supports (f). Attach bottom frame supports to legs as depicted in figure (3).

Attach bottom and top frame to legs. The bottom frame should rest inside the legs while the top frame fits snugly outside the legs. Attach wheels to bottom of legs.

Use a router to shape the edges of the box sides (g and h). The bottom inside edge should have at least 1/4 inch of material removed to form a lap joint with the bottom of the box. Another option is to use a tongue in groove joint. The remaining edges should be rounded, except where the sides meet. See figure (4). Assemble the sides using 2 1/2" wood screws and then attach the bottom of the box (i). Use plenty of glue to ensure that sand does not leak out of the bottom of the box. Use 1 1/2" wood screws, spaced 8" apart to strengthen the bond between the bottom of the box and the sides. This will also help to squeeze out excess glue.

Position the box on top of the frame and secure the box to the cross members of the top frame using 1 1/2" wood screws.

Fill the box with sand. Avoid overly fine sand that will create too much dust.

NOTE: Individual users may want to consider winter storage in their design. Although the legs can be readily removed by detaching the appropriate wood screws, the use of foldable legs may another option. Consultation with a qualified carpenter may be necessary for such modifications.

Figure 1

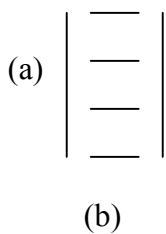


Figure 2

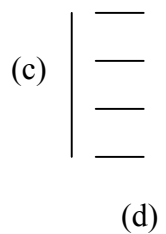


Figure 3

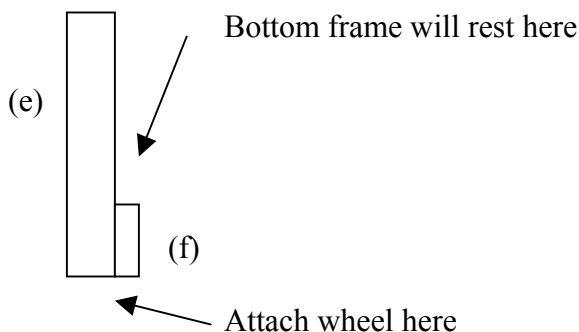


Figure 4- (side view)

