

Danger Zones Audio Script

Screen Title/Number	Audio Source and Content
<p>Lesson Introduction</p> <p>Screen 1 of 31</p>	<p>Narrator: When the SOP for a training exercise restricted POVs on the range, some Marines decided to park in an open area down from the range and walk back to the training area. What they didn't know was that they had parked within the SDZ limits of a .50 cal range that was going to go 'Hot' later that morning.</p> <p>Not returning until later that evening, the POV's sat parked all day. That evening, long after the .50 cal range had called in 'Cold', the Marines walked back to their cars.</p> <p>The damage from .50 cal ricochets was clear as they arrived at their vehicles... And these Marines learn a valuable lesson...that the hazards of a conducting a range exercise go well beyond the line of fire between weapon and target.</p> <p>In this lesson, you will learn about the importance of danger zones and how they are calculated.</p>
<p>Purpose</p> <p>Screen 3 of 31</p>	<p>Narrator: Danger zones are very important to Range Safety. A danger zone includes the ground and airspace designated within the training complex (to include associated safety areas) for vertical and lateral containment of projectiles, fragments, debris, and components resulting from the firing, launching, or detonation of weapon systems to include explosives and demolitions. The purpose of a danger zone is to designate areas that protect personnel and property from dangers during training and, to the extent practicable, during combat. The design of the danger zone is intended to prevent injury to personnel or damage to property by identifying hazardous boundaries of ricochets and fragmentation associated with live fire training.</p> <p>The construction of an accurate danger zone is key to establishing a safe environment for training. Danger Zones are adequate only when employed with properly functioning safety equipment and devices, and when trained and competent personnel follow published fire procedures.</p>
<p>Types of Danger Zones</p> <p>Screen 4 of 31</p>	<p>Narrator: Simply put, a danger zone is that segment of the range area that is endangered by a particular type of weapon firing. There are three types of danger zones that apply to range use: surface danger zones, weapon danger zones, and laser surface danger zones.</p> <p>The type of weapon system and the munitions being used determine the danger zone boundary.</p>

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<p>Surface Danger Zones</p> <p>Screen 5 of 31</p>	<p>Narrator: Surface danger zones are created from the "ballistic footprint" of a weapon system. Each weapon system's ballistic footprint is the firing pattern created when a weapon is tested, firing a certain ammunition at certain target media. The characteristics of the firing pattern are measured to create an SDZ.</p> <p>Narrator (SDZ): Here you see a weapon that is firing at a static target. A pattern of test fired rounds is recorded. The SDZ that is created for the specific type of weapon, ammunition, and impact media includes the area around the target where the rounds land, the resting place for ricochets and some fragments, and the final resting place for all other debris and fragments. You can see that the SDZ will contain all rounds, debris and fragments if set up correctly according to the weapon, type of ammunition and impact media used.</p>
<p>Types of Surface Danger Zones</p> <p>Screen 6 of 31</p>	<p>Narrator: Larger weapon systems such as rockets, missiles, and artillery utilize different SDZ parameters. However, the standard SDZ for small arms are cone and batwing.</p>
<p>Cone SDZ</p> <p>Screen 7 of 31</p>	<p>Narrator: Let's learn more about the cone SDZ, which is an older design and will contain rounds, ricochets, fragments, and debris. The cone SDZ consists of a dispersion area, a ricochet area, and an area "A".</p>
<p>Batwing SDZ</p> <p>Screen 8 of 31</p>	<p>Narrator: The batwing SDZ consists of a dispersion area and a ricochet area. The batwing SDZ provides greater containment of ricochets at closer ranges than the Cone SDZ.</p>
<p>SDZs for Non-exploding Projectiles</p> <p>Screen 9 of 31</p>	<p>Narrator: The cone and batwing SDZs both contain basic components such as distance X and dispersion area. The major difference is the size and shape of the ricochet area. The cone SDZ does not have the widened ricochet area of the batwing SDZ. The batwing SDZ's wider ricochet area allows for greater containment of ricochets.</p> <p>Additionally, the cone SDZ for non-exploding projectiles includes Area A for additional containment of ricochets.</p>

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<p>SDZs for Exploding Projectiles</p> <p>Screen 10 of 31</p>	<p>Narrator: When firing small arms with exploding projectiles, the dimensions of the cone and batwing SDZs are increased to account for fragments and debris from explosions.</p> <p>For the cone SDZ, the width of Area A will be increased to provide improved containment based on the type of weapon and projectile. An Area B is added as a buffer beyond the Distance X dimension.</p> <p>For the batwing SDZ, Areas A and B are added to provide an additional containment beyond the Ricochet and Dispersion areas.</p> <p>Only when firing exploding projectiles will small arms SDZs require cone Area B or batwing areas A and B.</p>
<p>Dimensions</p> <p>Screen 14 of 31</p>	<p>Narrator: The physical size of a danger zone is based on the weapon and ammunition being fired. Tables in the DA Pam 385-63 and the Range Safety Pocket Guide identify the specific dimensions of the SDZ for the weapon/ammunition combination you will be using in your exercise.</p> <p>For example, if you are firing a 5.56mm using M193 Ball ammunition. Distance X will be 3100m. However, the Distance X increases to 3437m for the same weapon when firing the M855 ball.</p>
<p>What is Impact Media?</p> <p>Screen 16 of 31</p>	<p>Narrator: The areas around, behind, or the actual target where a projectile may impact are known as impact media. Impact media have an effect on SDZs because of different densities and compositions. Differences in composition between impact media result in different deflection characteristics.</p> <p>For example, a bullet hitting a pile of sand will react differently than a bullet hitting hardened steel.</p> <p>In addition to the weapon and ammunition being fired, the type of impact media also affects the dimensions of the SDZ.</p>

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<p>Impact Media Categories</p> <p>Screen 17 of 31</p>	<p>Narrator: There are four main types of impact media: earth, water, steel and concrete. Because of their similar density and composition, they are grouped in pairs. Earth and water are one group. Examples are a hill or water where the rounds travel.</p> <p>Concrete and steel are the second group. Examples are steel and concrete targets or barriers.</p> <p>Tables in the DA Pam, and the Range Safety Pocket Guide, show the different values for X, Y, W, P, and Q, as well as the vertical hazard distance.</p> <p>Vertical hazard is the distance a projectile may deflect vertically after hitting the impact media.</p>
<p>Targets & Firing Points</p> <p>Screen 19 of 31</p>	<p>Narrator: Surface danger zones will be modified when your training involves multiple targets, multiple firing points, or moving targets. The adjustments for these types of exercises involve separating the gun target line (GTL) lengthwise resulting in a wider SDZ to account for left and right limits of fire.</p> <p>Narrator (Multiple Targets): For multiple targets with a single firing point use the left and right-most targets to establish the left and right limits of fire.</p> <p>Narrator (Multiple Firing Points/Targets): For multiple firing points, use the left and right-most firing position gun target lines to establish left and right limits of fire.</p> <p>Narrator (Moving Targets): For a single firing point and moving target, use the left- and right-most movement of the target to establish left and right limits of fire.</p>
<p>Lesson Summary</p> <p>Screen 21 of 31</p>	<p>Narrator: In this lesson, you learned that danger zones are the range area designated to contain projectiles, fragments and debris resulting from firing, launching or detonating weapons systems. You learned that there are three different types of danger zones.</p> <p>You identified the components of the cone and batwing SDZs, and different characteristics of each.</p> <p>You also learned how surface danger zone configuration is impacted by the weapon system, ammunition, impact media, the multiple number and position of targets and the number of firing points.</p> <p>You have completed the Danger Zones Lesson. You may now proceed to the quiz.</p>

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Quiz Introduction Screen 22 of 31	<p>Narrator: This quiz will test your knowledge of the topics covered in this lesson. This is your opportunity to apply what you have learned before continuing the course.</p> <p>After selecting your answer, select NEXT to confirm your answer and advance to the next question.</p> <p>You must achieve a score of 80% or better to successfully complete this lesson. You must complete the quiz without exiting to receive a score.</p> <p>If you fail the quiz, review the lesson and retake the quiz. You may retake this quiz as many times as necessary to pass.</p>