



# Weapons Safety Assessment

Sample Template

Chapters 7 to 9 and Appendix A

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# **Weapons Safety Assessment**

Sample Template

Chapters 7 to 9 and Appendix A

Manuscript Completed: June 2022  
Date Published: March 2023

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## **ABSTRACT**

The regulations of the U.S. Nuclear Regulatory Commission (NRC) require an applicant for combined preemption authority and enhanced weapons authority to submit a Weapons Safety Assessment (WSA) as part of its application. This document sets forth a process that the NRC staff finds acceptable for use by an applicant in developing a WSA. The information in this document can be used by an applicant to evaluate the potential onsite and offsite safety hazards, safety impacts, or safety risks and any onsite security risks that could arise from the deployment and potential use of enhanced weapons (e.g., machine guns) as part of a licensee's protective strategy for defending against malevolent acts. Based on its assessment of these hazards, impacts, or risks, an applicant should identify preventive or mitigative measures that it intends to implement upon the deployment of enhanced weapons.

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## FOREWORD

This NUREG describes an approach that the U.S. Nuclear Regulatory Commission (NRC) considers acceptable for use by licensees (hereafter referred to as an “applicant”) in developing a weapons safety assessment (WSA) when applying for combined preemption authority and enhanced weapons authority. The NRC’s regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) 73.15, “Authorization for use of enhanced weapons and preemption of firearms laws,” require a completed WSA as a component of an application for such authority. The purpose of a WSA is to evaluate the onsite and offsite risks associated with the deployment and potential use of a specific enhanced weapon and identify needed preventive or mitigative measures to address those risks.

Applicants may wish to, but are not required to, use this NUREG to complete a WSA. If an applicant elects to develop its own weapons safety assessment process, the NRC staff recommends an applicant review this NUREG for guidance on the types of information that should be addressed in a completed WSA.

Under 10 CFR 73.15(c), the Commission has designated the classes of facilities, radioactive material being transported, and other property that are eligible to apply for combined preemption authority and enhanced weapons authority. Only an applicant within the designated classes of licensed facilities and activities is eligible to apply for combined preemption authority and enhanced weapons authority. Under 10 CFR 73.15(f)(1)(i) and (f)(2)(iv) an applicant must also include a new weapons safety assessment for each type of proposed enhanced weapon. The NRC staff will evaluate an applicant’s WSA to: 1) determine if the potential risks associated with the use of a specific enhanced weapon have been properly identified and any necessary mitigative measures implemented; 2) take into account the risks and proposed mitigative measures; and 3) determine whether an applicant’s requested enhanced weapon in specific deployments is appropriate.

In addition to this NUREG, applicants should also refer to the NRC’s regulatory requirements in 10 CFR 73.15 and supporting guidance in Regulatory Guide (RG) 5.86, “Preemption Authority, Enhanced Weapons Authority, and Firearms Background Checks.” This RG includes information on the application process and requirements for possessing, transferring, transporting, and using authorized enhanced weapons.

This WSA NUREG document consists of four publicly available volumes. The contents of each volume are as follows:

- *Volume 1: Template Instructions*—This volume provides detailed instructions for an applicant’s use in completing a WSA Volume 2 template.
- *Volume 2: Template*—This volume provides a template an applicant may use for evaluating the potential onsite and offsite safety hazards, safety impacts, or safety risks that could arise from the use of specific enhanced weapons.
- *Volume 3: Review Criteria*—This volume describes the criteria that the NRC staff will use in evaluating a WSA developed using the Volume 2 template process in an application for combined preemption authority and enhanced weapons authority.
- *Volume 4: Sample Template*—This volume provides an example of a completed WSA using the Volume 2 template process at a hypothetical power reactor site. Consequently, this sample template is intended only as a tool and visual aid to an applicant.





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## **ACKNOWLEDGMENTS**

The NRC staff wishes to acknowledge the significant contribution from the staff of the U.S. Army Corps of Engineers (USACE), Protective Design Center in Omaha, Nebraska (D. Nebuda, E. Johansen, and M. Tomanek) in the development of the WSA concept and this NUREG document. Additionally, R. Ward & Associates, Inc., supported these efforts of the USACE staff.



## ABBREVIATIONS AND ACRONYMS

AAHs	armored attack helicopters
ACP	Automatic Colt Pistol
ADR	area danger ring
AP	armor piercing
ATF	Bureau of Alcohol, Tobacco, Firearms and Explosives
BMG	Browning Machine Gun
cal	caliber
CFR	<i>Code of Federal Regulations</i>
CQBR	Close Quarters Battle Receiver
CQC	Close Quarters Combat
CRISAT	Collaborative Research into Small Arms Technology
DA	Department of the Army
DBT	design-basis threat
DEA	U.S. Drug Enforcement Agency
DG	design guide
DODIC	Department of Defense Identification Code
DOE	U.S. Department of Energy
DOS	Day Optic Sight
DWM	Deutsche Waffen und Munitionsfabriken (German weapons manufacturer)
ETL	engineering technical letter
FBI	Federal Bureau of Investigation
FAA	Federal Aviation Administration
FLETC	Federal Law Enforcement Training Center
FM	field manual
FMJ	Full Metal Jacket
FMJBT	Full Metal Jacket Boat Tail
FN	Fabrique Nationale or Five-seven
FPS	feet per second
FY	fiscal year
HB	heavy barrel (machine gun)
HB	Brinell hardness; pertains to armor plating (sometimes designated as HBW, BN, or BHN)
H&K	Heckler & Koch
HPT	high-pressure test
IADR	initial area danger ring
IR	Items at Risk
MADR	mitigated area danger ring
MK	Mark
mm	millimeter
MP	machine pistol

MRBF	mean rounds between failures
NATO	North Atlantic Treaty Organization
NRC	U.S. Nuclear Regulatory Commission
NVDs	night vision devices
PA	protected area
PDC	Protective Design Center of USACE
POC	point of contact
QD	quick detach
RG	regulatory guide
RHA	rolled homogeneous armor
ROWS	remotely operated weapon system
RPM	rounds per minute
SAAMI	Sporting Arms and Ammunition Manufacturers' Institute
SAS	Special Air Service, the principal Special Forces organization of the British Army
SAW	Squad Automatic Weapon
SCAR	SOF Combat Assault Rifle
SCAR-H	SCAR Heavy
SCAR-L	SCAR Light
SDZ	Surface Danger Zone
SLAP	Saboted Light Armor Penetrator
SLAP-T	Saboted Light Armor Penetrator-Tracer
SMG	submachine gun
SOF	Special Operations Forces
SPR	special purpose rifle
SRTA	Short Range Training Ammunition
STANAG	NATO abbreviation for Standardization Agreement
SUA	special use airspace
SV	Sniper Version or Sniper Variant
TM	technical manual
UCP	Ultimate Combat Pistol
UMP	Universal Machinen-Pistole = Universal Submachine Gun
USACE	U.S. Army Corps of Engineers
U.S.C.	<i>United States Code</i>
USMC	U.S. Marine Corps
Win Mag	Winchester Magnum
WSA	Weapons Safety Assessment

## GLOSSARY OF TERMS

**Area Danger Ring (ADR)** (not to be confused with surface danger zones)

**Initial (IADR)**

An encompassed area that represents the worst-case scenario of a fired round of ammunition's potential range (i.e., maximum range without considering any physical limitations on the flight of a round).

**Mitigated (MADR)**

An encompassed area that represents a fired round of ammunition's potential range (i.e., maximum range considering any physical limitations on the flight of a round) with mitigative measures in place to reduce the potential range or effect of the round.

**Blowback**

A system in which automatic or semiautomatic firearms operate through the energy created by combustion in the chamber and bore acting directly on the bolt face through the cartridge. Other operating systems are recoil operation, gas-actuated, Gatling, and chain.

**Blowback System**

A system in which there is no positive lock between the bolt and the barrel. The mass of the bolt and force of its recoil spring act to keep the breech closed. The expanding gases from the fired round overcome this inertia and "blow back" the breech. The breech must be kept closed until the round has left the barrel and gas pressures have subsided.

**Breech Block**

The block in breech-loading firearms that closes the rear of the barrel against the force of the charge and prevents gases from escaping.

**Brinell Hardness (HB)**

The hardness of a metal or alloy measured by hydraulically pressing a hard ball under a standard load into the specimen. Brinell hardness may also be designated as HBW, BN, or BHN.

**Cannelure**

(1) Ring-like groove in the jacket of a bullet, which provides a means of securely crimping the cartridge case to the bullet, analogous to the crimping groove in artillery ammunition. (2) Ring-like groove for locking the jacket of an armor piercing bullet to the core. (3) Ring-like groove in the rotating band of a gun projectile to lessen the resistance offered to the gun rifling. (4) Ring-like groove around the base of a cartridge case where the extractor takes hold. (5) Ring-like groove cut into the outside surface of a water-cooled machine gun barrel into which packing is placed to prevent the escape of water from the breech end of the water jacket.

**Collaborative Research into Small Arms Technology (CRISAT)**

The NATO standard in the manufacture of military equipment. The CRISAT Target is defined as a 1.6-millimeter titanium plate (UK IMI Ti 318) supplementing 20 layers of Kevlar (UK/SC/4468) as defined in STANAG Agreement 4512. Weapons are measured against this standard in respect to their ability to penetrate, and protective equipment is manufactured to adhere to it.

### **Designated Firing Position**

A designated firing position predetermined by the security operating procedures. These positions can be redeployable based on the security strategy.

### **Enhanced Weapons**

As defined in 10 CFR 73.2(b),<sup>1</sup> enhanced weapons are “short-barreled shotguns,” “short-barreled rifles,” and “machine guns.” These terms have the same meaning as defined in ATF regulations under 27 CFR 478.11.<sup>2</sup> Enhanced weapons do not include destructive devices as defined in 18 U.S.C. § 921(a)(4).<sup>3</sup>

### **Fixed Firing Position**

A firing position where the weapon is fired only from a fixed mount; may include multiple fixed positions from which the weapon can be moved to another fixed mount.

### **Foot-Pound**

A unit of work equal to the work done by a force of 1 pound acting through a distance of 1 foot in the direction of the force.

### **Frangible**

Capable of being broken; breakable. Frangible, or “soft,” rounds are designed to break apart when they hit walls or other hard surfaces to prevent ricochets during close-quarters combat. Also known as the Advanced Energy Transfer (AET) round.

### **Handgun**

Any firearm including a pistol or revolver designed to be fired by the use of a single hand. The term also includes any combination of parts from which a handgun can be assembled. See 18 U.S.C. § 921(a)(29).

### **Joule**

A unit of work or energy equal to the work done by a force of 1 newton acting through a distance of 1 meter.

### **Pintle**

A usually upright pivot pin on which another part turns. The pin on which a gun carriage revolves.

### **Rolled Homogeneous Armor (RHA)**

Armor having uniform composition and heat treatment throughout. RHA is frequently characterized as “hard” or “soft.” Homogeneous hard armor typically has a Brinell hardness in excess of 400 and is unmachinable, except with special tools. Homogeneous soft armor typically has a Brinell hardness of 350 or less and is machinable. RHA is sometimes referred to as “homogeneous rolled armor.”

### **Sabot**

(1) A lightweight carrier in which a projectile of a smaller caliber is centered so as to permit firing the projectile within a larger caliber weapon. The carrier fills the bore of the weapon from

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<sup>1</sup> 10 CFR 73.2, “Definitions.”

<sup>2</sup> 27 CFR 478.11, “Meaning of terms.”

<sup>3</sup> Title 18 of the U.S. Code, “Crimes and Criminal Procedure”; Chapter 44, “Firearms”; § 921, “Definitions.”

which the projectile is fired; it is normally discarded a short distance from the muzzle. (2) A thrust-transmitting carrier that positions a missile in a gun barrel or launching tube and that prevents the escape of gas ahead of the missile. (3.) Aluminum body of a high-velocity, armor-piercing tracer projectile having a tungsten carbide core; in this case, the core may be considered as the subcaliber projectile.

**Stray Round**

Misdirected or accidental firing and ricochets.





## 7 APPLICATION EXAMPLE

The following is an example of a completed weapons safety assessment (WSA) for a hypothetical power reactor facility using the template in Volume 2 of this NUREG. Section 7.1 is an example of the information that would be provided under Section 3.1 of Volume 2. The highlighted text below are fields where an applicant would enter information.

### 7.1 Applicant Information

For a facility-based application, the staff of the U. S. Nuclear Regulatory Commission (NRC) recommends that an applicant should include the following information:

Name of the Licensee: **ACME Nuclear Power Corporation**

Docket No. **50-abc** [include all docket numbers for the facility]

License No. **DPR-abc** [include all license numbers for the facility]

Applicant Document No. **AP-Q-2021-0001**

For an application based on transportation activity (e.g., the use of enhanced weapons to escort interstate shipments of spent nuclear fuel from one NRC-licensed facility to another NRC-licensed facility), the NRC staff recommends that an applicant include the following information:

Name of the Licensee: **ACME Nuclear Storage Corporation** [the entity that will be responsible for providing security for the shipments]

Docket No. **50-abc and 72-def** [include all docket numbers for the applicable sending or receiving facility]

License No. **DPR-mnp and SNM-pqrs** [include all license numbers for the applicable sending or receiving facility]

Applicant Document No. **AP-Q-2021-0002**


An applicant should refer to the shipping facility or receiving facility as appropriate in completing Chapter 4 inputs (i.e., the entity that will be responsible for providing security for the shipments).

Additionally, identify any sections of the Weapons Safety Assessment (WSA) that an applicant considered as not applicable because of the mobile nature of transportation activities employing enhanced weapons (i.e., some WSA inputs are predicated on fixed-location facility considerations).




## 8 SAMPLE TEMPLATE

The following is an example of a completed WSA for a hypothetical power reactor facility using the template in Volume 2 of this NUREG. Sections 8.1 - 8.12 are an example of the information that would be provided under Sections 4.1 - 4.12 of Volume 2. The highlighted text below are fields where an applicant would enter information.


Holding the control key and clicking on a  symbol will open the instructions for the section.

### 8.1 General Information

 8-1 GENERAL INFORMATION	
1. Facility Name: <a href="#">Acme Power Site Q</a>	2. Submittal Date: <a href="#">11/30/2019</a>
3. Physical Address: <a href="#">1 Long Road</a>	4. Is this a resubmittal? <a href="#">NO</a>
5. City, State, Zip: <a href="#">Small Town, XX 00000</a>	
6. Facility Phone No. : <a href="#">(000)555-1111</a>	
7. Mailing Address: <a href="#">PO BOX 1</a>	
8. City, State, Zip: <a href="#">Small Town, XX 00000</a>	
9. Mailing Address Phone No. : <a href="#">(000)555-0000</a>	
10. Applicant Point of Contact (POC):	<a href="#">Jack Johnson, Jr.</a>
11. Position Title of Applicant POC:	<a href="#">Security Manager</a>
12. Work Phone No. :	<a href="#">(000)555-0100</a>
13. Alternate Phone No. :	<a href="#">(000)555-0101</a>
14. POC's E-Mail Address:	<a href="#">JJ2@Acme. com</a>
15. Alternate POC:	<a href="#">Jack Johnson, III</a>
16. Position Title of Alternate POC:	<a href="#">Assistant Security Manager</a>
17. Work Phone No. :	<a href="#">(000)555-0200</a>
18. Alternate Phone No. :	<a href="#">(000)555-0201</a>
19. Alternate POC's E-Mail Address:	<a href="#">JJ3@Acme. com</a>
20. Plant Manager:	<a href="#">Jack Johnson, Sr</a>
21. Work Phone No:	<a href="#">(000)555-0300</a>
22. Alternate Phone No:	<a href="#">(000)555-0301</a>

23. Plant Manager's E-Mail Address: [JJ1@Acme.com](mailto:JJ1@Acme.com)

**8.2 Desired Weapon**



**8-2 DESIRED WEAPON**


(A Weapons Safety Assessment is required for each enhanced weapon type desired. If multiple enhanced weapons are desired, a Weapons Safety Assessment must be submitted for each specific weapon.)

24. **Select an enhanced weapon category:** [Machine Guns](#)  
 (For weapons classified as both short-barreled shotgun and machine gun, select short-barreled shotgun. For weapons classified as both short-barreled rifle and machine gun, select short-barreled rifle. Weapons capable of either fully automatic or select-fire (burst) modes in addition to semiautomatic are classified as machine guns.)

25. **Identify a manufacturer, model, and caliber/gauge representative of the weapon desired:** [Guns-R-Us 1, MK 2 7. 62 mm](#)

26. **Enter the maximum range (meters):** [4100](#)

**8.3 Ammunition Used**



**8-3 AMMUNITION USED**

NOTE: An applicant should consult the weapon manufacturer's documentation for recommended/acceptable ammunition for the selected weapon system.

27. **Check all of the ammunition types below that are to be used with this weapon.**

Type of Ammunition					
<input checked="" type="checkbox"/>	Ball	<input type="checkbox"/>	Tracer	<input type="checkbox"/>	Plastic (less lethal)
<input type="checkbox"/>	Armor Piercing	<input type="checkbox"/>	Hollow Point	<input type="checkbox"/>	Frangible
<input type="checkbox"/>	Slug	<input type="checkbox"/>	Buckshot	<input type="checkbox"/>	Birdshot
<input type="checkbox"/>	Other (specify):				

## 8.4 Weapon Deployment and Training

<b>8-4 WEAPON DEPLOYMENT AND TRAINING</b>	
<b>28. Check all types of deployment for the weapon. Check all that apply.</b>	
<input type="checkbox"/>	The weapon will be used in a remotely operated weapon system (ROWS) from fixed position/s. (If checked, applicant <i>must</i> describe system in Item 31.)
<input checked="" type="checkbox"/>	The weapon will be fired from fixed position(s) (i.e., attached to pre-positioned mount or mounts).
<input type="checkbox"/>	The weapon will be used from a designated firing point/s (e.g., guard towers, roof tops, etc.).
<input type="checkbox"/>	The weapon will be used while patrolling the property (e.g., foot patrols, vehicle patrols, etc.).
<input type="checkbox"/>	The weapon will be used inside facility buildings (e.g., interior fighting position, checkpoints, patrols, etc.).
<input type="checkbox"/>	The weapon will be used only within a small defined area of the property.
<input type="checkbox"/>	The weapon will be used in many situations and areas of the property.
<p><b>29. Additional description of weapon deployment:</b> <a href="#">Weapon will be used in BRE3 [bullet resistant enclosure position 3] from fixed mounts with barrel stops to limit fields of fire both horizontally and vertically to limit collateral damage to certain risk items. The stops are designed to be able to be removed via administrative controls, but the shift supervisor must authorize the removal.</a></p> <p>(Describe how and where this weapon will be used to implement the licensee’s protective strategy. Include fixed positions or how the weapon will be carried, either by individuals or roving patrol (i.e., “locked in a rack” or “loaded with unchambered round,” etc.). Also note if the weapon will be replacing a different caliber weapon.)</p>	
<p><b>30. Range Cards.</b> Create a Standard Range Card for any enhanced weapon that is being used from a fixed position or designated firing position and attach the card to the end of the WSA. A Standard Range Card is not required for mobile positions but may be considered as appropriate. (See <i>WSA Reference Information volume for guidance; note that all manuals change periodically, and a Web search should be conducted to ensure that the latest version is being used.</i>)</p>	
<p><b>31. ROWS Discussion:</b></p> <ol style="list-style-type: none"> <li>Describe how many ROWS (if any) will be in use at the facility. <a href="#">None</a></li> <li>Describe where these weapons will be placed. <a href="#">NA</a></li> <li>Describe where the weapons will be controlled from (location). <a href="#">NA</a></li> <li>Describe how many ROWs each operator will control. <a href="#">NA</a></li> <li>Describe any restrictions on field of fire. <a href="#">NA</a></li> <li>Describe any steps taken or conditions of the site that avoid crossfire. <a href="#">NA</a></li> </ol>	
<p><b>32. Advanced Training.</b> Select level of advanced training: <a href="#">Specialized training</a> Attach supporting documentation describing the advanced training.</p>	

## 8.5 Map Information



### 8-5 MAP INFORMATION

Maps from other plans can be referred to or sent as electronic or paper attachments. An applicant is responsible for submitting all maps, facility diagrams, Standard Range Cards, and other materials used to determine encroachments, buffer zones, and mitigating measures, risk items, likelihoods, and consequences.

33. Provide any pertinent map comments or explanations: [Small Town, XX, is located in Coke County. The county population is approximately 3,850; of this, 1,070 live within the city limits of Small Town. The area around the facility is very rural and lightly traveled. There are some recreational areas on the Small Town reservoir. There is a small commuter airport located to the south of the site. Airport traffic is limited to small private planes. The airport is mostly used on weekends for recreational fisherman visiting the community.](#)

## 8.6 Initial Area Danger Ring



### 8-6 INITIAL AREA DANGER RING (IADR)

Create the IADR, following the instructions in Volume 1, "Template Instructions."

Depending on weapons desired, ammunition used, deployment, and site geometry, the IADR may be composed of multiple individual rings rather than a single continuous ring. Refer to Appendix A for further examples of constructing IADRs.



IADR for a hypothetical facility (normally an attachment to the WSA)

### 8.7 Property Boundary Assessment and Encroachment Issues

**8-7 PROPERTY BOUNDARY ASSESSMENT AND ENCROACHMENT ISSUES**

34. Enter the percentage of each type of boundary buffer or encroachment type that surrounds the facility. These percentages should equal 100. Double-click on the table below to open the Excel object for inputting data. Click outside the table to close.

Buffers	%	Buffers	%
River		Lake	25
Ocean		Federal Property	
State Property	25	Farmland or Undeveloped Property	15
Other Buffer			
Encroachments		Encroachments	
Residential Area	15	Light Industry	10
Heavy Industry		Retail Property	
Recreational Areas	10	Other Encroachment	
		<b>Total</b>	100

Risk Level	2	Low
Percent Encroachment		35

35. Describe any pertinent information pertaining to property buffer or encroachment areas (i.e., describe what any Federal- or State-owned property is used for; such as, parks, recreation, or military purposes). Describe natural barriers, such as mountains, sloping terrain, and manmade earthen berms):

The area surrounding Site Q is comprised mostly of the lake, undeveloped property, and farmland. The undeveloped property is owned by State agency. The average elevation on the site is approximately 15 meters (m) (49. 2 feet [ft]) above mean sea level. The small commuter airport is located on a high bluff approximately 65 m (196. 9 ft) above mean sea level. Since the airport is only used by commuters, the owners of the aircraft are required to keep the aircraft in hardened rental hangars when not in use. The airport was formerly a military airfield and was sold to a private businessman who kept the existing buildings and infrastructure and made upgrades to the control tower glazing to make it bullet resistant up to Underwriters Laboratory (UL) Level IV. Hunting is not allowed on the State owned land that is adjacent to the power plant. The terrain on the remaining sides of the plant in the residential area is sparsely populated with gently rolling hills, but they are substantially higher in elevation than the power plant property. The light industrial area has support buildings and a large warehouse for the purpose of manufacturing and marketing hand-made fishing lures.

## 8.8 Risk Identification, Evaluation, and Mitigation



### 8-8 RISK IDENTIFICATION, EVALUATION, AND MITIGATION

#### Risk Items

Identify all risk items within the initial area danger ring (IADR). Assign each risk item a level of likelihood and consequence. There are empty spaces in the tables to add other risk items that are not already identified. Note: Items can be mitigated as a group if they are in close proximity to each other and have a similar “likelihood and consequence.”

It is recommended that initial risk identification involve several people from various elements of an applicant’s organization.

The licensee will be committing to the mitigation measures, which will be subject to inspection by the NRC.

#### 36. Hazardous (Reactivity, Flammability, and Health) Risks in the ADR

For evaluating risk items associated with chemicals and the potential release of chemical gases, fire, or explosions, first consider chemicals and fuels stored at the facility, but also consider that storage tanks 500 – 1,500 meters away can easily be punctured by some of the ammunitions listed in Section 2 of the WSA Reference Information volume. The facility chemist/engineer should be consulted on the selection of these chemicals. An applicant is responsible for determining the table input and analyzing the risks.

Please scroll to the next table. Do not “Tab.”



<b>36. Hazardous (Reactivity, Flammability, and Health) Risks in the ADR.</b>							
<i>(Double click on the table to open Excel for inputting data. Enable Macros if screen appears.)</i>							
Item ID	Risk Item	Inside ADR <sup>1</sup>		Likelihood of Strike	Consequence of Strike <sup>2</sup>	Risk Level	
		Initial	Mitigated				
36a	Acid	yes	Yes	Unlikely	Tragic	3	Moderate
36b	Dangerous (flammable, non-toxic) Comp. Gas	yes	Yes	Possible	Major	3	Moderate
36c	Propane	yes	Yes	Likely	Major	4	High
36d	Gasoline	yes	No	Unlikely	Moderate	2	Low
36e	Diesel	yes	No	Rare	Insignificant	1	Very Low
36f	Dangerous Liquid	yes	Yes	Rare	Tragic	3	Moderate
36g				N/A	N/A	0	N/A
36h				N/A	N/A	0	N/A
36i				N/A	N/A	0	N/A
36j				N/A	N/A	0	N/A
36k				N/A	N/A	0	N/A
36l				N/A	N/A	0	N/A
36m				N/A	N/A	0	N/A
36n				N/A	N/A	0	N/A
36o				N/A	N/A	0	N/A
36p				N/A	N/A	0	N/A
36q				N/A	N/A	0	N/A
36r				N/A	N/A	0	N/A
36s				N/A	N/A	0	N/A
36t				N/A	N/A	0	N/A
36u				N/A	N/A	0	N/A
<b>Input is complete.</b>				<b>Average Risk Level in MADR</b>		<b>3.25</b>	
<b>Enter factor for training mitigation (submit supporting documentation), Enhanced Training=0.25 / Specialized Training=0.50.</b>						<b>0.50</b>	
<b>Mitigated Risk Level</b>						<b>1.63</b>	
Enter mitigated risk level in section 2-10 summary table.							
1 - For each item inside the Initial ADR but outside Mitigated ADR explain mitigating circumstances in the corresponding discussion field.							
2 - If mitigating circumstances (e.g. risk item is buried, behind barrier that round being considered cannot penetrate, etc.) exist or are planned, explain in corresponding discussion area below.							

36. Justify the likelihood and consequence levels for each risk item in the areas provided below. Select only one type of mitigation for each risk item and describe in detail the mitigation steps taken to alleviate or lower the risk factor. Use the "Other Discussion" field for any additional information supporting risk mitigation.

36a. Justification of Likelihood & Consequence Levels: Acid tank exists within the PA boundary. The tank is located within a protective catch basin to contain the contents in the event of a spill. A strike on the tank is unlikely since it is outside the barrel stops that physically limit the fields of fire from BRE3.

Mitigation Taken: Horizontal and vertical physical stops limit fields of fire from BRE3.

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion: See range card.

36b. Justification of Likelihood & Consequence Levels: Dangerous (flammable, nontoxic) compressed gas skid is stored outside the PA fence. It is stored on the west side of the site on a portable trailer and is within the fields of fire of BRE3. The security officers are trained to not intentionally fire at the trailer unless it is being used as a position of cover by an adversary.

Mitigation Taken: Training

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion: A fire caused by gunfire at this location will not cause any collateral damage to site assets and personnel. The fire could be contained by the onsite emergency responders and with mutual aid assistance from the local fire department.

36c. Justification of Likelihood & Consequence Levels: Propane tank containing 1,900 liters (502 gallons) is stored outside the PA fence. It is stored on the east side of the site and surrounded by jersey barriers on the lower portion. The upper portion of the tank does not have any physical protection. The security officers are trained to not intentionally fire at the tank unless it is being used as a position of cover by an adversary. If the tank is struck by weapons fire, there is a possibility of a release and potential fire. A fire at this location has the potential to spread to adjacent leased farm property on the owner controlled area (OCA) and could spread off the site.

Mitigation Taken: Training

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion: See range card.

36d. Justification of Likelihood & Consequence Levels: There are numerous gasoline tanks at adjacent farms outside the OCA boundary. There is a remote possibility that one of the tanks could be struck by a security officer on roving patrol. If the tanks were breached, the fuel may spill from the tanks until someone discovers them. Most of the tanks do not have secondary containment. The security officers are trained in muzzle discipline and maintain the weapons with an unchambered round indicator.

Mitigation Taken: Training and physical measures.

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion: If a tank is struck by an errant round, the fuel could spill until detected. A fire may occur if an ignition source is encountered, but the possibility of a strike from within the facility is unlikely.

36e. Justification of Likelihood & Consequence Levels: There are numerous diesel fuel tanks at adjacent farms outside the OCA boundary. There is a remote possibility that one of the

tanks could be struck by a security officer on roving patrol. If the tanks were breached, the fuel may spill from the tanks until someone discovers them. Most of the tanks do not have secondary containment. The security officers are trained in muzzle discipline and maintain the weapons with an unchambered round indicator.

Mitigation Taken: Training and physical.

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion: If a tank is struck by an errant round, the diesel fuel could spill until detected. A fire may occur, but is a remote possibility given the ignition point of diesel fuel. The possibility of a strike from within the facility is unlikely.

36f. Justification of Likelihood & Consequence Levels: A small quantity (0.5 liter) [1.1 pints] of a dangerous liquid is contained in Building 66, which is a tar-paper shack.

Mitigation Taken: After this assessment, the container with the chemical has been placed in a secure container to prevent the possibility of a strike from weapons fire.

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion: It is rare that the container could be breached. Only numerous rounds striking the container would breach it. If released to the atmosphere, the chemical is lethal.

36g. Justification of Likelihood & Consequence Levels:

Mitigation Taken:

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:

36h. Justification of Likelihood & Consequence Levels:

Mitigation Taken:

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:

36i. Justification of Likelihood & Consequence Levels:

Mitigation Taken:

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:

36j. Justification of Likelihood & Consequence Levels:

Mitigation Taken:

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:

36k. Justification of Likelihood & Consequence Levels:

Mitigation Taken:

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:

36l. Justification of Likelihood & Consequence Levels:

Mitigation Taken:

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:
36m. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
36n. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
36o. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
36p. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
36q. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
36r. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
36s. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
36t. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
36u. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination

Other Discussion:

### 37. Key Facilities/Areas inside the PA

For evaluating risk items associated with key facilities and areas inside the protected area (PA), consider risk items that are not always obvious (for example, a diesel generator that if destroyed would not be hazardous, but is a vital backup power source).

**Note:** Applicants should include those systems, structures, components, and operator actions that, if unable to perform their required function, would lead to an accidental criticality, dispersal of special nuclear material, significant core damage, or radiological sabotage of spent nuclear fuel. This section identifies key facilities or areas within the sectors of fire. All facilities should be identified, and risks associated with each should be categorized as pertaining to “Public Health and Safety” or “Business,” with consideration of how the risk item affects future plant operations. Refer to the instructions in Volume 1 for additional information.

Please scroll to the next table. Do not “Tab.”

<b>37. Key Facilities/Areas Inside the PA</b>									
<i>(Double click on the table to open Excel for inputting data. Enable Macros if screen appears.)</i>									
Item ID	Risk Item <sup>1</sup>	Inside ADR <sup>2</sup>		Likelihood of Strike	Consequence of Strike <sup>3</sup>	Rated	Risk Level		
		Initial	Mitigated						
37a	Security Equipment	Yes	Yes	Possible	Moderate	Yes	2	Low	
37b	Security Building 1	Yes	Yes	Possible	Insignificant	Yes	1	Very Low	
37c	Security Area	Yes	Yes	Unlikely	Insignificant	Yes	1	Very Low	
37d	Equipment Set 1	Yes	Yes	Likely	Insignificant	Yes	1	Very Low	
37e	Equipment Set 2	Yes	Yes	Likely	Insignificant	Yes	1	Very Low	
37f	Equipment Set 3	Yes	Yes	Likely	Insignificant	Yes	1	Very Low	
37g	Ops Building 1	Yes	no	Likely	Moderate	No	3	Moderate	
37h	Transformers	Yes	no	Possible	Major	No	3	Moderate	
37i				N/A	N/A		0	N/A	
37j				N/A	N/A		0	N/A	
37k				N/A	N/A		0	N/A	
37l				N/A	N/A		0	N/A	
37m				N/A	N/A		0	N/A	
37n				N/A	N/A		0	N/A	
37o				N/A	N/A		0	N/A	
37p				N/A	N/A		0	N/A	
37q				N/A	N/A		0	N/A	
37r				N/A	N/A		0	N/A	
37s				N/A	N/A		0	N/A	
37t				N/A	N/A		0	N/A	
37u				N/A	N/A		0	N/A	
Input is complete.				Average Risk Level in MADR			1.17		
Enter factor for training mitigation (submit supporting documentation), Enhanced Training=0.25 / Specialized Training=0.50.							0.50		
							Mitigated Risk Level	0.58	
Enter mitigated risk level in section 2-10 summary table.									
1 - Assume all buildings are un-occupied and include people that would normally be in these buildings in Questions 41 and 43.									
2 - For each item inside the Initial ADR but outside Mitigated ADR explain mitigating circumstances in the corresponding discussion field.									
3 - If mitigating circumstances (e.g. risk item is buried, behind barrier that round being considered cannot penetrate, etc.) exist or are planned, explain in corresponding discussion area below.									

37. Justify the likelihood and consequence levels for each risk item in the areas provided below. Select only one type of mitigation for each risk item and describe in detail the mitigation steps taken to alleviate or lower the risk factor. Use the "Other Discussion" field for any additional information supporting risk mitigation.

37a. Justification of Likelihood & Consequence Levels: The security equipment is located on the roof of the reactor building. The equipment is within the fields of fire from all the BREs, and it is possible the equipment may take stray rounds from the site security personnel during an adversary attack. The consequence of striking the equipment is moderate, but secondary equipment is available should the primary system fail. A strike will not endanger the health and safety of the public.

Mitigation Taken: None.

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:

37b. Justification of Likelihood & Consequence Levels: Security Building 1 is located within a hardened concrete structure at the PA boundary personnel entry control point. The building is within the fields of fire from all the BREs, and it is possible the building may take stray rounds from the site security personnel during an adversary attack. The building is designed to withstand weapons effects from small arms fire and blast effects from a VBIED [vehicle borne improvised explosive device] and the consequence of striking the building is insignificant. A strike will not endanger the health and safety of the public.

Mitigation Taken: None, the building is already hardened against weapons effects.

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:

37c. Justification of Likelihood & Consequence Levels: Security Area is located within a hardened concrete structure deep within Ops Building 4 within the PA boundary. Ops Building 4 is within the fields of fire from BRE3, and it is possible the building may take stray rounds from the site security personnel during an adversary attack, but unlikely the Security Area within the building will be affected by weapons effects. Ops Building 4 is designed to withstand weapons effects from small arms fire and blast effects from a VBIED, and the consequence of striking the building is insignificant. A strike will not endanger the health and safety of the public.

Mitigation Taken: None, the building is already hardened against weapons effects.

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:

37d. Justification of Likelihood & Consequence Levels: Equipment Set 1 is in a hardened concrete structure within the PA boundary. The building is within the fields of fire from BRE3, and it is likely the building may take stray rounds from the site security personnel during an adversary attack. The building is designed to withstand weapons effects from small arms fire and blast effects from a VBIED, and the consequence of striking the building is insignificant. A strike will not endanger the health and safety of the public.

Mitigation Taken: None, the building is already hardened against weapons effects.

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:

37e. Justification of Likelihood & Consequence Levels: Equipment Set 2 is in a hardened concrete structure within the PA boundary. The building is within the fields of fire from BRE3, and it is likely the building may take stray rounds from the site security personnel during an adversary attack. The building is designed to withstand weapons effects from small arms fire and blast effects from a VBIED, and the consequence of striking the building is insignificant. A strike will not endanger the health and safety of the public.			
Mitigation Taken: None, the building is already hardened against weapons effects.			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
37f. Justification of Likelihood & Consequence Levels: Equipment Set 3 is in a hardened concrete structure within the PA boundary. The building is within the fields of fire from BRE3, and it is likely the building may take stray rounds from the site security personnel during an adversary attack. The building is designed to withstand weapons effects from small arms fire and blast effects from a VBIED, and the consequence of striking the building is insignificant. A strike will not endanger the health and safety of the public.			
Mitigation Taken: None, the building is already hardened against weapons effects.			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
37g. Justification of Likelihood & Consequence Levels: Ops Building 1 is remotely located from the plant PA and is itself within a fenced PA boundary. Ops Building 1 is within the fields of fire from BRE3, and it is likely the structure may take stray rounds from the site security personnel during an adversary attack. Ops Building 1 provides a constant support for the reactor and the safe shutdown of the reactor. The consequence of striking Ops Building 1 with small arms fire is moderate since it would potentially cause an interruption of needed support. However, a strike will not endanger the health and safety of the public since the site has multiple secondary equipment and a response plan and personnel trained to bring the equipment on-line in the event of an emergency or failure at Ops Building 1.			
Mitigation Taken: Training and backup systems in place.			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input checked="" type="checkbox"/> Combination
Other Discussion:			
37h. Justification of Likelihood & Consequence Levels: The transformers adjacent to the reactor building are located within the PA boundary. The transformers are within the fields of fire from BRE3, and it is possible the transformers may take stray rounds from the site security personnel during an adversary attack. The transformers are used for the backup power for the warehouse and have nothing to do with the safe shutdown of the reactor. The consequence of striking the transformers with small arms fire is major since it would cause them to leak hazardous materials and cause a potential fire within the PA boundary. However, a strike will not endanger the health and safety of the public since the site has a hazardous response plan and personnel trained to clean-up spills. The transformer does not have an automatic deluge system to address fires; therefore, any fires due to errant small arms fire would be addressed by the plant's fire brigade or offsite fire assistance, if necessary.			
Mitigation Taken: Hazardous Response Plan			
Type of Mitigation:	<input checked="" type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			



37i. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
37j. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
37k. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
37l. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
37m. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
37n. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
37o. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
37p. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
37q. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			

37r. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
37s. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
37t. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
37u. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			

**38. Key Facilities/Areas outside the PA but on the Facility's Property**

For evaluating risk items associated with key facilities and areas outside the PA but on the facility's property, consider risk items that are not always obvious (for example, a diesel generator that, if destroyed, would not be hazardous, but is a vital backup power source).

**Note:** Applicants should include those systems, structures, components, and operator actions that, if unable to perform their required function, would lead to an accidental criticality, dispersal of special nuclear material, significant core damage, or radiological sabotage of spent nuclear fuel. This section identifies key facilities or areas within the sectors of fire. All facilities should be identified, and risks associated with each categorized as pertaining to "Public Health and Safety" or "Business," with consideration of how a strike affects future plant operations. Refer to the instructions in Volume 1 for additional information.

<b>38. Key Facilities/Areas Outside the PA but on the Facility's Property</b> (Double click on the table to open Excel for inputting data. Enable Macros if screen appears.)									
Item ID	Risk Item <sup>1</sup>	Inside ADR <sup>2</sup>		Likelihood of Strike	Consequence of Strike <sup>3</sup>	Rated	Risk Level		
		Initial	Mitigated						
38a	Support Building 1	Yes	Yes	Possible	Minor	Yes	2	Low	
38b	Support Building 2	Yes	Yes	Possible	Insignificant	Yes	1	Very Low	
38c	Support Building 3	Yes	Yes	Unlikely	Minor	Yes	1	Very Low	
38d				N/A	N/A		0	N/A	
38e				N/A	N/A		0	N/A	
38f				N/A	N/A		0	N/A	
38g				N/A	N/A		0	N/A	
38h				N/A	N/A		0	N/A	
38i				N/A	N/A		0	N/A	
38j				N/A	N/A		0	N/A	
38k				N/A	N/A		0	N/A	
38l				N/A	N/A		0	N/A	
38m				N/A	N/A		0	N/A	
38n				N/A	N/A		0	N/A	
38o				N/A	N/A		0	N/A	
38p				N/A	N/A		0	N/A	
38q				N/A	N/A		0	N/A	
38r				N/A	N/A		0	N/A	
38s				N/A	N/A		0	N/A	
38t				N/A	N/A		0	N/A	
38u				N/A	N/A		0	N/A	
<b>Input is complete.</b>				<b>Average Risk Level in MADR</b>			<b>1.33</b>		
<b>Enter factor for training mitigation (submit supporting documentation), Enhanced Training=0.25 / Specialized Training=0.50.</b>							<b>0.50</b>		
							<b>Mitigated Risk Level</b>	<b>0.67</b>	
<b>Enter mitigated risk level in section 2-10 summary table.</b>									
<b>1 - Assume all buildings are un-occupied and include people that would normally be in these buildings in Questions 41 and 43.</b>									
<b>2 - For each item inside the Initial ADR but outside Mitigated ADR explain mitigating circumstances in the corresponding discussion field.</b>									
<b>3 - If mitigating circumstances (e.g. risk item is buried, behind barrier that round being considered cannot penetrate, etc.) exist or are planned, explain in corresponding discussion area below.</b>									

Please scroll to the next table. Do not "Tab."

38. Justify the likelihood and consequence levels for each risk item in the areas provided below. Select only one type of mitigation for each risk item and describe in detail the mitigation steps taken to alleviate or lower the risk factor. Use the "Other Discussion" field for any additional information supporting risk mitigation.

38a. Justification of Likelihood & Consequence Levels: Support Building 1 is located directly outside the PA boundary. The building contains critical items and parts necessary to the business of generating power, but nothing is stored in or around the warehouse that would cause a risk to public health and safety. If a stray round were to hit some of the material handling equipment parked outside the warehouse, the strike would cause property damage. Rental equipment could be used to replace any equipment with substantial damage.

Mitigation Taken: None.

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:

38b. Justification of Likelihood & Consequence Levels: Support Building 2 houses the administrative functions for the plant. The building has personnel necessary to the business of generating power, but there is nothing within the building that cannot be replaced or that would cause a risk to public health and safety. If a stray round were to hit the building or the adjacent parking lot, the strike would cause property damage. The building has narrow obliquely oriented windows that make it unlikely for a stray round to enter the building. Ventilation equipment located around the building may be hit by a stray round, but would result in insignificant property damage.

Mitigation Taken: None.

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:

38c. Justification of Likelihood & Consequence Levels: Support Building 3 houses the classrooms and training personnel for the plant. The building has personnel necessary to the business of generating power, but there is nothing within the building that cannot be replaced or that would cause a risk to public health and safety. If a stray round were to hit the building or the adjacent parking lot, the strike would cause property damage. The building has narrow obliquely oriented windows that make it unlikely for a stray round to enter the building. Ventilation equipment located around the building may be hit by a stray round, but would result in insignificant property damage.

Mitigation Taken: None.

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:

38d. Justification of Likelihood & Consequence Levels:

Mitigation Taken:

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:

38e. Justification of Likelihood & Consequence Levels:

Mitigation Taken:

Type of Mitigation:  Procedural  Physical  Combination

Other Discussion:
38f. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
38g. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
38h. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
38i. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
38j. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
38k. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
38l. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
38m. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
38n. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination

Other Discussion:
38o. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
38p. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
38q. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
38r. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
38s. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
38t. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:
38u. Justification of Likelihood & Consequence Levels:
Mitigation Taken:
Type of Mitigation: <input type="checkbox"/> Procedural <input type="checkbox"/> Physical <input type="checkbox"/> Combination
Other Discussion:

### **39. Key Facilities/Areas outside the Property Boundaries**

For evaluating risk items associated with key facilities outside the property boundaries, refer often to the IADR created in Section 2.6 of Volume 1, "Template Instructions." Create lists of structures, companies, shopping areas, and facilities within the ring, then discuss how a stray round may affect that item and if there are other barriers that would lessen the chance of a stray round reaching the facility. This section identifies key facilities or areas within the sectors of fire. All facilities should be identified, and risks associated with each should be categorized as pertaining to "Public Health and Safety" or "Business," with consideration of how a strike affects future plant operations. Refer to the instructions in Volume 1 for additional information.

Please scroll to the next table. Do not "Tab."

<b>39. Key Facilities/Areas Outside the Property Boundaries</b> (Double click on the table to open Excel for inputting data. Enable Macros if screen appears.)							
Item ID	Risk Item <sup>1</sup>	Inside ADR <sup>2</sup>		Likelihood of Strike	Consequence of Strike <sup>3</sup>	Risk Level	
		Initial	Mitigated				
39a	Commuter Airport	Yes	No	Unlikely	Minor	1	Very Low
39b	Small Town Reservoir	Yes	No	Possible	Minor	2	Low
39c	State-controlled Land	Yes	No	Likely	Minor	2	Low
<b>39d</b>	<b>Farm Land (inside MADR)</b>	<b>Yes</b>	<b>Yes</b>	<b>Likely</b>	<b>Minor</b>	<b>2</b>	<b>Low</b>
39e	Farm Land (outside MADR)	Yes	No	Likely	Minor	2	Low
<b>39f</b>	<b>Small Town Residences</b>	<b>Yes</b>	<b>Yes</b>	<b>Possible</b>	<b>Minor</b>	<b>2</b>	<b>Low</b>
39g				N/A	N/A	0	N/A
39h				N/A	N/A	0	N/A
39i				N/A	N/A	0	N/A
39j				N/A	N/A	0	N/A
39k				N/A	N/A	0	N/A
39l				N/A	N/A	0	N/A
39m				N/A	N/A	0	N/A
39n				N/A	N/A	0	N/A
39o				N/A	N/A	0	N/A
39p				N/A	N/A	0	N/A
39q				N/A	N/A	0	N/A
39r				N/A	N/A	0	N/A
39s				N/A	N/A	0	N/A
39t				N/A	N/A	0	N/A
39u				N/A	N/A	0	N/A
<b>Input is complete.</b>				<b>Average Risk Level in MADR</b>		<b>2.00</b>	
<b>Enter factor for training mitigation (submit supporting documentation), Enhanced Training=0.25 / Specialized Training=0.50.</b>						<b>0.50</b>	
						<b>Mitigated Risk Level</b>	<b>1.00</b>
<b>Enter mitigated risk level in section 2-10 summary table.</b>							
<b>1 - Assume all buildings are un-occupied and include people that would normally be in these buildings in Questions 41 and 43.</b>							
<b>2 - For each item inside the Initial ADR but outside Mitigated ADR explain mitigating circumstances in the corresponding discussion field.</b>							

39. Justify the likelihood and consequence levels for each risk item in the areas provided below. Select only one type of mitigation for each risk item, and describe in detail the mitigation steps taken to alleviate or lower the risk factor. Use the "Other Discussion" field for any additional information supporting risk mitigation.

39a. Justification of Likelihood & Consequence Levels: [The Commuter Airport is within the IADR but not within the MADR limits. An errant round striking aircraft parked on the apron is unlikely and would result in property damage. Aircraft stored at the airport are kept within hardened hangars. The control tower at the airport has been upgraded with ballistic resistant glazing panels rated to a UL Level IV.](#)

Mitigation Taken: [Horizontal and vertical physical stops limit fields of fire from BRE3.](#)



Type of Mitigation:	<input type="checkbox"/> Procedural	<input checked="" type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39b. Justification of Likelihood & Consequence Levels: <a href="#">The Small Town Reservoir is within the IADR but not within the MADR. An errant round striking watercraft, or land vehicles parked at the reservoir, is unlikely and would result in minor property damage.</a>			
Mitigation Taken: <a href="#">Horizontal and vertical physical stops limit fields of fire from BRE3.</a>			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input checked="" type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39c. Justification of Likelihood & Consequence Levels: <a href="#">State-controlled lands south of Small Town Reservoir are within the IADR but not within the MADR. The land has paths for hiking and biking but not for hunting or motorized vehicles. An errant round striking land vehicles parked at the site is unlikely and would result in minor property damage.</a>			
Mitigation Taken: <a href="#">Horizontal and vertical physical stops limit fields of fire from BRE3.</a>			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input checked="" type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39d. Justification of Likelihood & Consequence Levels: <a href="#">Farmland within 1,700 m of the site is within the IADR and the MADR. An errant round striking livestock or equipment is likely and would result in minor property damage.</a>			
Mitigation Taken: <a href="#">None.</a>			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion: <a href="#">Mitigation of this risk is not practical; the level of risk is found to be acceptable.</a>			
39e. Justification of Likelihood & Consequence Levels: <a href="#">Farmland outside of 1,700 m of the site is within the IADR but not within the MADR. An errant round striking livestock or equipment is likely and would result in minor property damage.</a>			
Mitigation Taken: <a href="#">Horizontal and vertical physical stops limit fields of fire from BRE3.</a>			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input checked="" type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39f. Justification of Likelihood & Consequence Levels: <a href="#">Small Town residences are within the IADR but not within the MADR. An errant round striking residences, vehicles, or exterior features is possible and would result in minor property damage.</a>			
Mitigation Taken: <a href="#">Horizontal and vertical physical stops limit fields of fire from BRE3.</a>			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input checked="" type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39g. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39h. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			

Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39i. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39j. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39k. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39l. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39m. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39n. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39o. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39p. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39q. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			

Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39r. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39s. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39t. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
39u. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			

**40. Critical Asset Items outside the Property Boundaries (Refer to ADR Assessment)**

For evaluating risk items associated with critical asset items outside the property boundaries, refer often to the IADR created in Section 2.6 of Volume 1. Create lists of any other risk items that have not been covered in the analysis from previous sections. List these items within the ring, then discuss how a stray round may affect each item and if there are other barriers that would lessen the chance of a stray round reaching the item. This section identifies critical assets within the sectors of fire. Identify all critical assets, and categorize risks associated with each as pertaining to “Public Health and Safety” or “Business,” with consideration of how a strike affects future plant operations. Refer to the instructions in Volume 1 for additional information.

Please scroll to the next table. Do not “Tab.”

<b>40. Critical Asset Items Outside the Property Boundaries</b>							
<i>(Double click on the table to open Excel for inputting data. Enable Macros if screen appears.)</i>							
Item ID	Risk Item	Inside ADR <sup>1</sup>		Likelihood of Strike	Consequence of Strike <sup>2</sup>	Risk Level	
		Initial	Mitigated				
40a	Electrical Substation	Yes	No	Unlikely	Minor	1	Very Low
<b>40b</b>	<b>Water Pump Station</b>	<b>Yes</b>	<b>Yes</b>	<b>Possible</b>	<b>Moderate</b>	<b>2</b>	<b>Low</b>
40c				N/A	N/A	0	N/A
40d				N/A	N/A	0	N/A
40e				N/A	N/A	0	N/A
40f				N/A	N/A	0	N/A
40g				N/A	N/A	0	N/A
40h				N/A	N/A	0	N/A
40i				N/A	N/A	0	N/A
40j				N/A	N/A	0	N/A
40k				N/A	N/A	0	N/A
40l				N/A	N/A	0	N/A
40m				N/A	N/A	0	N/A
40n				N/A	N/A	0	N/A
40o				N/A	N/A	0	N/A
40p				N/A	N/A	0	N/A
40q				N/A	N/A	0	N/A
40r				N/A	N/A	0	N/A
40s				N/A	N/A	0	N/A
40t				N/A	N/A	0	N/A
40u				N/A	N/A	0	N/A
<b>Input is complete.</b>				<b>Average Risk Level in MADR</b>		<b>2.00</b>	
<b>Enter factor for training mitigation (submit supporting documentation), Enhanced Training=0.25 / Specialized Training=0.50.</b>						<b>0.50</b>	
<b>Mitigated Risk Level</b>						<b>1.00</b>	
Enter mitigated risk level in section 2-10 summary table.							
1 - For each item inside the Initial ADR but outside Mitigated ADR explain mitigating circumstances in the corresponding discussion field.							

40. Justify the likelihood and consequence levels for each risk item in the areas provided below. Select only one type of mitigation for each risk item and describe in detail the mitigation steps taken to alleviate or lower the risk factor. Use the "Other Discussion" field for any additional information supporting risk mitigation.			
40a. Justification of Likelihood & Consequence Levels: <a href="#">The electrical substation for Small Town is within the IADR but not within the MADR limits. An errant round striking a transformer within the substation is unlikely and would result in property damage but not affect the business of producing power or endanger the safety and health of the public.</a>			
Mitigation Taken: <a href="#">Horizontal and vertical physical stops limit fields of fire from BRE3.</a>			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input checked="" type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40b. Justification of Likelihood & Consequence Levels: <a href="#">The pumping station provides potable water and fire water to Small Town. An errant round could strike critical equipment requiring several days to repair or replace. The town has water storage for only 48 hours of normal use.</a>			
Mitigation Taken: <a href="#">Site Q will construct a concrete wall at the pump station to prevent errant rounds from striking critical equipment.</a>			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input checked="" type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40c. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40d. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40e. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40f. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40g. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			

40h. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40i. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40j. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40k. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40l. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40m. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40n. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40o. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40p. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			

40q. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40r. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40s. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40t. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			
40u. Justification of Likelihood & Consequence Levels:			
Mitigation Taken:			
Type of Mitigation:	<input type="checkbox"/> Procedural	<input type="checkbox"/> Physical	<input type="checkbox"/> Combination
Other Discussion:			

## 8.9 Mitigated Area Danger Ring



### 8-9 MADR

Refer to Volume 1 for instructions on creating a map of the MADR. After the MADR map has been created, review the risk items in Items 36 – 40, and change the value in the “MADR” column to “No” for each risk no longer in the MADR footprint.

Depending on weapons desired, deployment, limitations on round travel, and site geometry, the MADR may be composed of multiple individual rings rather than a single continuous ring. Refer to Appendix A for further examples of constructing the MADR.

An applicant should document any mitigation measures identified in the application in the licensee’s physical security plan. The NRC may inspect an applicant’s mitigation measures before approving the application or during post-approval implementation.

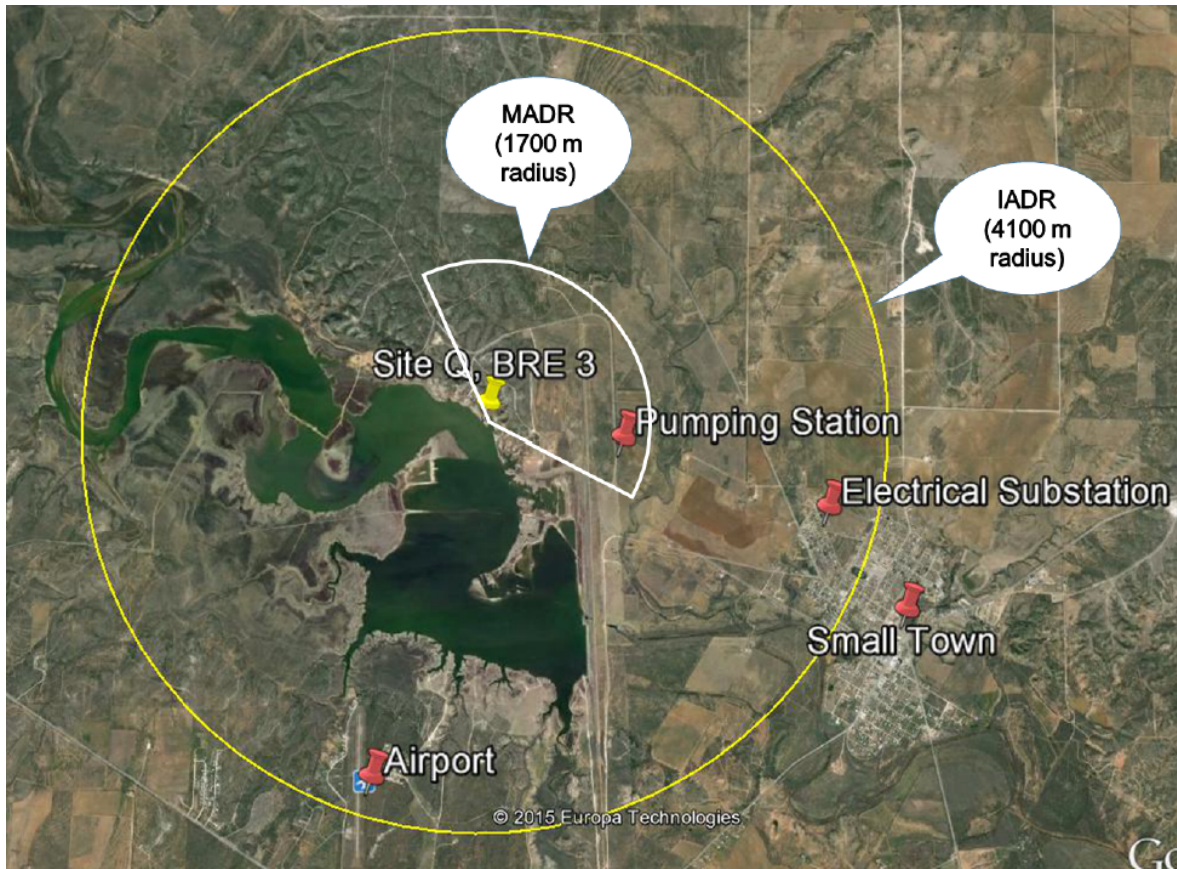
**NOTE:** Items 41 – 43 should be answered for the MADR footprint or for the IADR footprint if there are no mitigating factors to reduce the ADR.

41. What is the estimated population density within the MADR (people/square mile)?  
>2 but ≤10

42. Is the population evenly distributed within the MADR? NO

43. If NO, describe population distribution. (For example, since the facility has a lake on the eastern side, most of the population is on the northern, southern, and western sides of the facility.) The facility has a lake on the south and west sides. Most of the population is on farms to the northeast of the site.





MADR for a hypothetical facility (normally an attachment to the WSA)

## 8.10 Training and Weapon Maintenance



### 8-10 TRAINING AND WEAPON MAINTENANCE

44. An applicant has a firing range on the facility property.

**YES - There is a firing range on the property.**

45. If yes, will training for this weapon be on the facility's range?


**YES - Training will be at the facility's range.**

45a. Has the local Federal Aviation Administration (FAA) office been contacted to determine if special use airspace (SUA) needs to be established in the vicinity of the training range when enhanced weapons are in use? **YES**

45b. Summarize the results of discussions with the FAA and include information for point of contact (i. e. , name and telephone numbers). **The local FAA was contacted. Ms. Jackie Johnson was contacted at (000) 555-9876. The FAA has current restrictions on airspace adjacent to power plants and pilots are instructed via Notices to Airmen (NOTAM) to avoid the airspace within 3 miles of Site Q. Approaching and departing aircraft use runways that run northwest/southeast. With existing restrictions in place, no further action on the part of the facility is necessary to provide restrictions or provisions for special use airspace when the training range is being used by security personnel or local law enforcement.**

46. Who uses the onsite firing range? [Security personnel and local law enforcement by appointment.](#)
47. If the existing range will not support training for this weapon, where will training take place?
48. What reference materials were used for modifying the existing training and weapon maintenance plans (e.g., Military Standards, National Rifle Association documents, etc.)? [The existing range was originally designed using Corps of Engineers Range Design guidance. The range has baffling and training props that mimic existing BRE configurations and fighting positions. The training props have bullet resistant barricades to limit the fields of fire to ensure bullets fired at the props impact the berms. The protective berms and associated impact areas for the range are designed to direct weapons fire away from the southwest and the direction of the airport runways. The Army technical manual for the M240B and specialized training course are being used for the weapons maintenance plans, training plans, and qualifications.](#)
49. RESERVED.

### 8.11 Risk Acceptability


<b>8-11 RISK ACCEPTABILITY</b>
50. An applicant has reviewed the risks associated with using this weapon and the selected ammunition(s). <b>An applicant finds the risks to be <a href="#">acceptable</a> for this facility.</b>

If an applicant finds the risks associated with using this weapon system at the facility unacceptable, the NRC may not authorize the requested weapon system. Volume 1 provides additional guidance.

### 8.12 Summary of Risk Identification, Evaluation, and Mitigation

<b>8-12 SUMMARY OF RISK IDENTIFICATION, EVALUATION, AND MITIGATION</b>	
In this section, enter the mitigated risk levels calculated in Items 36 through 40.	
Item	Mitigated Risk Level
51. Chemical and Petroleum/Fuel Risks in the ADR (from Item 36)	<a href="#">1.63</a>
52. Key Facilities/Areas inside the PA (from Item 37)	<a href="#">0.58</a>
53. Key Facilities/Areas outside the PA but on the Facility's Property (from Item 38)	<a href="#">0.67</a>
54. Key Facilities/Areas outside the Property Boundaries (from Item 39)	<a href="#">1</a>
54. Critical Asset Items outside the Property Boundaries (from Item 40)	<a href="#">1</a>

## 9 REFERENCES AND BIBLIOGRAPHY

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2. *U.S. Code of Federal Regulations* (CFR), "Physical Protection of Plants and Materials," Part 73, Chapter I, Title 10, "Energy."
3. U.S.C., *The Gun Control Act of 1968*, Chapter 44, Part I, Title 18, "Crimes and Criminal Procedures."
4. CFR, "Commerce in Firearms and Ammunition, Part 478, Chapter II, Title 27, "Alcohol, Tobacco Products and Firearms."
5. U.S.C., "Machine Guns, Destructive Devices, and Certain Other Firearms," Chapter 53, Subtitle E, Title 26, "Internal Revenue Code."
6. CFR, "Machine Guns, Destructive Devices, and Certain Other Firearms," Part 479, Subchapter B, Chapter II, Title 27, "Alcohol, Tobacco Products and Firearms."

The following cited references are available electronically through the Electronic Reading room on the NRC's public Web site: <https://www.nrc.gov/reading-rm/doc-collections/index.html>.

Copies are also available for inspection or copying for a fee from the NRC's Public Document Room (PDR) at 11555 Rockville Pike, Rockville, MD; the mailing address is USNRC PDR, Washington, DC 20555; telephone (301) 415-4737 or (800) 397-4209; fax (301) 415-3548; and e-mail: [PDR.Resource@nrc.gov](mailto:PDR.Resource@nrc.gov).

7. NRC, Regulatory Guide 5. 86, "Preemption Authority, Enhanced Weapons Authority, and Firearms Background Checks" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17131A296).

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12. Ammo Trajectories, Range and Training Lands Program (RTLTP), U. S. Army Corps of Engineers, Huntsville, AL Division, Mandatory Center of Expertise (MCX) {Ammo Trajectories. pdf}
13. Colt Law Enforcement, 9mm Submachine Gun {SMG\_Specs. pdf}
14. TM 9-1005-201-10, Department of the Army, Technical Manual, Operator's Manual, Machine Gun, 5. 56mm, M249 W/Equip, July 25, 1991 {9-1005-201-10(M249). pdf}
15. TM 9-1005-201-23&P, Department of the Army, Technical Manual, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Machine Gun, 5. 56mm, M249 w/Equip, June 28, 2002 {9-1005-201-23&P(M249). pdf}
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17. Slides of the M249 SAW in a PowerPoint Presentation {Slides M249 SAW. pdf}
18. Colt Defense, M16 Rifle {M16\_Specs. pdf}
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20. TM 9-1005-313-10, Department of the Army, Technical Manual, Operator's Manual for Machine Gun, 7. 62mm, M240, M240B, M240C, M240D, M240E1, M240G, M240H, M240N; July 19, 1996 {9-1005-313-10(240). pdf}
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26. MIL-DTL-46100, Detail Specification Armor Plate, Steel, Wrought, High-Hardness, {MIL-DTL-46100E\_(MR)-AMENDMENT-1. pdf}
27. Engineering Technical Letter (ETL) 08-11: Small Arms Range Design and Construction, Department of the Air Force, October 20, 2008 {mil-dtl-12560j. pdf}

## **9.2 Bibliography**

The following Web sites may provide information useful to an applicant in completing a WSA using the Volume 2 template. These websites are current as of June 2022.

1. GlobalSecurity, <https://www.globalsecurity.org/military/systems/ground/index.html> (source for information on military weapons)
2. Modern Firearms and Ammunition, <https://modernfirearms.net/en/> (source for information on weapons)
3. Frangible Bullets, <https://www.frangiblebullets.com/> (distribution company)
4. Federal Law Enforcement Training Centers, <https://www.fletc.gov/training-catalog> (law enforcement training organization)
5. U. S. Army Corps of Engineers, U. S. Army Engineering and Support Center, Huntsville, Alabama, <https://www.hnc.usace.army.mil/Missions/Installation-Support-and-Programs-Management/Range-and-Training-Land-Program/Range-Design-Guide/> (firing range design guidance)



# APPENDIX A AREA DANGER RINGS

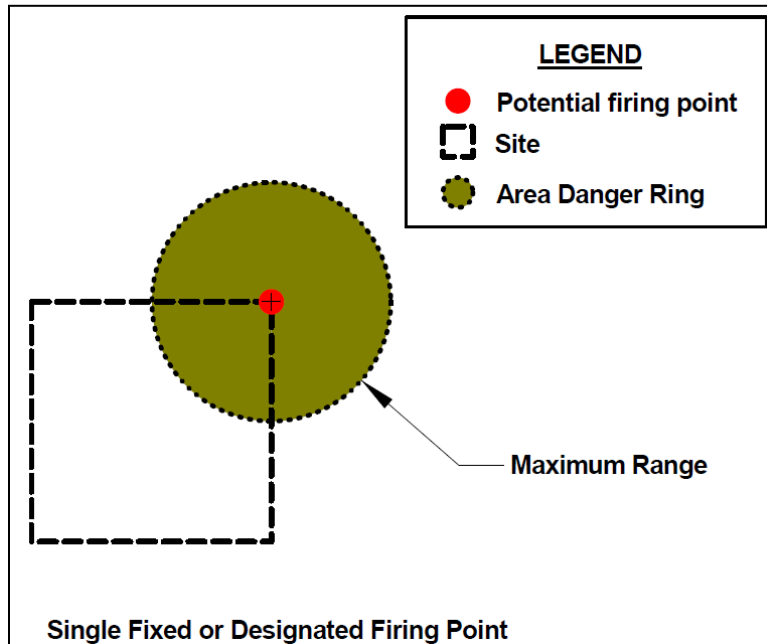
## A.1 Introduction

This appendix discusses construction of both initial area danger rings (IADRs) and mitigated area danger rings (MADRs) and provides simple examples for an applicant using the Volume 2 template.

The IADR is considered an encompassed area that represents the worst-case scenario of a round's potential range. That is, the maximum range of a round without considering any physical limitations on its flight. The MADR begins with the size of the IADR but then considers physical features, if any, that limit the flight of a round and thus reduces the IADR to a smaller MADR. These physical features may be natural features (e.g., cliffs, hills, berms, or trees) or manmade features (e.g., buildings, devices attached to weapons to limit their traverse or elevation, firing ports).

## A.2 Firing from Fixed or Designated Position(s)

The simplest IADR is for a single weapon fired from a fixed or designated position. This IADR, illustrated in Figure A-1, is a circle with a radius equal to the maximum range of the desired ammunition. If an applicant desires multiple types of ammunition, the ammunition with the largest range should be used in developing the area danger ring (ADR).



**Figure A-1 IADR for Single Fixed Firing Position**

For multiple fixed or designated firing points, construct the ADR for each firing point. Depending on the maximum range of the ammunition and the distance between firing points, the ADR may be multiple separate rings (see Figure A-2) or a single continuous ADR formed by overlapping rings (see Figure A-3).

For overlapping rings, it is acceptable to simplify the ADR by connecting the individual rings with tangent lines, as shown in Figure A-4.

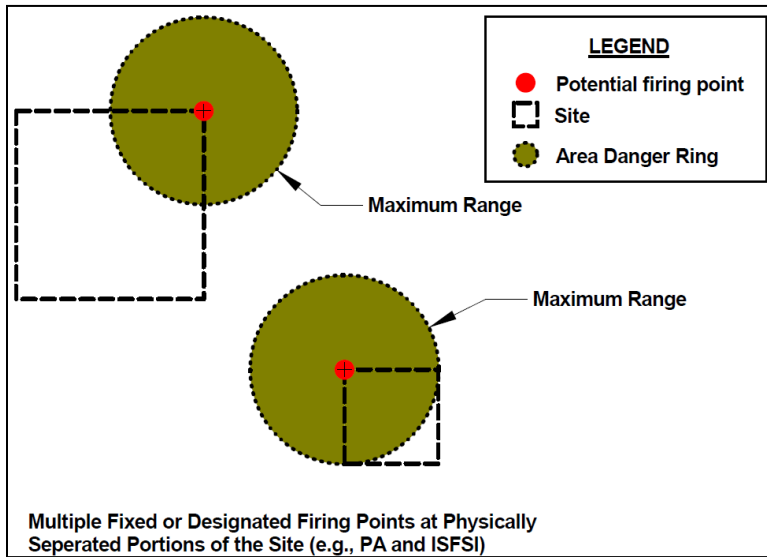


Figure A-2 IADR for Multiple Fixed Firing Positions Resulting in Separate ADRs

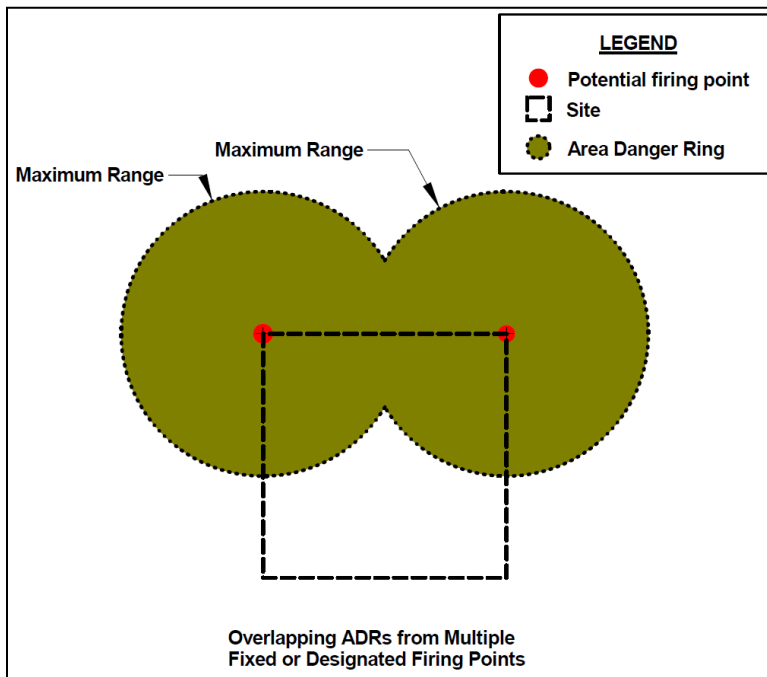
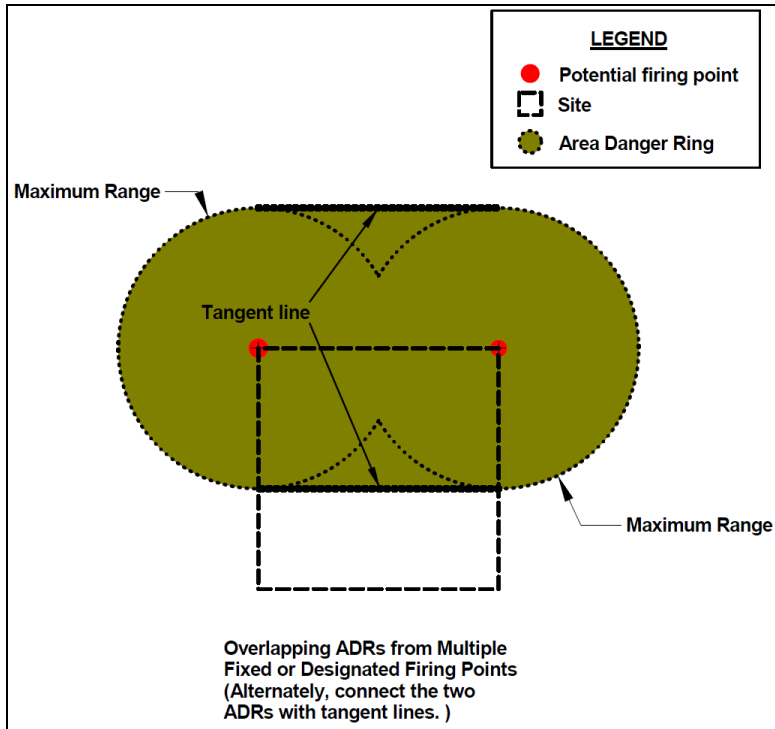


Figure A-3 Overlapping IADR for Multiple Fixed Firing Positions

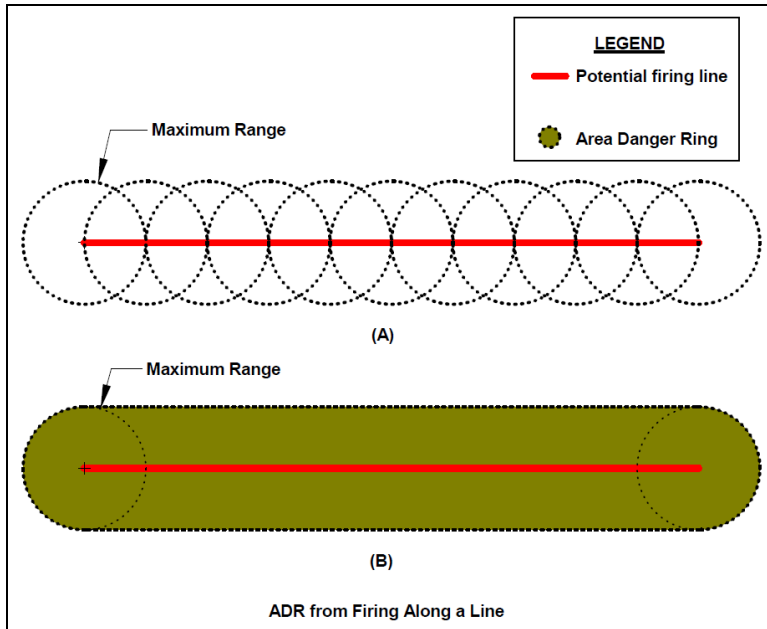




**Figure A-4 Simplified Overlapping IADR for Multiple Fixed Firing Positions**

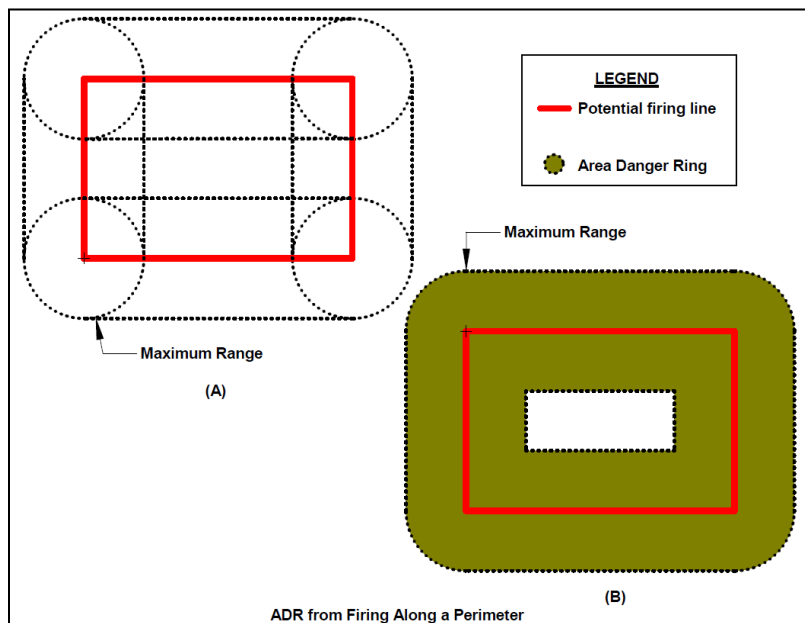
**A.3 Firing from Variable Positions**

The ADR for a weapon fired at any position along a line (e.g., along a single side of a roof) is composed of multiple individual ADRs as shown in Figure A-5(A). To construct the ADR, draw circles with a radius equal to the maximum range at each end of the line, and connect the two circles with tangent lines as shown in Figure A-5(B).



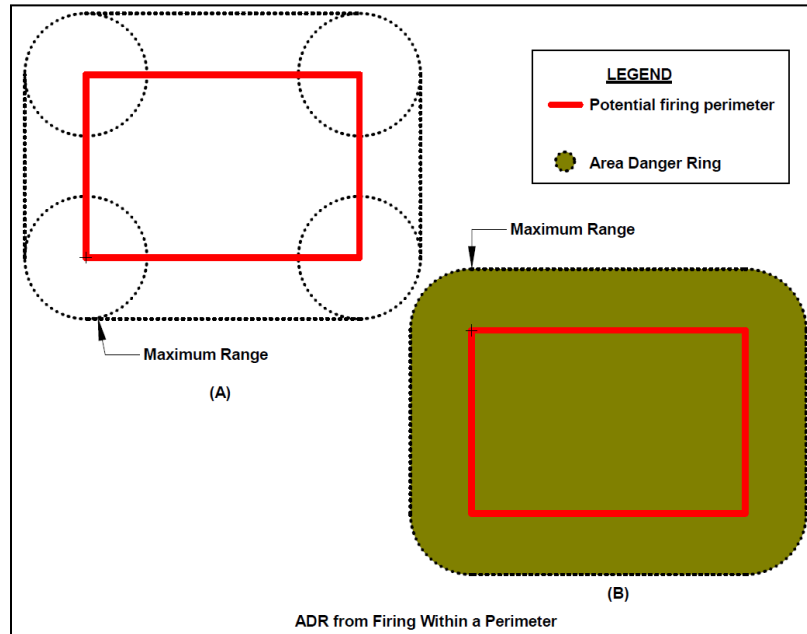
**Figure A-5 ADR for Firing along a Line**

Use a similar process to construct ADRs for weapons from any point along a perimeter. To construct the ADR, draw circles with a radius equal to the maximum range at each corner of the perimeter, and connect the circles with tangent lines on both the inside and outside, as shown in Figure A-6.

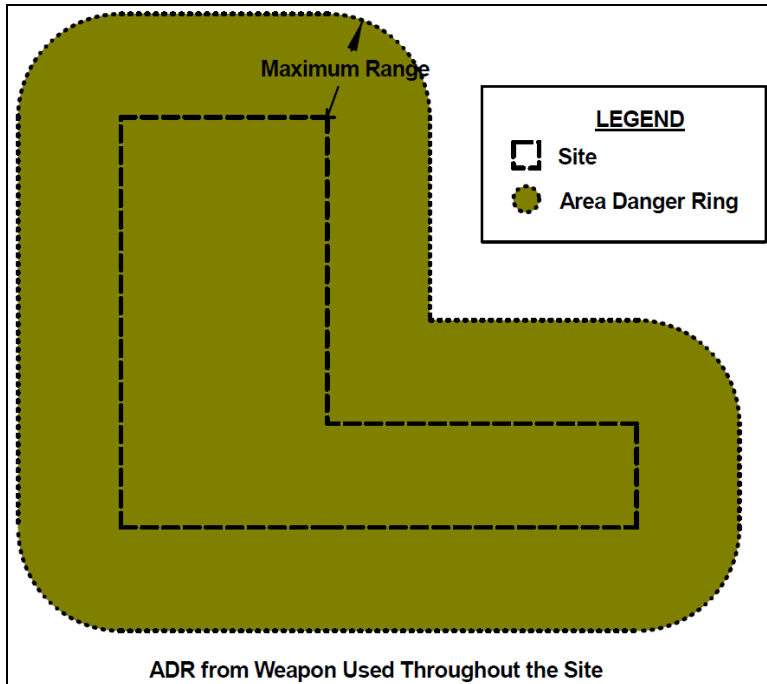


**Figure A-6 ADR for Firing along a Perimeter**

Use a similar process to construct ADRs for weapons fired from any point within a perimeter. To construct the ADR, draw circles with a radius equal to the maximum range at each corner of the perimeter, and connect the circles with tangent lines on the outside as shown in Figure A-7. Figure A-8 provides an additional example for weapons fired from any point within a perimeter.



**Figure A-7 ADR for Firing within a Perimeter**



**Figure A-8 ADR for Weapon(s) Used throughout the Site**

#### **A.4 Mitigated Area Danger Rings**

Construction of the IADR does not consider any physical limits on the potential trajectory of a round. The weapon's ability to elevate or sweep (i. e. , traverse) may be limited by mechanisms attached to the weapon or the weapon being fired through a portal. Buildings, landforms, and dense trees may block a round's trajectory. These items may be considered in the construction of an MADR. When constructing an MADR, start with the IADR and then reduce the range, sweep, or both, based on physical limits in place (see Figure A-9).

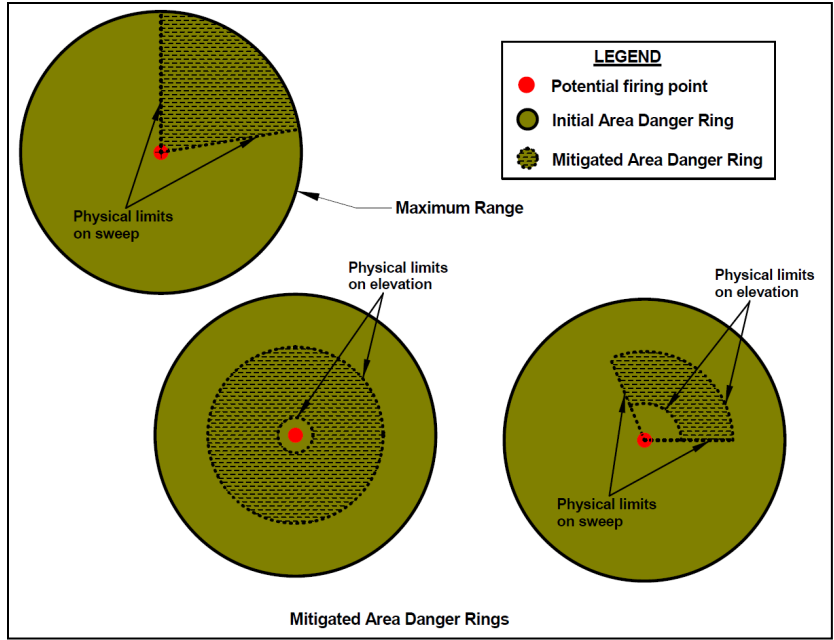


Figure A-9 Mitigated Area Danger Rings



**BIBLIOGRAPHIC DATA SHEET**

*(See instructions on the reverse)*

**NUREG-2264  
Volume 4**

2. TITLE AND SUBTITLE

**Weapons Safety Assessment**

Sample Template  
Chapters 7 to 9 and Appendix A

3. DATE REPORT PUBLISHED

MONTH	YEAR
<b>March</b>	<b>2023</b>

4. FIN OR GRANT NUMBER

5. AUTHOR(S)

P. Brochman, H. Stone, D. Davis

6. TYPE OF REPORT

Technical

7. PERIOD COVERED (Inclusive Dates)

8. PERFORMING ORGANIZATION - NAME AND ADDRESS (If NRC, provide Division, Office or Region, U. S. Nuclear Regulatory Commission, and mailing address; if contractor, provide name and mailing address.)

Division of Physical and Cyber Security Policy  
Office of Nuclear Security and Incident Response  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

9. SPONSORING ORGANIZATION - NAME AND ADDRESS (If NRC, type "Same as above", if contractor, provide NRC Division, Office or Region, U. S. Nuclear Regulatory Commission, and mailing address.)

Same as above

10. SUPPLEMENTARY NOTES

11. ABSTRACT (200 words or less)

The regulations of the U.S. Nuclear Regulatory Commission (NRC) require an applicant for combined preemption authority and enhanced weapons authority to submit a Weapons Safety Assessment (WSA) as part of its application. This document sets forth a process that the NRC staff finds acceptable for use by an applicant in developing a WSA. The information in this document can be used by an applicant to evaluate the potential onsite and offsite safety hazards, safety impacts, or safety risks and any onsite security risks that could arise from the deployment and potential use of enhanced weapons (e.g., machine guns) as part of a licensee's protective strategy for defending against malevolent acts. Based on its assessment of these hazards, impacts, or risks, an applicant should identify preventive or mitigative measures that it intends to implement upon the deployment of enhanced weapons.

12. KEY WORDS/DESCRIPTORS (List words or phrases that will assist researchers in locating the report.)

Weapons Safety Assessment  
Enhanced weapons  
Area Danger Ring  
Machine guns

13. AVAILABILITY STATEMENT

unlimited

14. SECURITY CLASSIFICATION

*(This Page)*

unclassified

*(This Report)*

unclassified

15. NUMBER OF PAGES

16. PRICE



Federal Recycling Program





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**NUREG-2264  
Volume 4**

**Weapons Safety Assessment - Sample Template  
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**March 2023**