



NATIONAL TRAINING CENTER

Protective Force Training Department

Standard Operating Procedure

Title:	Live Fire Range Operations
Number:	PFT-SOP-644
Revision:	13

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REVISION HISTORY

Rev.	Date	Description of Revision
13	See Final Signature	<ul style="list-style-type: none"> • Global: <ul style="list-style-type: none"> - Changed "NTC Training Director" to "Facilities Operations Director" as senior manager responsible for oversight of LFR operations. - Changed "PFTD Manager" to "Assistant Rangemaster" where appropriate. - Changed "PFTD Training Coordinator" to "LFR Operations Administrative Assistant". • Item 7.4.1: Added "IPT paramedics" to list of individuals under PFTD Manager. • Section 7.10 LFR Safety Specialist: Added "7.10.4 Responsible for completing RACR forms for NTC classes and LFR non-NTC users, and submitting the completed forms to the Rangemaster." • Section 9.12, Risk Analysis Compliance Reviews <ul style="list-style-type: none"> - 9.12.2: Changed RACRs may be completed by the following personnel: 1. LFR Safety Specialist, 2. Rangemaster, 3. PFTD Manager, and 4. Authorized designee" to "The LFR Safety Specialist is responsible for completing RACR forms. In his absence, the following alternate personnel may be assigned: 1. Rangemaster, 2. Assistant Rangemaster, 3. PFTD Manager, and 4. Authorized designee". - 9.12.3: Deleted "The designation of who will fill out the RACR form(s) for any specific event will be determined by the Rangemaster, PFTD Manager, or LFR Safety Specialist." • Appendix F: Replaced with updated RACR form. • Item H.4.17.2: Added "or LFR Technology Coordinator".
12.2	02/25/20	Global: Changed "outside users" to "non-NTC users" for consistency with ESH-DP-515, <i>Preparation of Toxic Release Inventory (TRI) Report</i> .
12.1	06/26/19	Section 9.10.2: Added "NOTE: See NTC-PM-200, Site Security Plan, which addresses the use of seals and seal serial numbers." (Corrective action in response to EXT-19-AUD-SEC-001 DOE-HQ S&S Special Survey, 02/12/19.)
12	05/07/19	<ul style="list-style-type: none"> • Global: <ul style="list-style-type: none"> - Changed "Vehicle Assault Range" to "Vehicle Assault Pit". - Reassigned Oversight Programs Director responsibilities to ES&H. - Changed "PFTD Operations Officer" to "PFTD Manager". • Section 1.0: <ul style="list-style-type: none"> - Deleted (redundant) "LFR users must obtain approval from the NTC Rangemaster and NTC Protective Force Training Department (PFTD) Operations Officer for activities to be conducted outside the parameters of this SOP." - Changed "Decisions should be based on consultation with the Rangemaster, PFTD Operations Officer, and the Oversight Programs Director through the General Manager." to "Decisions should be based on consultation with the NTC Rangemaster PFTD Manager, and ES&H staff." • Section 4.0, References: <ul style="list-style-type: none"> - Added American National Standards Institute (ANSI) / International Safety Equipment Association (ISEA) Z87.1-2015, <i>American National Standard for Occupational and Educational Eye and Face Protection Devices</i> - Added FAC-GP-415, <i>NEPA Compliance Program</i> • Definition 5.9, Live Fire Range Staff: Deleted. • Definition 5.13, Non-significant Event: Replaced "documentation consists of" with "Reporting consists of". • Section 7.2, Training Director (new): Added and renumbered subsequent subsections.

Rev.	Date	Description of Revision
		<ul style="list-style-type: none"> • Section 7.4, PFTD Manager: <ul style="list-style-type: none"> - Intro para: Changed “safe operation of the LFR and PFTD training operations” to “safe operation of PFTD training operations on the LFR and approved areas”. - Item 7.4.2: Changed “Responsible for implementation of NTC policies and procedures.” to “Responsible for PFTD staff implementation of NTC policies and procedures.” - Added 7.4.6 Notifies the NTC General Manager and Training Director of any occupational injuries/illnesses as soon as it is practical. - Added 7.4.7 Provides copies of relevant reports to the NTC General Manager and NTC Director. - Added 7.4.8 Ensures the Human Resources Coordinator or the appropriate supervisor is notified regarding injuries or illnesses that were incurred as a result of a work-related incident. • Item 7.6.14 Note: Replaced “The Rangemaster or PFTD Manager or LFR Safety Specialist must be notified.” with “The absence of a paramedic may be granted on a temporary basis with prior approval from the NTC Rangemaster or PFTD Manager, and with notification to the LFR Safety Specialist.” • Item 7.7.14: Added “or cleaning rooms”. • Section 7.8, LFR Maintenance Staff: Added “7.8.11 Complete routine maintenance activities as directed (see FAC-GP-415, <i>NEPA Compliance Program</i>).” • Section 7.9: Reassigned from Oversight Programs Director to ES&H Specialist, and revised assigned duties. • 7.10.3, LFR Safety Specialist: Changed “forward the form to the paramedic” to “notifies paramedic of medications being taken by students”. • Sections 8.2.4, 8.2.6, 8.2.7, 8.2.8, 8.2.9, 8.2.10.1, 8.2.10.3, and 8.2.10.4: Changed “Approved NFDDs with Rangemaster or PFTD Manager approval” to “NFDDs with Rangemaster or PFTD Manager approval” • Section 8.2.10.1, 3rd para: Changed “must be approved by Rangemaster or designee” to “must be approved by Rangemaster or PFTD Manager”. • Section 8.2.10.3, 3rd para: Added “The LFSH has 8-foot-high walls that provide ballistic protection. Only approved frangible ammunition is permitted in the LFSH.” • Section 8.2.10.4, 3rd para: Changed “The LFSH has 12-foot-high walls that provide 360° ballistic protection and containment of rounds fired.” to “The LFSH has 12-foot-high walls that provide 360° ballistic protection.” • Item 9.2.1: Deleted “or Verizon cell phones”. • Item 9.2.2: Changed “Training Coordinator” to “Training Coordinator or designee”. • Item 9.2.3: Changed “The LFR key opens the lock box.” to “The LFR after-hours key opens the lock box.” • Item 9.6.6.1.E: Changed “7 yards for handguns and rifles firing frangible ammunition” to “7 yards for handguns and rifles firing approved frangible ammunition”. • Section 9.10 Note: Added “Digging into berms for the purpose of filling sandbags is strictly prohibited.” • Section 9.11: Added “IMPORTANT: Contact the NTC Facilities Operations Director to discuss whether proposed LFR construction activities require completion of documentation in compliance with National Environmental Policy Act (NEPA) requirements (see FAC-GP-415, <i>NEPA Compliance Program</i>).” • Section 9.12: <ul style="list-style-type: none"> - 9.12.3: Changed “submitted to the Rangemaster” to “submitted to the Rangemaster for review and approval”. - Deleted “9.12.4 Once completed, the RACR will be forwarded to the Rangemaster for review and approval. All completed forms will be maintained per current DOE and NTC records management requirements.” - 9.12.5: Changed “Responsible for the following tasks” to “Maintain the master file for all completed RACRs.”

Rev.	Date	Description of Revision
		<ul style="list-style-type: none"> - Deleted "9.12.5.1 Maintain the master file for all completed RACRs." - Deleted "9.12.5.2 Provide a copy of all RACRs, sign-in logs, and a copy of the LFR scheduling report to the General Manager for review." • Section 10.1: Added "19. Fire Conditions / Danger". • Section 10.2.1: Deleted "If conflicts cannot be resolved, the following priority list will be used: 1. NTC-scheduled courses; 2. Office of Secure Transportation agent activities; 3. Sandia National Laboratories' protective force activities; 4. NTC Strategic Partnership Program Participants; 5. Other DOE users, 6. Federal law enforcement, military, and state and local law enforcement. • Section 10.4.2: Changed "Approved users will be issued appropriate keys for LFR use during non-duty hours." to "Approved users will be issued appropriate keys for LFR use during non-duty hours by the Rangemaster or PFTD Training Coordinator." • Section 10.6.2: Deleted "NOTE: The wording above condenses and clarifies the original language in DOE O 473.3A." • Item 10.8.8.2 and Appendix D: Corrected name of form from "NTC Temporary Ammunition Storage Log" to "NTC Ammunition Issue Log" and replaced form. • Item 10.10.1.3: Added "Before conducting training within a classroom or training area using inert training rounds, two instructors will verify condition of the weapons and verify inert training rounds to be used." • Section G.1: Deleted "An investigative team will be comprised of, at a minimum, one member of the NTC Environment, Safety, and Health (ES&H) staff, the PFTD staff, and the Armory, as applicable." • Section G.2, Reporting the Event: Updated text and replaced figure with new notification chart (for consistency with ESH-GP-516, <i>Accident Reporting and Investigation</i>). • Item G.3.1: Added "and ES&H Staff". • Figure H-1 Bullet Trap Design: Combined A.1 and A.2 in legend. • Item H.2.2: Reassigned review/approval authority of LFSH certifications from Rangemaster and PFTD Manager to PFTD Manager only, and deleted "(for non-DOE instructors)". • Section H.3.1, Rangemaster responsibilities: <ul style="list-style-type: none"> - H.3.1.2: Change "LFSH safety rules" to "LFR safety rules". - H.3.1.3, Reports significant events to the General Manager (see Appendix G, Section G.2): Added. • Section H.3.2, PFTD Manager responsibilities: <ul style="list-style-type: none"> - H.3.2.1: Added "for all users". - H.3.2.2: Changed "Designates qualified instructors" to "Ensures instructors are qualified". - H.3.2.3: Changed "non-DOE instructors" to "all instructors". - H.3.2.4 Reports significant events to the General Manager (see Appendix G, Section G.2): Added. • Section H.3.3: <ul style="list-style-type: none"> - 1st paragraph: <ul style="list-style-type: none"> ▪ Changed "Lead Instructor/Range Safety Officer" to "Lead Instructor". ▪ Changed "serves" to "may serve" as Range Safety Officer. ▪ Added "(or this function may be designated to a qualified instructor with delineated LFSH safety responsibilities)". - Deleted "H.3.3.3 Ensures all participants in LFSHs and on the elevated observation control platform during a live-fire exercise (other than observers) are wearing eye and hearing protection and non-slip above-the-ankle footwear." - H.3.3.5: Deleted "designed and" from "Ensures all training operations are conducted in accordance with approved lesson plans, risk analyses, and SOPs." - H.3.3.6: Changed "LFSH assistant instructors" to "LFSH instructors". - Deleted "H.3.3.8 Gives commands of execution and observes actions in the LFSH." - (New) H.3.3.8: Changed "unusual occurrences" to "significant events".

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		<ul style="list-style-type: none"> • Section H.3.4, Range Safety Officer responsibilities: Added. • (New) Item H.3.5.4, Gives commands of execution and observes actions in the LFSH: Added. • Item H.4.1.2: Added “PFTD Training Coordinator” and “and the LFSH User Agreement (LFSHUA)”. • Item H.4.9.3.B: Deleted “2. Only TESAR 1s are authorized. TESAR 2s or higher are not allowed in either LFSH 114 or 115”. • Section H.4.11, NFDDs <ul style="list-style-type: none"> - Item H.4.11.1: Changed “Participants must wear PPE during NFDDs device deployment. PPE will include serviceable, fire-resistant (Nomex) gloves, long-sleeve shirts, eye protection that meets the requirements of ANSI/ISEA Z87.1-2015 with side protection, and hearing protection with a minimum Noise Reduction Rating (NRR) of 26.” to “Shooters must wear fire-resistant gloves during NFDD deployment.” - Added “H.4.11.2 Full-charge NFDDs must not be deployed in occupied rooms except under controlled training conditions with an approved safety analysis.” - Added “H.4.11.3 Sub-charge NFDDs may be deployed in occupied areas or rooms with approval of the ES&H Department.” - Added “H.4.11.4 Instructions on the approved procedures for the safe handling of dud NFDDs must be provided to all participants and will be followed at all times.”
11.1	07/27/18	<ul style="list-style-type: none"> • Section 10.1: Added new “13. Range Safety Rules – General and Specific (see Appendix J)”. • Appendix J, Range Safety Rules: Added new appendix.
11	03/26/18	<ul style="list-style-type: none"> • Section 8.2.5: Added “Emergency phones are located on the MP Range and Pistol Range 1.” • Section 8.2.10: Added “The nearest emergency phone is located on the outside of Building 114 on the southwest side.” • Section 9.1.3: Added “Before starting the vehicle, operators will conduct a walk-around of the vehicle to ensure the area is free of obstacles. If available, a spotter will be used when backing to ensure the vehicle does not hit any unseen obstacle or another vehicle.” • Section 9.2.3: Added “An emergency use phone is located on the outside of Building 108, centrally located at the LFR, for off hour and/or weekend emergency use. A lock box next to the phone contains a charged radio for emergency use. The LFR key opens the lock box.” and moved “NOTE: The SNL EOC can be reached using radio channel C-1.” from 9.2.4. • Section 9.2.4: Added “The ESH Specialist will coordinate with the PFTD Training Coordinator the placement of the radio in the lock box when off hour and/or weekend use of the LFR is scheduled.” • Section 11.1.2: Added “An emergency use phone is located on the outside of Building 108, centrally located at the LFR, for off hour and/or weekend emergency use. A lock box next to the phone contains a charged radio for emergency use. The LFR key opens the lock box.” • Appendix E, U.S. Forest Service Fire Condition Warning Signs and Restrictions: Updated text on pyrotechnics use to match ESH-GP-525, Fire Protection Program, and to reflect updated guidance in KAFB Instructions 13-212, <i>Range Planning and Operations</i>, approved September 2017.

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10.1	10/03/17	<ul style="list-style-type: none"> • Section 8.1: Corrected acreage of LFR complex to 702. • Section 8.2.1: <ul style="list-style-type: none"> - Removed "(contact the NTC Rangemaster or PFTD Operations Officer to view NTC LFR Surface Danger Zone Maps)" and reference to "composite SDZ map". - Added "Figure 3-3, Range Fans of Fire, shows the correct placement of range limit of fire markers (range limit poles) to ensure all fired ammunition remains within the appropriate SDZs." • Sections 8.2.4, 8.2.6, 8.2.7, 8.2.8, and 8.2.10.1: Changed "A concrete barrier faced with mild steel-covered Dura Block and plywood" to "A concrete barrier faced with plywood and Dura Block-covered Abrasion Resistant (AR)-500 Brinnell hardness (BH) steel". • Section 8.2.6, 4th para: Added "and on the second level of the tower" to the 3rd sentence. • Sections 8.2.6, 8.2.7, 8.2.8, and 8.2.9: Added "Range limit of fire markers (limit poles) are in place." • Section 8.2.8: Deleted "A public address system is installed and controlled from the range control tower." • Section 8.2.9, 2nd bullet: Replaced "in front" with "along the front edge". • Section 8.3.3: Replaced "from" with "and north of" to add more precise location. • Figure 8-5, Bullet Trap Design: Moved to Section H.4.3, Targets and Bullet Traps. • Appendix H: Added Observer Safety Brief as Annex I.
10	07/10/17	<ul style="list-style-type: none"> • General: As part of annual review, revised document to clarify/correct content. • Global changes: <ul style="list-style-type: none"> - "7.62" to "7.62mm". - "diversionary devices" to "Noise Flash Diversionary Devices" or "NFDDs" - "Nomex" to "Nomex™" - "Linatex" to "Linatex®" - Replaced slashes with "and" or "or" for clarification. • 4.4 and 4.5 (and where cited): Updated references to DOE O 151.1D and DOE G 450.4-1C. • 5.4, Dud; 5.18, Significant Event; and 5.19, Squib: Clarified definitions. • 6.0, Policy: <ul style="list-style-type: none"> - Changed "safety violations" to "events". Reassigned responsibility for determining whether formal investigation is necessary from Lead Instructor to Rangemaster and PFTD Operations Officer. - Revised to "submit the evaluation report through the General Manager..." • 7.2.6 (Rangemaster responsibility): Removed "Reviews and approves LFSH certifications for non-DOE instructors" because (1) this is primarily the PFTD Operations Officer's responsibility, and (2) it is already listed as 7.3.5. • 7.3.3 (PFTD Operations Officer responsibility): Removed "and General Manager's direction" (vague). • 7.5.15 (Lead Instructor responsibility): Deleted "If taking medication, reports this information on the PAR-Q form which is forwarded to the paramedic before the student is allowed to participate in training. The paramedic will then determine if the student is fit for LFR activities based on the medication taken." (inaccurate) • 7.6.12 (Instructor responsibility): Added "or PFTD Operations Officer". • 7.7.5 (LFR Maintenance Staff responsibility): Replaced "range maintenance vehicles" with "UTVs and material handling equipment". • 7.9.3 (LFR Safety Specialist responsibility): Added "Requires students to fill out the PAR-Q form. For students who report being on medication, the form is forwarded to the paramedic. The paramedic will then determine if the student is fit for LFR activities based on the medication taken before the student is allowed to participate in training."

Rev.	Date	Description of Revision
		<ul style="list-style-type: none"> • 7.10 (LFR Users and Visitors responsibilities): <ul style="list-style-type: none"> – 7.10.1: Added “NOTE: If Building 099 is not accessible, sign-in/sign-out logs are located in a yellow box on the east side of the main entrance.” (also in 10.3.1.1). – 7.10.4: Added “Training Coordinator”; changed to “LFR Maintenance staff”. • 8.2 Ranges and 8.2.1 Surface Danger Zones: Added “(Pit)” to “Vehicle Assault Range”. • 8.2.1: Replaced nonfunctioning hyperlink to NTC LFR Surface Danger Zone Maps with “(contact the NTC Rangemaster or PFTD Operations Officer to view NTC LFR Surface Danger Zone Maps)”. • 8.2.6 Pistol Range 1: Added “D. Approved NFDDs with the Rangemaster or PFTD Operations Officer approval” to reflect NTC operations/requirements. • 8.2.9 Rifle Range 2, 7th para. beginning with “The 42.5-foot tactical training tower...”: Changed “and the key is under the control of the Rangemaster” “to “and the key is under the control of the LFR staff”. • 8.2.10.1 Seven Position Range, 3rd para.: Deleted “target lighting system” from “...and plywood protects the target line”. • 8.2.10.2 Vehicle Assault Range, 2nd para.: Changed to “The Vehicle Assault Range (Pit) is authorized for all pistol and rifle calibers firing frangible ammunition. Any other caliber or projectile type must be authorized by the Rangemaster or the PFTD Operations Officer.” • 8.2.10.3 Bldg 114 LFSH and 8.2.10.4 Bldg 115 LFSH: Changed “nonlead” to “lead-free”. • 8.2.10.4 Bldg 115 LFSH: Moved from H.4.6: “NOTE: Simultaneous use of all R&D ranges is permitted. For the 7-Position Range to be used simultaneously with LFSH 114 and/or the Vehicle Assault Range, all firing on the 7-Position Range must be conducted from the 50-yard firing line or closer.” • 8.3.5 Building 100: Updated list of occupants. • 9.1.4: Added “PFTD Operations Officer” to indicate who besides Rangemaster may authorize exception. • 9.1.5: Replaced “specialty vehicles” with “UTVs and material handling equipment”. • 9.3.6: Added “Issued” to “Issued non-slip, above-the-ankle boots must be worn...” • 9.5.2: Moved from 9.5.4 because not applicable to steel targets: “Notify the Rangemaster if any LFR training apparatus (e. g., bullet traps, moving target systems, lighting systems, etc.) is damaged.” • 9.6 Steel Targets: Moved subheading. • 9.6.1: Added “3/8” thick” and “greater than 1/16” depth”. • 9.6.7: Added “PFTD Operations Officer, or designee” to indicate who must approve ammunition to be fired on steel targets. • 9.9.1: Added “or the PFTD Operations Officer” to indicate whose authorization must be obtained to use listed LFR support equipment. • 10.1: Changed “LFR safety briefing” to “LFR user briefing.” • 10.2 Scheduling the Training Facilities by Non-NTC Users: <ul style="list-style-type: none"> – Combined previous (duplicative) Section 10.2, Scheduling the LFR, and Section 10.3, Scheduling the Training Facilities by Non-NTC Users – Renumbered all subsequent subsections in Section 10, LFR General Operations. • 10.2.1: Replaced “PFTD Training Coordinator” with “Rangemaster and PFTD Operations Officer” to address who will work with requestors to deconflict scheduling conflicts. • 10.3.1.1: Added “NOTE: If Building 099 is not accessible, sign-in/sign-out logs are located in a yellow box on the east side of the main entrance.” (also in 7.10.1).

Rev.	Date	Description of Revision
		<ul style="list-style-type: none"> • 10.6.2 Item 3: Added “or take a trauma bag”. • 10.8.1: Added “on KAFB, including” to indicate where tracer and armor-piercing ammunition are prohibited for use. • 10.9.3: Revised to “Pyrotechnics will only be deployed outside in bang cans or on hard surfaces clear of combustible materials.” • 10.9.5: Revised “respirator” to “approved respirator”. • 10.9.7: Changed “gloves” to “leather or Nomex™ gloves”. • 10.10.3: Added “participants” to “Ensure participants’ weapons...” • (old) 10.14.2 Ballistic Breaching Safety Considerations: Deleted and moved to PFT course activity guide (inappropriate content for this procedure). • 10.15: Replaced 10.16.1 and 10.16.2 with “When a weapon malfunctions and cannot be cleared by prescribed malfunction clearance methods, the shooter will keep the weapon oriented downrange and call for an instructor. If the weapon still cannot be cleared, an NTC gunsmith will be called to the firing line to clear the weapon and render it ‘safe’.” • 10.16.2: Replaced “required PPE” with “eye and hearing protection, gloves, and long-sleeve shirt”. • 10.17: <ul style="list-style-type: none"> - Removed subheadings “10.18.1 Shooter” and “10.18.2 Instructor”. - 10.17.3: Changed “May attempt” to “Attempt”. - Reassigned “If the ammunition will not fire...” as 10.17.4. - Reassigned “Notify the Rangemaster that the device has been placed” as 10.17.5. - Deleted: <ul style="list-style-type: none"> ▪ (10.18.1, Item 3) “Remove the dud from the launcher and placed the dud on the ground.” ▪ (10.18.1, Item 4) “An instructor wearing required PPE will retrieve the dud.” ▪ (10.18.2, Item 1) “May attempt to fire the ammunition again up to three times. If the ammunition will not fire, put the misfired ammunition into its original shipping container and clearly print the word “MISFIRED” on the outside.” • 10.18.1: Removed “<u>Shooter</u>.” from beginning of statement. • 11.1.2: Updated emergency notification phone numbers. • Appendix C, Sample Range Use Log: Replaced column heading “Person in Charge” to “Lead Instructor”. • Appendix D, NTC Temporary Ammunition Storage Log: Replaced with updated form. • G.4 UD-Specific Procedures: Revised Lead Instructor responsibilities. • H.1: Changed “Failure to comply with safety rules, weapons, and ammunition presented in this SOP may be cause for removal from LFSH 114 and LFSH 115” to “Failure to comply with safety rules presented in this SOP...” • H.2.2 and H.2.3: Removed “Live Fire” and “Live Fire Shoot House Assistant Instructor” (definitions). • H.3.3.1: Changed “overall conduct of training and safety” to “overall safe conduct of activities”. • H.3.3.3: Changed “Ensures that all individuals in an LFSH and on the elevated observation control platform during a live-fire exercise are wearing appropriate personal protective equipment (PPE).” to “Ensures all participants in LFSHs and on the elevated observation control platform during a live-fire exercise (other than observers) are wearing eye and hearing protection and non-slip above-the-ankle footwear.”

Rev.	Date	Description of Revision
		<ul style="list-style-type: none"> • H.3.3.8: Revised “assistant instructors” to “LFSH assistant instructors” because they have additional roles/responsibilities. • H.3.4.1 and H.3.4.2: Replaced “training” with “firearms activities”. • H.3.8, Observers: Removed section (redundant with H.4.6). • H.4.1.2: Added “and filed with the RUA”. • H.4.1.3, B.1; H.4.8; and H.4.14: Removed outdated reference to “SRT”; replaced with “TRF” where appropriate. • H.4.6: Revised to document PPE that must be worn on EOCP and protocols for dignitaries (i.e., require notification to NTC Director). • H.4.7: Revised for clarification: <ul style="list-style-type: none"> – 3 and 4: Replaced “decock your pistol” with “and place the weapon on safe if so equipped”. – 6: Added “or cease fire”. – 7: Changed “loaded weapon” to “weapon”. – 9: Changed “training” to “activities”. • H.4.9: Changed “loss of training privileges” to “loss of privileges”. • H.4.9.3.A: Clarified acceptable ammunition. • H.4.12.4: Replaced “night training” with “activity in low-light or night conditions”. • H.4.13.2, A: Clarified PPE for EOCP. • Appendix I, Range Fans of Fire: Added.
9.4	03/08/17	Section 11.1.2: Updated phone list for reporting emergencies.
9.3	02/22/17	Sections 10.8 and H.4.10: Updated to include ESS to address corrective action
9.2	12/27/16	Annexes A, B, D, and E: Updated live fire shoot house figures.
9.1	11/01/16	<ul style="list-style-type: none"> • 10.10.9 and H.4.11.3: Added “Instructors will report expended diversionary device serial numbers to the Rangemaster at the completion of each course.” • H.3.8.1: Replaced “Personnel” with “Dignitaries”.
9	07/07/16	<ul style="list-style-type: none"> • Updated procedure. • Revised to incorporate PFT-SOP-645, Live Fire Shoot House.
8.4	06/13/16	Appendix F: Removed “under 10 CFR 851” from the statement “Have the staff, students, and employees been informed of their “stop work” rights under 10 CFR 851?” in response to a corrective action identified as the result of PFTD’s assessment approved 05/16/16.
8.3	03/14/16	<ul style="list-style-type: none"> • 5.5: Replaced “SPO” with “all firearms training” • 3.11: Added link to RUA • 5.16: Replaced definition for Squib. • 7.2.6: Removed “Copies of all approved variances from DOE directives and this SOP” • 7.2.14: Removed • 7.3.3: Removed • 7.5.12: Replaced “ODFSA” with “Director of Oversight Programs” • 7.5.14 Note: Revised • 7.6: Added “or the approved RUA” • 7.6.11: Added “or at the vault before and after cleaning” • 8.2.4 C: Added “and the surface danger zone” • 8.2.5: Added note • 8.2.6: Removed “target” from “firing/target positions” • 8.2.6.B: Added “and breaching rounds” • 8.2.7.B: Added “and breaching rounds” • 8.2.8.B: Added “and breaching rounds” • 8.2.9.B: Added “and breaching rounds”

Rev.	Date	Description of Revision
		<ul style="list-style-type: none"> • 8.2.9: <ul style="list-style-type: none"> - Changed "The tactical obstacle course" to "Rifle Range 2" - Removed bullet: "A large diameter, corrugated metal tube, lying on the ground through which students may be required to crawl through after climbing the chain link fence" - Added "Located on the left side of the 300 yard berm is an alternate vehicle assault pit. Prior authorization from the Rangemaster or PFTD Operations Officer is required for use." • 8.2.10.1.B: Added "and breaching rounds" • 8.3.5: Changed "east" to "west; replaced "Tactics and Firearms Instructors" with "and"; replaced "instructional designer" with "along with a classroom". • 8.3.6: Added "and temporary storage of ammunition used in classes or for other agencies." • 9.1.4: Changed "government vehicles" to "vehicles." • 9.3.2: Changed use of long sleeves/pants from "is required" to "are recommended". • 9.5.2: Changed "Do not use steel targets with" to "Before each use, they will be inspected for". Added "If defects are identified the steel target shall not be used and shall be reported to the Rangemaster." • 9.8.2: Changed "range" to "ranges". • 9.8.4: Added "when shooting steel sections of the car" • 9.8.4 note: Removed "and/or slugs" • 9.8.5: Changed "aim" to "fire"; removed "slugs and/or buckshot" • 10.6.2: Removed "Beacons"10.9.5: Changed "handling" to "issue and return from the ammunition storage bunkers" • 10.9.8.3: Removed "provide Sandia Security with the seal number". • 10.10.1: Added "Deviations must be approved by the Rangemaster or PFTD Operations Officer". • 10.10.2: Created new item by moving "Smoke grenades will be limited" sentence. • 10.10.3: Removed "Deviations must be approved by the Rangemaster or PFTD Operations Officer". • (New) 10.10.7: Replaced "grenades" with "pyrotechnics" • 10.13: Moved "NOTE: Do not put live ammunition in LFR trash cans." to Section 10.13.1.2. • 10.14.1: Removed "or" from 4th bullet • 10.15.1: Added "or designee" • G.3.1(b): Removed "forensic".
8.2	02/05/16	<ul style="list-style-type: none"> • 5.11, Non-DOE Users, and Appendix A: Updated link to NTC Range Use Agreement. • Appendix E, USFS Fire Condition Warning Signs and Restrictions: Removed link to NOAA website.
8.1	01/21/16	10.3.7: Added "Classroom facilities available for non-NTC users after hours are limited to the Multipurpose Range Classroom and Classroom F."
8	11/23/15	Complete rewrite of entire document.
7	07/31/14	<ul style="list-style-type: none"> • 8.10.D: Updated Ranges Authorized for Simultaneous Firing table. • 8.10.7: Updated R&D Range description. • 8.10.7.1: Updated references from 12-Position Range to 7-Position Range.
6	11/06/13	• 8.1, Item B.11; 8.9.3.1; 8.9.7.2.4; 8.12.2.1.3.: Updated text to reflect security procedures.

Rev.	Date	Description of Revision
		<ul style="list-style-type: none"> • 8.14.1.3, Maintenance, Training Support: Added new requirement to address security procedures: Facility/Planner Supervisor: Must coordinate any range or facility modifications/construction with the Rangemaster or Training Coordinator at least 2 weeks prior to construction or modification dates. Facility/Planner Supervisor will brief subcontractor staff on the need to sign-in on the Visitor Sign-In Log in Building 099 upon entering and exiting the LFR. • 8.4.2.2; 8.4.10.2; 8.4.12.2; 8.4.12.5; 8.4.12.7; and 8.7: Updated text to reflect current practices. • 8.15.2: Updated emergency notification phone numbers.
5.1	10/25/13	<ul style="list-style-type: none"> • 4.12: Updated references to ANSI / ISEA Z87.1-2010. • 7.2-7.4 and throughout document: Reassignment of PFT Department Manager responsibilities to Security Training Manager, Operations Officer, and Rangemaster. • 8.2.1.5: Updated range usage priority list. • 8.4.2 and 8.9.4: Removed text regarding firing above TTT third level. • 8.4.9.4.1.3; 8.4.9.4.2.7; and 8.4.9.4.3.2: Updated to read "Empty the "Bad Ammo" cans daily and transfer the contents to Bunker # 4 in the LFR Ammunition Storage Area."
5	09/06/12	<ul style="list-style-type: none"> • Global: Added text for LFSH 115, Building 099 • 4.7; 8.4.1.1.E; 8.9.1.2.5; and 8.9.5.1.1.E: Updated reference to HSS Use of Bullet Traps and Steel Targets • 6.0, Policy: Changed "It is NTC policy to conduct firearms and tactical training at the LFR in accordance with DOE requirements. Any deviation from the provisions of this SOP or other written procedures may be approved by the DOE/NTC Director (or designee). This decision may be based on recommendations from the PFT Manager, Rangemaster, and the LFR Safety Specialist." to "It is NTC policy to conduct firearms and tactical training at the LFR in accordance with DOE requirements, approved lesson plans, exercise guides, and training plans. Specific safety briefings must be developed and provided prior to conducting each training activity. Any deviation from the provisions of this SOP or other written procedures must be approved by the DOE/NTC Director (or designee). This decision may be based on recommendations from the PFT Manager, Rangemaster, and the LFR Safety Specialist." • 7.1, DOE/NTC Director: Removed. • 8.4.13: Added section to address the requirement for approved test plan prior to testing ammunition/equipment (IAW corrective action) • 8.9.7.2: Added text referring to temporary ammunition storage and the NTC Temporary Ammunition Storage Log. • Appendix J, Temporary Ammunition Storage Log: Added. • 8.10: Added Ranges Authorized for Simultaneous Firing Table to address LFSH 114 and LFSH 115 on the R&D Range • 8.10.7.2: Deleted references to use of 40mm and 37mm ammunition in LFSH 114. • 8.10.7.3: Added text to describe ammunition approved for LFSH 115.
4	04/15/12	7.6.3, 8.9.4, and 8.10.E: Revised sections in response to HSS safety review.
3	08/29/11	<ul style="list-style-type: none"> • Global changes: <ul style="list-style-type: none"> - LFR Safety Specialist replaced ESH&QA Director. - Updated DOE and NTC directives. - Revised to reflect changes in internal procedures • 5.7: Revised definition to include acceptance of MOAs from non-DOE range users. • 8.4.2.7 and Appendix I: Added use of Risk Compliance Review Document (RCRD). • 8.4.5.1.1: Added requirement for appropriate body armor for all instructors, students, and observers engaged in live fire training in LFSH. • Process for increased inspection of the live fire shoot house • 8.10.C: Revised to address ricochet hazards. • 8.10 (all): Revised to address approved firearms/calibers

Rev.	Date	Description of Revision
2	08/10/09	Added accountability to ESH&QA Department and eliminated metric measurements for shooting and other long distances
1	11/19/07	<ul style="list-style-type: none">• Re-designated and reformatted as 600-level procedure• Updated text in following sections: 5.0, 7.0, 8.4.2.5, 8.4.2.6, 8.4.3, 8.4.9.2, 8.6.2, 8.9.4, 8.9.7.3, Apps. A, B, and G.

1.0 PURPOSE

This standard operating procedure (SOP) assigns responsibilities for the safe operation of the U.S. Department of Energy (DOE) Office of Enterprise Assessment (EA) National Training Center (NTC) Live Fire Range (LFR).

Any activity conducted outside the parameters of this SOP must be submitted in writing through the NTC General Manager to the NTC Director for final approval. Decisions should be based on consultation with the NTC Rangemaster, Protective Force Training Department (PFTD) Manager, and Environment, Safety, and Health (ES&H) staff.

2.0 SCOPE

The roles, responsibilities, authorities, and accountabilities described in this SOP apply to all LFR users. LFR operations include training, demonstrations, rehearsals, testing or evaluation, and live fire or dry practice exercises, under both day and night conditions. NTC procedures apply to DOE Federal or contractor personnel, NTC instructors and staff, NTC students (regardless of their place of employment), non-DOE agencies that may use the LFR facilities, and all observers.

Failure to comply with the provisions of this SOP may be cause for removal from the LFR training areas, suspension, or termination of outsider user privileges. NTC employees may be subject to disciplinary actions, up to and including termination.

3.0 CANCELTION

This document supersedes PFT-SOP-644, *Live Fire Range Operations*, dated April 2019.

4.0 REFERENCES

- 4.1 10 CFR 851, *Worker Safety and Health Program*
- 4.2 DOE Standard 1212-2012, *Explosives Safety*
- 4.3 DOE Order 473.3A, *Protection Program Operations*
- 4.4 DOE Order 151.1D, *Comprehensive Emergency Management System*
- 4.5 DOE Guide 450.4-1C, *Integrated Safety Management System Guide*
- 4.6 DOE Use of Bullet Traps and Steel Targets
- 4.7 U.S. Air Force Manual 91-201, *Explosives Safety Standards*
- 4.8 American National Standards Institute (ANSI) / International Safety Equipment Association (ISEA) Z87.1-2015, *American National Standard for Occupational and Educational Eye and Face Protection Devices*
- 4.9 ESH-PM-504, *Emergency Management Plan*

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

- 4.10 ESH-PM-508, *Live Fire Range Safety Analysis Report*
- 4.11 ESH-GP-518, *Hazard Controls and Personal Protective Equipment*
- 4.12 ESH-GP-531, *Risk Analysis*
- 4.13 ESH-GP-549, *Storage, Transportation, and Use of Explosives*
- 4.14 ESH-GP-552, *Inclement Weather Restrictions*
- 4.15 FAC-GP-415, *NEPA Compliance Program*

5.0 DEFINITIONS

- 5.1 **BAD AMMO.** Ammunition that is damaged and cannot be safely used. Obvious damage includes recessed bullets, misaligned bullets, raised or reversed primers, misfired cartridges with primer strike evidence, dented cartridge cases, corroded or discolored cartridges cases, et al. Live ammunition found on the range while policing brass should be considered “bad” unless inspected by an instructor and determined to be safe for use.
- 5.2 **CEASE FIRE.** Students, instructors, and observers will call “CEASE FIRE” at any time to prevent an unsafe act. Training will not resume until the situation has been safely resolved.
- 5.3 **DRY PRACTICE.** Practice session conducted using unloaded firearms.
- 5.4 **DUD.** Occurs when the trigger is pulled but the primer or powder in the cartridge fails to ignite, causing the firearm not to discharge. Dud rounds can still be dangerous and should be disposed of properly.
- 5.5 **HANG FIRE.** Ammunition that is struck by the weapon’s firing pin and fires after a momentary delay.
- 5.6 **INITIAL FIREARMS TRAINING.** Firearms training provided to students prior to demonstrating marksmanship and manipulation proficiency.
- 5.7 **INSTRUCTORS.** Individuals responsible for providing instruction to students, conducting demonstrations, and operating firing ranges.
- 5.8 **LIVE FIRE RANGE.** The seven range complex at the NTC used to support firearms and tactical training. The training includes basic and advanced firearms, small unit tactics, tactical breaching, and building and room clearance procedures.
- 5.9 **MALFUNCTION.** A failure of a weapon or magazine to function properly or operate in the manner designed. The operator can normally clear a malfunction.
- 5.10 **MISFIRE.** The partial or complete failure of a firearm to operate as intended.
- 5.11 **NEAR MISS.** An incident that does not result in personal injury or damage to property or firearms.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

- 5.12 **NON-DOE USERS.** Federal, state, and local (law enforcement/military) agencies that have a current NTC Range Use Agreement (RUA). (The RUA form is available on the DOE/NTC website.)
- 5.13 **NON-SIGNIFICANT EVENT.** Minor first-aid injuries or conditions not involving an unusual event or near miss. Reporting consists of submitting paramedic report (if generated) and notifying Rangemaster, PFTD Manager, and LFR Safety Specialist.
- 5.14 **QUALIFICATION.** Initial successful completion of approved courses of fire designed to demonstrate a shooter's proficiency with assigned duty weapon system(s).
- 5.15 **REQUALIFICATION.** Periodic successful completion of approved courses of fire designed to demonstrate a shooter's proficiency with assigned duty weapon system(s).
- 5.16 **SHOOTER.** Any participant (with the exception of an instructor) who participates in a shooting activity and is carrying a firearm or training aid. An individual who meets this definition is to be considered a shooter for the purposes of instructor-to-shooter ratios at all times until the activity has been terminated.
- 5.17 **SIGNIFICANT EVENT.** An unplanned or unintended event that occurs at the NTC LFR. Significant events include, but are not limited to, unauthorized discharges, catastrophic weapons malfunctions or failures, vehicle accidents, injuries greater than first aid, and near miss or unusual incidents.
- 5.18 **SQUIB.** A round that is struck by the firing pin and does not ignite the powder completely, but makes a quieter sound and generally lodges the projectile in the bore.
- 5.19 **UNAUTHORIZED DISCHARGE (UD).** The discharge of a firearm under circumstances other than (a) during firearms training with the firearm properly pointed downrange (or toward a target), or (b) the intentional firing at hostile parties when deadly force is authorized. (See Appendix G for additional information regarding actions to take in response to a UD or other significant event.)

6.0 POLICY

Only personnel who are currently qualified or are training to become qualified on specific weapons systems are authorized to participate in live fire activities. With the exception of law enforcement, privately owned weapons are prohibited at the NTC main campus, LFR, and Integrated Safety and Security Training and Evaluation Complex (ISSTEC).

The NTC's policy is to incorporate safety into the planning and execution of all work and to protect all NTC and DOE personnel and visitors and their environment from hazards. The NTC will implement appropriate controls for those hazards that cannot be totally removed. Activity-specific safety briefings must be developed and provided prior to conducting training, qualification, or evaluation.

Alcoholic beverages and drugs are prohibited on NTC facilities. Students suspected of being under the influence of drugs, alcohol, or medication will be removed from LFR activities until resolved.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

The Rangemaster and PFTD Manager are responsible for documenting significant events and making a determination whether a formal investigation is necessary. Failure to comply with range safety rules could result in the suspension or revocation of an organization's RUA or an individual's range access privileges. The Rangemaster and PFTD Manager will be notified of all safety violations.

The Rangemaster and PFTD Manager will evaluate requests for firearms and ammunition testing and evaluation, protective force equipment testing, hazard evaluations of weapons systems, and other activities that can be supported at the LFR on a case-by-case basis and submit the evaluation report through the General Manager to the NTC Director or designee for approval.

7.0 RESPONSIBILITIES

Although each individual is responsible for his or her duties listed in this section, these duties may be delegated to another individual who is equally qualified to perform the same function.

7.1 NTC General Manager

The NTC General Manager is responsible for ensuring activities conducted at the NTC comply with the requirements of all applicable regulations and this SOP.

7.2 Facilities Operations Director

The NTC Facilities Operations Director is responsible for ensuring the LFR is operated in compliance with the requirements of all applicable regulations and this SOP.

7.3 Rangemaster

The Rangemaster is responsible for the day-to-day operation and maintenance of the LFR.

- 7.3.1 Ensures all equipment is maintained in safe working order and all required materials are available.
- 7.3.2 Ensures ammunition requirements are forecast and ammunition is procured and stored per SOP requirements.
- 7.3.3 Ensures range-related supplies are budgeted, purchased, stored, and issued correctly.
- 7.3.4 Ensures only approved firearms, ammunition, targets, and supplies are used on the range for every activity.
- 7.3.5 Ensures the RUAs for all LFR users are current and signed.
- 7.3.6 Maintains the following records:
 - Range schedule
 - Range use logs (Appendix C)
 - Range sign-in / sign-out log (Appendix B)

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

- Ammunition inventory
 - Expended Diversionary Device Log
 - Range equipment inventory
 - Key issue control and key logs
 - NTC Risk Analysis Compliance Review (RACR) forms
- 7.3.7 Conducts formal LFR orientations and safety briefings for new instructors and all LFR users.
- 7.3.8 Provides or ensures training is conducted for LFR Maintenance staff on the safe use of equipment used at the LFR.
- 7.3.9 Coordinates NTC LFR activity that is conducted outside of the LFR with the Controlled Firing Area Committee (CFAC).
- 7.3.10 Coordinates any range or facility modifications that are required to support LFR activities.
- 7.3.11 Ensures instructor-to-shooter ratios are in accordance with the requirements of the DOE O 473.3A.
- 7.3.12 Schedules an annual emergency exercise at the LFR to comply with the requirements of DOE O 473.3A and DOE O 151.1D.
- 7.3.13 Manages the NTC Paramedic Program.

7.4 PFTD Manager

The PFTD Manager is responsible for the safe operation of PFTD training operations on the LFR and approved areas.

- 7.4.1 Responsible for direct supervision, administration and functional coordination of PFTD full-time and intermittent part-time (IPT) instructors, instructional design (ID) personnel, training coordinator, gunsmiths, and IPT paramedics.
- 7.4.2 Responsible for PFTD staff implementation of NTC policies and procedures.
- 7.4.3 Provides technical input to the General Manager and DOE complex as directed on PFTD matters.
- 7.4.4 Approves gunsmith test firing of any weapons system (firearms instructor supervision is not required).
- 7.4.5 Reviews and approves live fire shoot house (LFSH) certifications for non-DOE instructors.
- 7.4.6 Notifies the NTC General Manager and Facilities Operations Director of any occupational injuries/illnesses as soon as it is practical.
- 7.4.7 Provides copies of relevant reports to the NTC General Manager and NTC Director.

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- 7.4.8 Ensures the Human Resources Coordinator or the appropriate supervisor is notified regarding injuries or illnesses that were incurred as a result of a work-related incident.

7.5 Senior Instructor

- 7.5.1 Conducts training evaluations of instructors and courses.
- 7.5.2 Ensures adherence of PFTD instructor staff to DOE instructor certification and recertification standards and associated documentation.
- 7.5.3 Ensures compliance with risk analyses regarding NTC operations at the LFR.
- 7.5.4 Schedules and coordinates NTC courses.
- 7.5.5 Reviews lesson plans prior to finalization.
- 7.5.6 Ensures compliance with applicable policies, procedures, and practices.

7.6 Lead Instructor

The Lead Instructor is responsible for the overall safe conduct of a specific course. The Lead Instructor will have a radio on Channel A4 for communications. If available, non-NTC users shall borrow an NTC radio for use during firearms activities.

- 7.6.1 Schedules range and classroom requirements at least 60 days in advance.
- 7.6.2 Schedules paramedic requirements 60 days in advance (see PFT-SOP-623, *Paramedic Program*, for paramedic scheduling procedures).
- 7.6.3 Provides ammunition requirements to the Rangemaster, via e-mail, 30 days prior to the start of class.
- 7.6.4 If unique training aids are required, notifies the Rangemaster at least 45 days prior to the start of class.
- 7.6.5 (or designee) Signs for ammunition used to support LFR activities at both issue and turn in in the presence of another LFR staff member. Ammunition will not be left unattended and will be secured or under observation at all times.
- 7.6.6 Functions as Range Safety Officer.
- 7.6.7 Ensures all students and observers have received a safety briefing for the training to be performed that includes the basic range safety rules and course-specific safety issues.
- 7.6.8 Ensures instructor-to-shooter ratios are in accordance with the requirements of DOE O 473.3A.
- 7.6.9 Ensures all students are qualified to participate in training activities to be performed.

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- 7.6.10 Participates in preparation of risk analysis reports (in conjunction with the Safety Specialists) for PFT activities involving hazards, and ensures no training is performed without an approved risk analysis report.
- 7.6.11 Notifies the Rangemaster promptly of damaged or malfunctioning equipment.
- 7.6.12 Ensures any firearms and ammunition, training aids, or props will be addressed in the risk analysis reports included in the applicable course lesson plans (which must be approved by the General Manager).
- 7.6.13 Prior to training, ensures a paramedic is on duty and can be contacted by radio.
- 7.6.14 Notifies the paramedic prior to beginning training and when they are no longer required for the class.

NOTE: If no paramedic is on duty, a second firearms instructor is required. The second instructor must be certified in first aid, cardiopulmonary resuscitation (CPR), and handling of gunshot wounds, and have a medical trauma kit on the range. The absence of a paramedic may be granted on a temporary basis with prior approval from the NTC Rangemaster or PFTD Manager, and with notification to the LFR Safety Specialist.

- 7.6.15 Ensures instructors assess each student prior to any activities to detect any obvious physical or emotional impairment. Students deemed unfit for duty will be referred to the PFTD Manager. A medical professional may be consulted if necessary.
- 7.6.16 Ensures brass is picked up and does not accumulate to become a tripping hazard. At the end of a course, ensures all ranges that were used are free of brass.
- 7.6.17 Ensures no live ammunition is brought into classrooms.

7.7 Instructor

Each instructor is responsible for the supervision and safe conduct of all firearms-related activities conducted at the NTC LFR. Certified instructors, approved by the PFTD Manager or the approved RUA, are the only persons authorized to conduct training at the LFR. Instructors will have a radio on Channel A4 for communications. If available, non-NTC users shall borrow an NTC radio for use during firearms activities.

- 7.7.1 Signs for ammunition used to support training at both issue and turn-in in the presence of another LFR staff member. Ammunition will not be left unattended and will be secured or under observation at all times.
- 7.7.2 Must be knowledgeable and have a working understanding of the contents of this and other applicable SOPs and risk analyses governing specific activities.
- 7.7.3 Ensures all students and observers have received a safety briefing for the training to be performed that includes the basic range safety rules and activity-specific safety issues.
- 7.7.4 Ensures appropriate lighting is used during low-light and night training.

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- 7.7.5 Blows the "stop" whistle and/or announces "CEASE FIRE" in the event of observed firearms safety violation.
- 7.7.6 Observes loading and unloading of weapons.
- 7.7.7 Conducts demonstrations for students.
- 7.7.8 Ensures all students are wearing required PPE for the training to be undertaken. Eye and hearing protection will be the minimum required for live fire.
- 7.7.9 Allows only government vehicles that are in direct support of the training activities in progress on the individual ranges. Exceptions must be authorized by the Rangemaster or PFTD Manager.
- 7.7.10 Ensures students do not remove NTC ammunition, supplies, or other equipment from the range complex.
- 7.7.11 Inspects weapons for live rounds at the clearing barrel prior to entering weapon-cleaning areas or at the vault before and after training. No live ammunition will be permitted in weapon-cleaning areas.
- 7.7.12 Promptly notifies the Rangemaster or PFTD Manager of damaged or malfunctioning equipment.
- 7.7.13 Ensures thermal and abrasive cutting operations are conducted in an area free of combustible materials.
- 7.7.14 Ensures no live ammunition is brought into classrooms or cleaning rooms.
- 7.7.15 Ensures students practice activities in daylight prior to conducting reduced light activities.
- 7.7.16 Ensures that for LFSH reduced lighting operations, different colored chemical light sticks are available for ready identification of instructors, students, and observers.

7.8 LFR Maintenance Staff

- 7.8.1 Empty brass collection containers from all ranges daily and place collected brass in the approved storage area.
- 7.8.2 Inspect all fences, gates, doors, and locks weekly to ensure proper operation.
- 7.8.3 Inspect all range facilities and support equipment weekly, and report damage or deficiencies to the Rangemaster.
- 7.8.4 Inspect the equipment storage bunkers located on each range weekly to ensure sufficient quantities of eye and hearing protection are available.
- 7.8.5 Perform a pre-operational check of UTVs and material handling equipment to ensure safe operation. If such equipment is found to be in need of repair or in an unsafe condition, the vehicle will be taken out of service until it has been repaired.

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- 7.8.6 Ensure the pre-operational inspection of the overhead crane in Building 102, LFR Maintenance is performed.
- 7.8.7 Ensure a pre-operational inspection of the forklift is performed in accordance with checklists available in Building 102. Operators will return completed checklists to Building 102.
- 7.8.8 Ensure adequate quantities of range supplies are available.
- 7.8.9 Sign out and sign in ammunition for inventory control.
- 7.8.10 Fabricate and maintain training props (e.g., facades, targets and other supporting equipment).
- 7.8.11 Complete routine maintenance activities as directed (see FAC-GP-415, *NEPA Compliance Program*).
- 7.8.12 Complete other duties assigned to support range activities through the Rangemaster or Assistant Rangemaster.

7.9 ES&H Specialist

- 7.9.1 Submits electronic information of DOE Form 5484.3 for all accidents, incidents, or occurrences in accordance with DOE Order 231.1B and ESH-GP-516, *Accident Reporting and Investigation*.
- 7.9.2 Ensures all occurrence reporting and notifications are conducted in accordance with ESH-GP-527, *Occurrence Reporting*, and information is submitted into the Occurrence Reporting Processing System (ORPS) database electronically.
- 7.9.3 Assesses accidents and incidents, and informs NTC management about those requiring formal investigation.

7.10 LFR Safety Specialist

- 7.10.1 Provides safety guidance on course conduct and LFR-related procedures and risk analyses.
- 7.10.2 Conducts inspections and makes recommendations to ensure compliance with applicable DOE directives, codes, standards, and regulations.
- 7.10.3 Requires students to fill out the PAR-Q form. For students who report being on medication, notifies paramedic of medications being taken by students. The paramedic will then determine if the students are fit for LFR activities based on the medication taken before the students are allowed to participate in training.
- 7.10.4 Responsible for completing RACR forms for NTC classes and LFR non-NTC users, and submitting the completed forms to the Rangemaster.

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7.11 LFR Users and Visitors

- 7.11.1 Sign-in on the appropriate log in Building 099. Once business has been completed, sign-out in Building 099 prior to departure from the LFR.

NOTE: If Building 099 is not accessible, sign-in/sign-out logs are located in a yellow box on the east side of the main entrance.

- 7.11.2 Coordinate maintenance activities (except those conducted by the LFR Maintenance staff) through the Rangemaster. Prior to performing any maintenance work, an NTC work order must be submitted to the Rangemaster for review and approval. Maintenance personnel new to the LFR will receive a facility safety briefing and pre-work safety briefing before beginning work by the LFR Safety Specialist.
- 7.11.3 During non-duty hours, sign-in and sign-out on the Range Use Log (Appendix C) located in the yellow boxes adjacent to each individual range gate. The sponsoring organization will accept responsibility for visitors.
- 7.11.4 (Delivery personnel) Coordinate all deliveries with the Rangemaster, LFR Operations Administrative Assistant, or LFR Maintenance staff.

8.0 RANGE DESCRIPTION AND CAPABILITIES

This section provides the site characteristics, including surrounding environment, that are important for establishing the basis for safe LFR operations. It supports and defends assumptions used to establish the level of risk associated with operating the LFR.

8.1 LFR Complex

The 702-acre LFR complex is sited on the eastern portion of the 52,000-acre Kirtland Air Force Base (KAFB). KAFB is bounded on the east by the Cibola National Forest; on the south by the Isleta Pueblo Reservation; on the north by Albuquerque residential, light industrial, and commercial enterprises; and on the west by State of New Mexico land and an agricultural region. Figure 8-1 depicts the location of the LFR on KAFB. Figure 8-2 depicts the layout of the LFR facilities.

The NTC LFR is sited in Coyote Canyon east of Lovelace Road. Each of the ranges is essentially flat and features impact and side berms. The total LFR covers approximately 702 acres at elevations ranging from 6,000 feet at the firing line to 7,600+ feet within the impact areas.

Although KAFB is host to numerous government agencies and projects, access is restricted to authorized personnel only.

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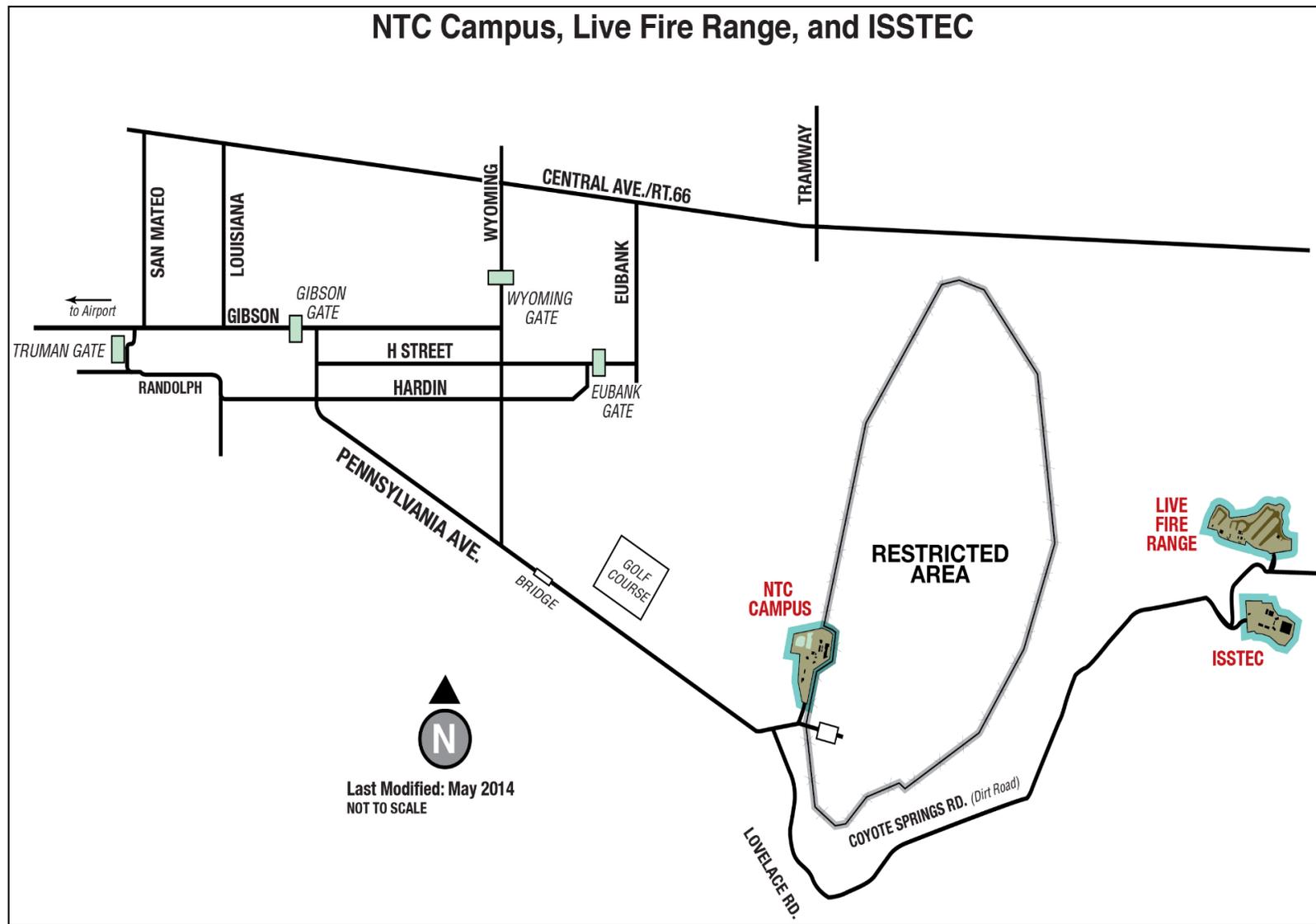


Figure 8-1. Location of the NTC Live Fire Range

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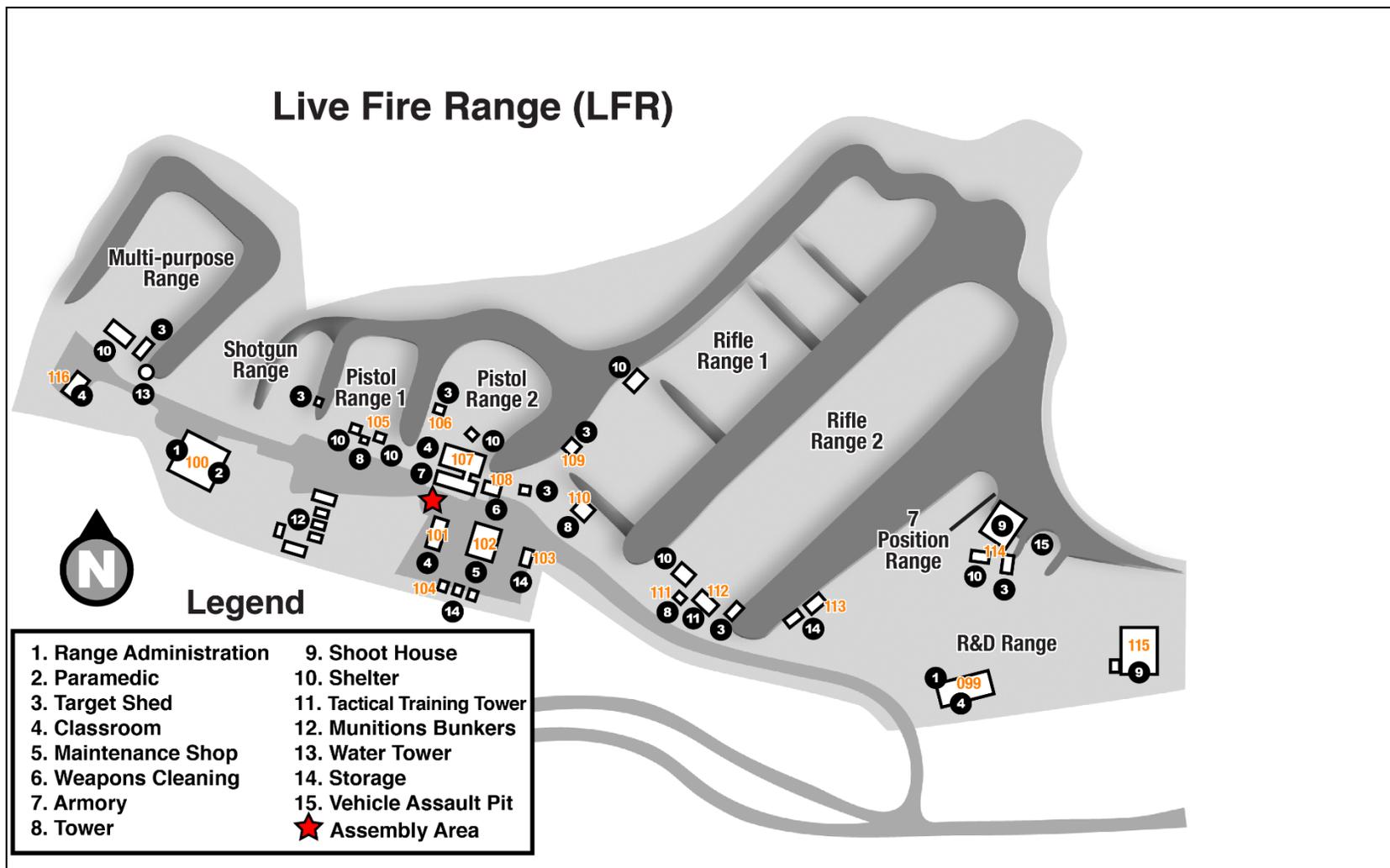


Figure 8-2. Layout of the NTC Live Fire Range Facilities

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8.2 Ranges

The NTC LFR consists of seven firearms ranges:

- Multipurpose Range (MP)
- Shotgun Range
- Pistol Range 1
- Pistol Range 2
- Rifle Range 1
- Rifle Range 2
- R&D Range Complex consisting of:
 - 7-Position (100-yard) Range
 - Two covered LFSHs (Buildings 114 and 115)
 - Vehicle Assault Pit
 - Mechanical Breaching Area

Supporting the LFR Complex are the Range Control Facility, Administration Building, Maintenance Shop, Armory, multiple classrooms, ammunition storage area, multiple cleaning bays, and other associated maintenance and support structures.

8.2.1 Surface Danger Zones

Per the *Range Design Criteria*, an open range may be established provided that enough distance and land are available to allow for surface danger zones (SDZs) appropriate for the weapons to be used (“appropriate” meaning that the SDZ should be as long as the maximum range for the most energetic rounds authorized to be fired on the specific range). The best site is one with a natural backstop. The NTC LFR SDZs are shortened by the natural backstop of the Manzano mountain range.

- MP Range SDZ
- Pistol Range 1 SDZ
- Pistol Range 2 SDZ
- Rifle Range 1 SDZ
- Rifle Range 2 SDZ
- R&D Range Complex
 - 7-Position (100-Yard) Range SDZ
 - Vehicle Assault Pit SDZ
 - Building 114 LFSH SDZ
 - Building 115 LFSH SDZ

Appendix I, *Range Fans of Fire*, shows the correct placement of range limit of fire markers (range limit poles) to ensure all fired ammunition remains within the appropriate SDZs.

The ruggedness and elevation of the Manzano Mountains, coupled with the fact that the NTC LFR is located on KAFB, protects against unauthorized access. The authorized composite SDZ is controlled and does not extend across traveled roads, navigable waterways, railroads, or areas that could adversely be affected by firing range activities.

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The mountainous terrain north of the LFR complex and established administrative controls justify continued operation of the LFR. Since operations started at the LFR, where millions of small arms rounds have been fired, there has never been a reported incident of bullets striking areas beyond the designated SDZs, which supports the effectiveness of established firearms safety policies and procedures. The individual LFR SDZs are combined into one composite LFR SDZ. Existing administrative controls ensure that all projectiles impact within the composite SDZ. The design and composition of the range surfaces and impact berms also minimize the likelihood that ricochets will exit the composite SDZ.

There are no signs posted along the boundaries of the composite LFR SDZ due to the ruggedness and elevation of the Manzano Mountains. "Danger - Keep Out" signs are posted on the likely approaches to the LFR.

8.2.2 Berms

The main range area and berms are composed of stony-sandy loam and gravelly-stony-clay loam. This composition typically consists of various sizes of rock, sand, and gravel. Impact berms located behind the target line of each range are designed to capture the projectiles. These berms, as well as the side berms on all ranges, were constructed in accordance with the *DOE Range Design Criteria Guide* to minimize ricochet hazard and spent projectiles. Periodic resurfacing of the berms maximizes the containment of spent projectiles and minimizes erosion of the berms.

8.2.3 Environmental Impact

Small arms projectiles fired at the LFR are not discarded material and do not fall within the Resource Conservation and Recovery Act definition of *solid waste*. The "ordinary use" of small arms projectiles includes placement on land. Therefore, the projectiles are not considered either a solid waste or a hazardous waste.

Elevated levels of lead can occur in the soils and vegetation in large areas behind and adjacent to the target lines and impact berms. Though these levels are below regulated hazardous waste levels, the LFR slopes southwesterly and arroyos channel storm-water runoff toward the Rio Grande.

Runoff from the LFR berms is a primary environmental factor. The runoff is generally medium and the hazard of water erosion is moderate for undisturbed areas with native vegetation. The impact and side berms do not have vegetation on them and erosion occurs on all of them. Periodic berm maintenance minimizes the amount and progression of erosion.

Geochemical equilibria modeling of lead in three different groundwater compositions shows that the solubility of lead increases with decreasing pH values. The modeling and current data indicate that groundwater contamination should only be a problem at sites where the soil pH is below 7 and groundwater is less than 10 feet deep.

The stony, sandy loam and gravelly, stony, clay loam through the main range area makes the pH of the soil likely to be well above 7. The groundwater table is located between 300 feet and 600 feet below the range surface.

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Although storm water runs off the LFR and causes berm erosion, it is extremely unlikely that hazardous, regulated lead contamination will spread beyond the LFR boundaries.

8.2.4 Multipurpose (MP) Range

The MP Range has 24 firing points, a maximum firing distance of 100 yards, and earthen impact and side berms. The target line is located in front of the impact berm. A concrete barrier faced with plywood and Dura Block-covered Abrasion Resistant (AR)-500 Brinnell hardness (BH) steel protects the target line, target lighting system, and target turning mechanisms. Targets may include fixed, turning, and moving paper targets and steel targets. Range limit of fire markers (limit poles) are in place. Concrete firing lines are located at 25, 50, and 100 yards.

The MP Range is used for:

- A. Handgun caliber ammunition
- B. Shotgun ammunition: buckshot, birdshot, and slugs
- C. Rifle ammunition up to and including 7.62 mm within specific limit of fire markers and the SDZ
- D. Noise Flash Diversionary Devices (NFDDs) with Rangemaster or Assistant Rangemaster approval

A flagpole is installed at the entrance to the MP for posting warning flags, and a flashing red beacon is installed on an adjacent telephone pole at the south end of the MP to warn of night firing. Signs are posted at the entrance to the MP identifying the range, authorized weapons and ammunition, DOE firearms safety rules, vehicle prohibitions, and tracer and pyrotechnic prohibitions.

A concrete pad is at the southwest end of the MP on which covered bleachers are located. A temporary metal CONEX-style storage building is located at the south end of the MP for storage of range supplies, and where the compressor that activates the target systems is housed. Outside, and to the west of the temporary storage building, an emergency telephone is mounted and operational.

There is a range lighting system that permits night firing and supports emergency response. The range lighting control system is also found outside and just to the west of the storage building.

8.2.5 Shotgun Range

The shotgun range is located directly between the MP to the west and Pistol Range 1 to the east. A chain link fence, with an entry gate, is located across the south end of the Shotgun Range to ensure unauthorized personnel may not inadvertently enter into the range area. Emergency phones are located on the MP Range and Pistol Range 1.

NOTE: The MP Range must be shutdown prior to use of the Shotgun Range.

Only birdshot is authorized for use on the Shotgun Range.

A flagpole, located at the southeast entrance to the range, displays a red flag during live fire, and signs are posted listing the range, DOE firearms safety rules, vehicle

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prohibitions, tracer and pyrotechnic prohibitions, and authorized weapons and ammunition permitted on the range.

8.2.6 Pistol Range 1

Pistol Range 1 is a 50-yard (150-foot) square range with 22 firing positions constructed with an impact berm and side berms bounding it on three sides.

Pistol Range 1 is used for:

- A. Handgun caliber ammunition
- B. Shotgun ammunition: buckshot, birdshot, slugs, and breaching rounds
- C. Rifle ammunition up to 5.56mm within specific limit of fire markers
- D. NFDDs with Rangemaster or Assistant Rangemaster approval

The range has 22 firing positions with concrete firing lines at 7, 15, 25, and 50 yards. A concrete barrier faced with plywood and Dura Block-covered AR-500 BH steel protects the target line, target lighting system, and target turning mechanisms. Range limit of fire markers (limit poles) are in place. Physical structures located within the perimeter of the range include a metal equipment storage building, Building 105 (the range control tower), and two sets of covered bleachers on concrete pads.

There is a range lighting system that permits night firing and supports emergency response. The range control tower has the lighting system controls. An emergency telephone is located in the ground-level utility room at the base of the east side of the range control tower and on the second level of the tower. The base of the tower is used to store targets and the compressor that operates the target systems.

The construction of the range control tower does not provide an unobstructed view of the first four or last two firing positions when seated inside. By standing immediately adjacent to the north window, an individual can see all firing points but not simultaneously. These visibility limitations compromise the usefulness of this tower to control range operations.

There is a flagpole mounted at the entrance to the range, and a flashing red beacon is mounted on the range control tower for night firing. Signs are posted identifying the range, vehicle prohibitions, tracer and pyrotechnic prohibitions, authorized weapons and ammunition, and DOE firearms safety rules.

8.2.7 Pistol Range 2

Pistol Range 2 is a tactical training range. A concrete barrier faced with plywood and Dura Block-covered AR-500 BH steel protects the target line, target lighting system, and target turning mechanisms. It is constructed with an impact berm and side berms. The impact berm is configured so that if a round clears the top of the berm, it will not impact ranges to the east.

There are 22 target points in a northeasterly orientation. Various stationary and moving targets are used. Tactical exercises associated with advanced courses are also conducted here. Concrete firing lines are located at the 25 and 50 yard lines. Range limit of fire markers (limit poles) are in place.

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Pistol Range 2 is used for:

- A. Handgun caliber ammunition
- B. Shotgun ammunition: buckshot, birdshot, slugs, and breaching rounds
- C. Rifle ammunition up to and including 7.62 mm within specific limit of fire markers
- D. Action Target System – Handgun ammunition only (submachine guns may be used with handgun ammunition only)
- E. NFDDs with Rangemaster or Assistant Rangemaster approval

Building 106 is located at the southwest side of the range. The east end of the building is the control room for the electronically controlled targets arrayed along the northwest side of the range. The west end contains the lighting system controls and is a target storage room.

There is a range lighting system that permits night firing and supports emergency response. An emergency telephone is located on the northeast corner of Building 107.

Behind the 50-yard firing line and to the southeast is one set of covered bleachers on a concrete pad. There is a flagpole at the entrance to the range for display of the proper range flag. A red flashing beacon for night firing is mounted on the southwest top of the Armory, the back of which faces north towards the impact berm. Signs are posted identifying the range, vehicle prohibitions, tracer and pyrotechnic prohibitions, DOE firearms safety rules, and authorized weapons and ammunition.

8.2.8 Rifle Range 1

Rifle Range 1 has turning and moving targets located 300 yards from the farthest shooting position. A concrete barrier faced with plywood and Dura Block-covered AR-500 BH steel protects the target line, target lighting system, and target turning mechanisms. The concrete firing lines are at the 25, 50, 100, 200, and 300 yard lines. There are twenty firing points at each firing line.

Rifle Range 1 is used for:

- A. Handgun caliber ammunition
- B. Shotgun ammunition: buckshot, birdshot, slugs, and breaching rounds
- C. Rifle ammunition up to and including 7.62 mm within specific limit of fire markers
- D. NFDDs with Rangemaster or Assistant Rangemaster approval

Physical structures on this range consist of one small metal building used to store supplies and equipment, Building 110 (the range control tower), and covered bleachers midway up on the west side of the range. A range lighting system permits night firing and supports emergency response. Range lighting controls are located in the range control tower behind the 300-yard line at the south end of the range. An emergency telephone is located in the range control tower.

The compressor that operates the turning target system is located behind the westernmost end of the target line. An Abrasion Resistant (AR) 500 steel cover protects the compressor. Range operations are generally controlled by instructors using a portable PA system positioned with the students at the firing line.

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A flagpole is at the entrance to the range for display of the appropriate flag, and a red flashing beacon is mounted on the range control tower for night shooting. Signs are posted identifying the range, vehicle prohibitions, tracer and pyrotechnic prohibitions, DOE firearms safety rules, and authorized weapons and ammunition. Range limit of fire markers (limit poles) are in place.

8.2.9 Rifle Range 2

Rifle Range 2 is a natural terrain range used for tactical training. Tactical training focuses on realistic individual and team shooting, moving, and communicating. A live fire tactical obstacle course begins at the south end of the range. A Donga course midway up the range permits students to traverse natural terrain and engage steel targets.

Rifle Range 2 is used for:

- A. Handgun caliber ammunition
- B. Shotgun ammunition: buckshot, birdshot, slugs, and breaching rounds
- C. Rifle ammunition up to and including 7.62 mm within specific limit of fire markers
- D. NFDDs with Rangemaster or Assistant Rangemaster approval

Physical structures on this range consist of a metal storage container for range supplies and equipment, Building 111 (a range tower), and Building 112 (a 42.5-foot tactical training tower). Each level of the tower is equipped with fluorescent lighting. This range is not equipped with a lighting system. There are covered bleachers at the southwest end of the range, to the west of the range tower. An emergency telephone is located on the southwest leg of the range tower.

Rifle Range 2 consists of:

- A small section of 8-foot chain link fence topped with 3 strands of smooth wire at the southwest corner of, and in front of, the earthen berm at the south end of the range
- Several portable firing points along the front edge of the berm
- An armored barricade
- A stationary Humvee and a 2-1/2-ton truck used as firing positions.

The range surface consists of small trees, heavy grass, brush, gullies, cacti, target placement positions, runoff channels, and an uneven and rocky outcrop surface. A dirt road surrounds the range on the north, east, and west sides.

A flagpole is at the entrance to the range for display of the appropriate flag, and a red flashing beacon is mounted on the range control tower for night shooting. Signs are posted identifying the range, vehicle prohibitions, tracer and pyrotechnic prohibitions, DOE firearms safety rules, and authorized weapons and ammunition. Range limit of fire markers (limit poles) are in place.

The 42.5-foot tactical training tower at the southeast end of Rifle Range 2 provides training on shooting from elevations. The tactical training tower is constructed of five modular metal containers, each 20' x 8' 6", stacked one on top of the other, and securely mounted on a concrete pad. The bottom five levels are joined by internal stairwells. The

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main (and only) entry door to the tower, located at the west end of the ground-level module, is locked, and the key is under the control of the LFR staff. The ground-level module has no other entry points to ensure that only authorized personnel are permitted into the tower. There is a ladder at the west end of the fifth level that leads to the open top of the tower through a metal door, which can be secured from the inside. The four exterior walls of the tower are faced with durable synthetic. A full-sized door in the east end of the fifth level opens to the outside. A removable steel chain serves as fall protection when the door is open.

Other openings with hinged covers are located at the levels described below to permit students to engage targets downrange from those locations:

- Ground Level, north side: One narrow slot at the east end near the floor; will not be used for firing because the firing line is well above the height of the slot and blocks the impact berm
- Second Level, north side: One small square firing port, one window-sized firing port
- Third Level, north side: One small square firing port, one window-sized firing port
- Third Level, south side: One window-sized opening for cross-ventilation in hot weather; will not be used for firing because it points away from the impact berm
- Fourth Level, north side: Five small firing ports, one medium-sized firing port.
- Fifth level, north side: Two small firing ports.

Permanent firing limitation boxes prevent shooters from covering adjacent ranges. These firing boxes limit the range of movement of weapon muzzles to ensure that fired rounds can only impact into the designated impact berm, not into adjacent ranges. Sound-absorbing materials are installed at selected locations within the tower to reduce noise levels generated when firing weapons from inside the tower.

Located on the left side of the 300 yard berm is an alternate vehicle assault pit. Prior authorization from the Rangemaster or Assistant Rangemaster is required for use.

8.2.10 R&D Range Complex

The R&D Range Complex is at the eastern edge of the LFR. Structures and areas located at the R&D Range Complex include a mechanical breaching area, 7-Position Range, Building 099 (Range Control Facility), Building 113 (a metal target storage building), Building 114 (LFSH with covered bleachers outside), a Vehicle Assault Pit, Building 115 (LFSH with an attached briefing room), and various portable storage containers. At the far eastern end of the R&D Range is an area where target automobiles, various steel targets, and facades are stored.

A flagpole is located at the entrance gate, and a red beacon for night shooting is mounted on a telephone pole just inside the gate. Signs are posted identifying the range, tracer prohibitions, DOE firearms safety rules, and authorized weapons and ammunition. The nearest emergency phone is located on the outside of Building 114 on the southwest side.

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8.2.10.1 7-Position Range

The 7-Position Range is located at the northeast end of the R&D Range, approximately 30 yards west of the Building 114 LFSH and paralleling the west side berm of the range. On the east side of the range, a protective side wall from the target line back to the 50-yard line separates the 7-Position Range from Building 114 to permit simultaneous operations.

The 7-Position Range is for:

- A. Handgun caliber ammunition
- B. Shotgun ammunition: buckshot, birdshot, slugs, and breaching rounds
- C. Rifle ammunition up to and including 7.62 mm within specific limit of fire markers
- D. NFDDs with Rangemaster or Assistant Rangemaster approval

A concrete barrier faced with plywood and Dura Block-covered AR-500 BH steel protects the target line. Concrete firing lines are at the 15-, 25-, and 50-yard lines. There are seven wood-framed, non-turning targets. Shooting from beyond the 50-yard line requires that the other ranges in the R&D Range Complex be evacuated and must be approved by the Rangemaster or Assistant Rangemaster.

A range lighting system permits night firing and supports emergency response. Range lighting controls and an emergency telephone are located on the east side of the protective side wall. A limit of fire marker is emplaced at the toe of the west berm only as the protective side wall limits fire to the east.

8.2.10.2 Vehicle Assault Pit

The Vehicle Assault Pit located to the east of Building 114 is designed to permit students to conduct live-fire assaults on target vehicles. The pit has earthen impact berms on the east, north, and west sides. Due to the height of the western impact berm, concurrent operations in the Building 114 LFSH and Vehicle Assault Pit is permitted.

The Vehicle Assault Pit is authorized for all pistol and rifle calibers firing frangible ammunition. Any other caliber or projectile type must be authorized by the Rangemaster or Assistant Rangemaster. Target vehicles are positioned in the Vehicle Assault Pit prior to training. Instructors ensure that paper targets inside the vehicles and reactive targets outside the vehicles are positioned so as to prevent direct fire or ricochet hazards to students and instructors at the pit or at other nearby ranges.

This pit is not equipped with a lighting system and the nearest emergency phone is on the outside of Building 114.

8.2.10.3 Building 114 Live Fire Shoot House

Building 114 (Figure 8-3) is a covered, 3,432-square-foot facility where individuals and teams can conduct live-fire dynamic entry techniques in a realistic environment. It is located at the north end of the R&D Range Complex east of the target line of the 7-Position Range. This building has masonry block walls on the west, south, and

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eastern sides. The inside of the walls are faced with 3/8-inch AR-500 BH steel armor plate faced with plywood. This wall construction prevents penetration by all calibers of pistol ammunition and 5.56 mm. An additional safety requirement is that all ammunition fired in Building 114 must be approved frangible ammunition. Selected interior armored partitions are movable, enabling reconfiguration of the seven interior rooms in the facility.

Building 114 LFSH is used for:

- A. Hand-gun caliber and 5.56mm caliber frangible lead free ammunition
- B. Rifle firing approved frangible (lead free) 5.56mm ammunition (no other rifle ammunition is authorized)
- C. Shotgun firing frangible (lead free) breaching ammunition
- D. NFDDs with Rangemaster or PFTD Manager approval
- E. Only TESAR 1s are authorized. TESAR 2s or higher are not allowed in LFSH 114

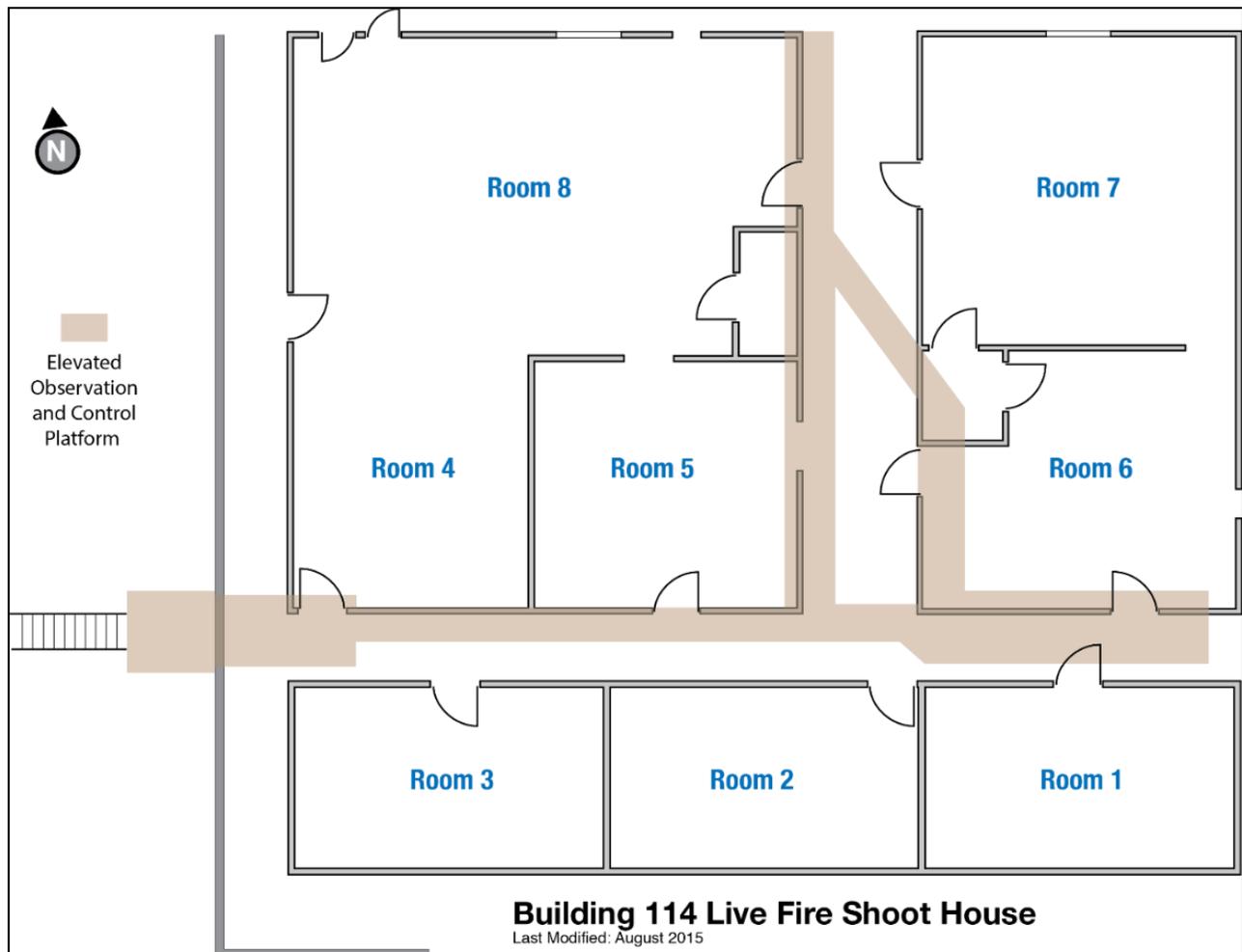


Figure 8-3. Layout and Features of Building 114 Live Fire Shoot House

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The LFSH has 8-foot-high walls that provide ballistic protection. Only approved frangible ammunition is permitted in the LFSH. The facility is constructed on a concrete slab and uses 12-inch diameter wood poles and 9-inch steel I-beams to provide structural stability and to support a steel mesh Elevated Observation Control Platform (EOCP) that overlooks all interior areas. A corrugated, sloping metal roof, supported by twelve steel support posts, covers the structure and provides protection from the elements. The underside of the roof is lined with a sound absorbent material to reduce noise levels originating in the house.

For night training, the LFSH uses a centralized light system with rheostat controls for each room. An emergency phone is located on the outside of the southwest side of the building.

8.2.10.4 Building 115 Live Fire Shoot House

Building 115 (Figure 8-4) is a covered 4,800-square-foot metal pre-fabricated building on a concrete slab. It contains nine rooms and connecting hallways where individuals and teams can conduct live-fire dynamic entry techniques in a realistic environment.

Building 115 LFSH is used for:

- A. Hand-gun caliber and 5.56mm caliber frangible lead free ammunition
- B. Rifle firing approved frangible (lead free) 5.56mm ammunition (no other rifle ammunition is authorized)
- C. Shotgun firing frangible (lead free) breaching ammunition
- D. NFDDs with Rangemaster or Assistant Rangemaster approval
- E. Only TESAR 1s are authorized. TESAR 2s or higher are not allowed in LFSH 115

The LFSH has 12-foot-high walls that provide 360° ballistic protection. Only approved frangible ammunition is permitted in the LFSH. The walls of interior rooms, hallways, and sliding doors that separate rooms are covered with AR-500 armor plate which, in turn, is covered with ½-inch plywood sheeting to contain the effect of direct fire. On the second level, above the nine rooms and hallways, is a steel mesh EOCP where authorized personnel may observe student training as they move from room to room. Stairs at the north and south ends of the LFSH permit access to the EOCP. Figure 8-4 depicts the Building 115 LFSH layout.

Adjacent to the northwest side of the LFSH is a metal pre-fabricated briefing building where students and staff may prepare for training operations in the LFSH or perform post-training critiques. A covered metal storage facility on a concrete pad is located to the east of the LFSH.

A lighting system inside the LFSH permits a fully lighted, low-light, and/or no light training environment in any, or all, of the rooms. The facility is equipped with video equipment that permits recording of training operations in all interior rooms and hallways. An emergency phone is located on the outside of the northeast side of the briefing building.

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NOTE: Simultaneous use of all R&D ranges is permitted. For the 7-Position Range to be used simultaneously with LFSH 114 and/or the Vehicle Assault Pit, all firing on the 7-Position Range must be conducted from the 50-yard firing line or closer.

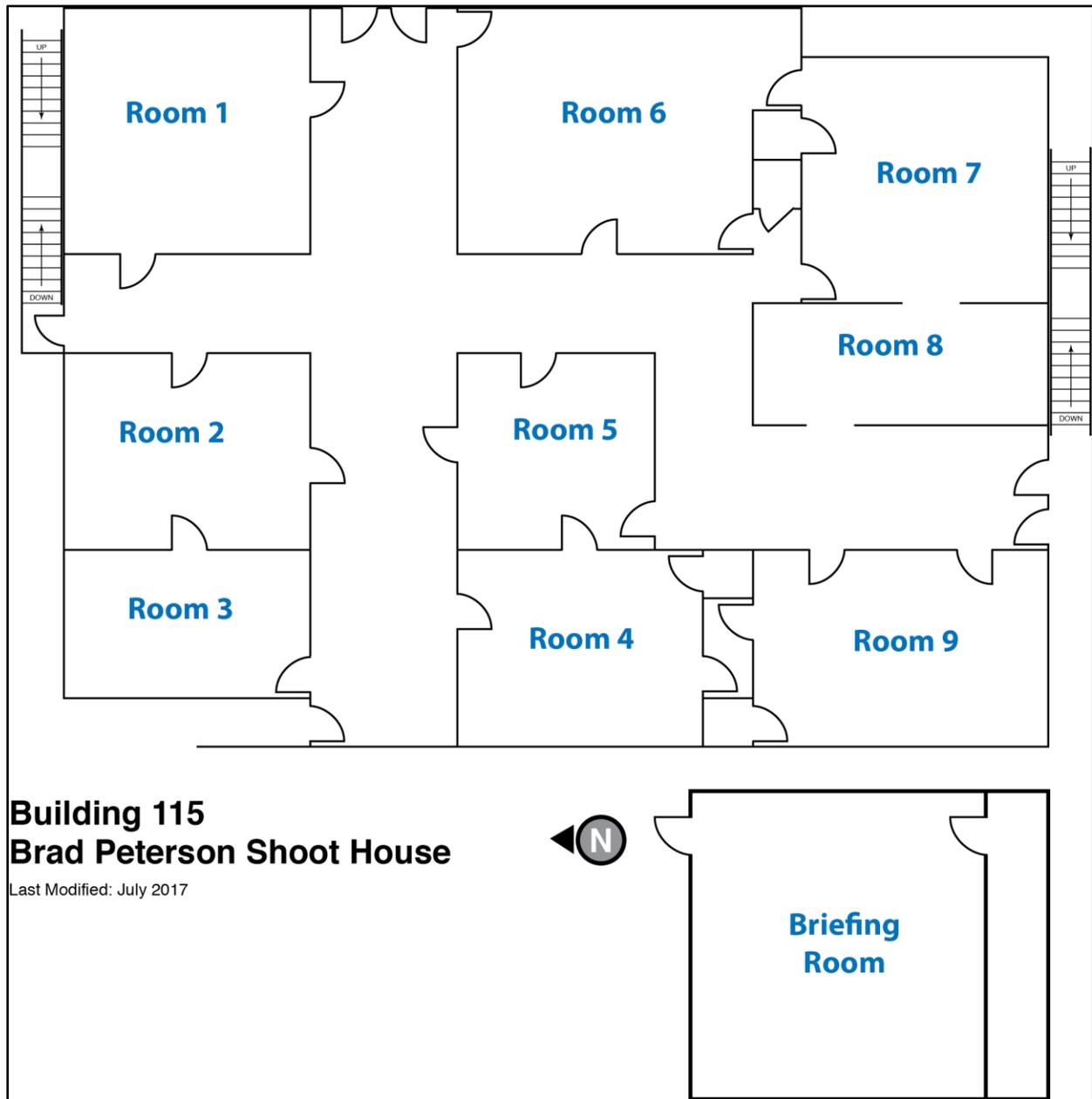


Figure 8-4. Layout and Features of NTC Live Fire Shoot House, Building 115

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8.3 Range Support Facilities

8.3.1 Building 099 Range Control Facility

The Range Control Facility is a 4,960-square-foot pre-fabricated metal building on a concrete slab. It permits more effective control of incoming and outgoing vehicular and pedestrian traffic to the LFR, as all visitors are channeled to pass directly through a control point to the west of Building 099.

Building 099 contains an 803-square-foot classroom facility for LFR classroom training, with a capacity of 40 students. It also contains a 1,602-square-foot warehouse at the east end of the building where LFR range construction and maintenance materials may be stored and has space where some smaller range support vehicles may be parked inside the facility. The roll-up door at the east end allows easy access to the warehouse area by LFR maintenance vehicles, including the LFR forklift.

An asphalt-covered parking lot south of Building 099 permits parking for 26 student, staff, and visitor vehicles (including 2 handicapped spaces). Building 099 is alarmed and has a Hirsch security system for access control. The building also has a fire detection and alarm system with pull stations that are connected to the KAFB Central Fire Alarm System.

8.3.2 Building 102 Maintenance Shop and Building 101 Classroom F

In the center of the LFR compound is Building 102 (Range Maintenance Shop). This facility contains tools, equipment, and materials in sufficient quantities to maintain LFR range areas and target systems. Directly west of Building 102 is Building 101 (Classroom F), a modular classroom facility with a maximum capacity of 40.

8.3.3 Building 107 Armory

Across the road and north of the Range Maintenance Shop is Building 107 (Armory). The Armory building contains an alarmed vault for weapons storage. It also houses machine tools, equipment, and materials in sufficient quantities to maintain NTC weapon systems.

8.3.4 Buildings 108 and 108A Weapons Cleaning Rooms

These buildings located east of a Building 107 house the weapons cleaning rooms. The western room of Building 108A is a supply storage room.

8.3.5 Building 100 Administration Building

The LFR Administration Building is located south of the parking area and west of the munitions storage area. This multi-floor building houses offices for the PFTD Manager, PFTD instructors, Instructional Designer, and LFR Safety Specialist along with a classroom. The Paramedics' office is a small clinic that can support advanced life support. Rooms in the basement contain utilities and storage.

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8.3.6 Ammunition Storage Areas

The Ammunition Storage Area includes three above-ground magazines and three earth-covered igloos located across the road from, and south of, Pistol Range 1, and east of Building 100. The three above-ground containers are used for the storage of small arms ammunition, and the earth-covered igloos are used to store pyrotechnic ammunition and temporary storage of ammunition used in classes or for other agencies.

8.3.7 Building 116 Multipurpose Range Classroom

The MP Classroom, a prefabricated classroom that can seat 25 to 30 students, is located south of the MP Range.

9.0 LFR GENERAL PRACTICES

9.1 Vehicle Safety

LFR Users: Must comply with the following vehicle safety requirements:

- 9.1.1 Vehicle operators must have a valid motor vehicle license.
- 9.1.2 Vehicle occupants must wear personal restraint systems (e.g., seatbelts).
- 9.1.3 Before starting the vehicle, operators will conduct a walk-around of the vehicle to ensure the area is free of obstacles. If available, a spotter will be used when backing to ensure the vehicle does not hit any unseen obstacle or another vehicle.
- 9.1.4 Vehicle operators must operate vehicles in accordance with all posted traffic signs.
- 9.1.5 Only vehicles that are in direct support of the LFR activities in progress are allowed on the individual ranges. Exceptions must be authorized by the Rangemaster or PFTD Manager.
- 9.1.6 UTVs and material handling equipment used at LFR will be operated by personnel who have received appropriate training for such vehicles.
- 9.1.7 Vehicles used for LFR activities will be inspected to ensure the vehicle is in proper condition for its intended use.
- 9.1.8 It is DOE and NTC policy that GSA vehicles are for official use only. Personal use (e.g., going to lunch, except at the NTC cafeteria) is strictly prohibited.

9.2 Communications

- 9.2.1 Two functional, independent forms of communication (e.g., landlines and radios) are required during all firearms activities. During firearms activities at the LFR, each NTC instructor will use a radio set to channel A-4.
- 9.2.2 When NTC activities are conducted off site, two radios must be set to channel B-4 (e.g., the off-site Lead Instructor and the Training Coordinator or designee).

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NOTE: Channel B-4 is a trunked radio channel that is used to communicate among activities at various locations outside of the LFR. Channel B-4 will be monitored by the LFR Operations Administrative Assistant, ISSTEC Facility Manager, Rangemaster, PFTD Manager, or designee(s).

- 9.2.3 An emergency use phone is located on the outside of Building 108, centrally located at the LFR, for off hour and/or weekend emergency use. A lock box next to the phone contains a charged radio for emergency use. The LFR after-hours key opens the lock box.

NOTE: The SNL EOC can be reached using radio channel C-1.

- 9.2.4 The ESH Specialist will coordinate with the LFR Operations Administrative Assistant the placement of the radio in the lock box when off hour and/or weekend use of the LFR is scheduled.

9.3 Personal Protective Equipment

LFR Users: Must comply with the following PPE requirements:

- 9.3.1 Users must wear proper attire as identified in the LFR Training risk analysis report.
- 9.3.2 When shooting steel, users must wear hats with brims in addition to approved eye and hearing protection unless wearing approved goggles or night vision goggles and/or tactical helmets. Use of long sleeves and pants are recommended.
- 9.3.3 Appropriate body armor will be required for all instructors and students engaged in live fire training in the LFSH. Protective armor for personnel participating in LFSH activities using handgun or submachine gun only must wear at least Type III A level protection as established by National Institute of Justice (NIJ) Standard 0101.06 (07/08). Protective armor for personnel using 5.56 mm ammunition must wear at least Type III level protection as established by NIJ .06 (07/08), in accordance with DOE O 473.3A (3/16).
- 9.3.4 Eye protection that meets the requirements of ANSI/ISEA Z87.1-2015 with side protection is required when on an active range.
- 9.3.5 Approved hearing protection with a minimum noise reduction rating (NRR) of 26 decibels is required when on an active range.
- 9.3.6 Issued non-slip, above-the-ankle boots must be worn by personnel directly involved in LFSH training activities.
- 9.3.7 The Rangemaster, Assistant Rangemaster, PFTD Manager, LFR Safety Specialist, and instructors may prevent the participation of any individual whose attire is considered unsafe for the LFR activities.

9.4 Inclement Weather

When weather conditions may negatively impact LFR activities, the activity will be canceled or suspended until it is safe to resume. Guidance found in ESH-GP-552, *Inclement Weather Restrictions*, will be followed.

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9.5 Targets, Frames, and Bullet Traps

NOTE: Direct all firing toward designated targets only. Firing at target frames, signs, barricades, lights, or other range equipment is prohibited.

Each range has a target storage area for new targets and frames. Bins are provided for the storage of used targets on each range.

LFR Users: Responsible for the tasks below:

- 9.5.1 Ensure all staples used to hold targets to frames and bullet traps are removed upon completion of training.
- 9.5.2 Notify the Rangemaster if any LFR training apparatus (e. g., bullet traps, moving target systems, lighting systems, etc.) is damaged.

9.6 Steel Targets

- 9.6.1 All steel targets must be made of 3/8-inch-thick AR 500 steel. Before each use, they will be inspected for any of the following defects: dimples greater than 1/16-inch depth, bows greater than 10°, holes, or cracks. If defects are identified, the steel target shall not be used and shall be reported to the Rangemaster.
- 9.6.2 Prior to engaging targets located beyond the impact berm of Rifle Range 1, approval must be obtained from the Rangemaster or Assistant Rangemaster.
- 9.6.3 When transporting steel targets from storage to a range, wear leather gloves and ensure all bolts and pins are in place and properly tightened.
- 9.6.4 LFR activities involving the use of steel targets will be conducted following the guidelines in the DOE Use of Bullet Traps and Steel Target guide.
- 9.6.5 Steel targets may be used on all ranges if the direction of fire is within the limit poles for the weapons in use and minimum shooter-to-target distances are maintained. A sandbag or other protective barrier will cover the base of the target.
- 9.6.6 LFR Users: Responsible for the tasks below:
 - 9.6.6.1 Observe the following minimum shooter-to-target distances for steel targets:
 - A. 7 yards (21 feet) for handgun ball ammunition
 - B. 7 yards (21 feet) for shotguns firing buckshot
 - C. 50 yards (150 feet) for shotguns firing slugs
 - D. 50 yards (150 feet) for rifles firing ball ammunition
 - E. 7 yards for handguns and rifles firing approved frangible ammunition.
 - 9.6.6.2 Do not engage targets outside of the Rifle Range 1 impact berm during fire conditions set at "VERY HIGH" or higher without the approval of the Rangemaster or Assistant Rangemaster.

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- 9.6.7 Rangemaster, Assistant Rangemaster, or designee: Must inspect and approve steel targets not owned by the NTC prior to their use.
- 9.6.8 Rangemaster, PFTD Manager, or designee: Must approve the ammunition to be fired on steel targets.
- 9.6.9 Instructor: When conducting courses of fire, ensure only targets intended for use in the training are in view.
- 9.6.10 Instructor: Inspect NTC steel targets prior to each exercise. Criteria for rejection of a target include:
- Bow or bend in excess of 10 degrees,
 - Dimples in excess of 1/16-inch,
 - Holes or cracks.

9.7 Moving Targets

All activities using moving targets will be approved by the Rangemaster or Assistant Rangemaster prior to conducting activities.

9.8 Target Vehicles

- 9.8.1 LFR Users: Must comply with the following requirements:
- 9.8.1.1 Only vehicles that have had the battery, gas tank and all fluids removed may be used as targets on the LFR complex.
- 9.8.1.2 Vehicle assault training is only allowed in the Vehicle Assault Pit using frangible ammunition and with the approval of the Rangemaster or PFTD Manager.
- 9.8.1.3 When conducting live-fire vehicle assault training, target placement within the vehicle will provide as close to a 90-degree firing angle as possible.
- 9.8.1.4 Do not fire shotgun at target vehicle wheels during demonstrations.
- 9.8.1.5 Do not perform shooting through glass on ranges unless approved by the Rangemaster or Assistant Rangemaster. Ensure shattered glass is policed up upon completion of firing.
- 9.8.1.6 Perform ricochet demonstrations only with the approval of the Rangemaster or Assistant Rangemaster.
- 9.8.1.7 Ensure target vehicle placement for bullet penetration demonstrations does not result in damage to existing target systems that may be behind target vehicles.
- 9.8.2 Instructor: When conducting bullet penetration demonstrations on vehicles, ensure appropriate shooter-to-target distances are no closer than 7 yards when shooting steel sections of the car.

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NOTE: Instructors are solely responsible for conducting bullet penetration demonstrations. Rifles, handguns, and shotguns (buck shot) may be used for car body, glass, and tire penetration demonstrations.

9.9 Range Equipment

9.9.1 LFR Users: Must obtain authorization from the Rangemaster or Assistant Rangemaster to use LFR support equipment such:

- Turning targets
- Moving targets
- Lighting systems
- LFSHs (Buildings 114 or 115 and briefing room)
- Facades
- Tactical training tower
- Steel targets
- Target vehicles

NOTE: Use of the above equipment may require advance notice due to set-up time requirements.

9.9.2 Rangemaster, Instructor, or LFR Maintenance Staff: Provide training in the safe operation of all LFR support equipment.

9.10 Range Maintenance

LFR Users: Adhere to the range maintenance procedures listed below:

9.10.1 Ensure good housekeeping practices are used on all ranges during LFR activities. Pick up expended brass regularly and put it in brass collection containers. Secure ammunition boxes, targets, and other materials to prevent them from blowing away or being damaged by wind.

9.10.2 Upon completion of LFR activities, ensure LFR equipment, ranges, munitions storage areas, administrative buildings, and classrooms are secured and sealed, if applicable.

NOTE: See NTC-PM-200, Site Security Plan, which addresses the use of seals and seal serial numbers.

9.10.3 Report any item needing repair to the Rangemaster, Assistant Rangemaster, or LFR Maintenance staff.

NOTE: Personnel and equipment are not permitted on berms, except as required to maintain them. Digging into berms for the purpose of filling sandbags is strictly prohibited.

9.11 Range Construction

IMPORTANT: Contact the NTC Facilities Operations Director to discuss whether proposed LFR construction activities require completion of documentation in compliance

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with National Environmental Policy Act (NEPA) requirements (see FAC-GP-415, *NEPA Compliance Program*).

- 9.11.1 Rangemaster: Request required range or facility modifications or construction, and oversee construction projects to ensure work is accomplished in accordance with the statement of work.
- 9.11.2 Facility Planner: Coordinate range or facility modifications or construction with the Rangemaster or LFR Operations Administrative Assistant. Amount of lead time for coordination should be based on specific construction activity.
- 9.11.3 LFR Safety Specialist: Conduct pre-construction safety briefing with subcontractor staff, and oversee construction projects to ensure work is accomplished safely.

9.12 Risk Analysis Compliance Reviews

See Appendix F for Risk Analysis Compliance Review (RACR) document template.

- 9.12.1 RACRs are used to document risk analysis compliance for NTC classes and non-NTC users conducted at the LFR and ISSTEC.
- 9.12.2 The LFR Safety Specialist is responsible for completing RACR forms. In his absence, the following alternate personnel may be assigned:
 - 1. Rangemaster
 - 2. Assistant Rangemaster
 - 3. PFTD Manager
 - 4. Authorized designee.
- 9.12.3 A RACR will be completed daily and submitted to the Rangemaster for review and approval for every user of the ranges at the LFR by the close of each business week. Activities will be observed and this form will be submitted for all users of the LFR conducting firearms activities, maintenance, or construction, or for any other user of an NTC LFR facility.
- 9.12.4 Rangemaster: Maintain the master file for all completed RACRs.

9.13 Test Plans

- 9.13.1 LFR Users: Complete the following tasks:
 - 9.13.1.1 A test plan and a risk analysis report must be developed for activities not addressed in NTC SOPs or risk analysis reports, and submitted to the Rangemaster a minimum of 4 weeks in advance.
 - 9.13.1.2 Test plan must include:
 - Scope
 - Roles and responsibilities
 - Methodology
 - Schedule

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- Facilities to be used
- Equipment, vehicles, weapons, and ammunition
- A copy of the safety briefing that must precede the test.

9.13.2 **Rangemaster:** Ensure the following individuals are notified when a request for evaluation or test is received by the PFTD and their signatures are included on the cover page of each test plan:

- Submitted by: Originator
- Reviewed by:
 - Rangemaster
 - PFTD Manager
 - ES&H staff
 - General Manager
- Approved by: NTC Director

10.0 LFR GENERAL OPERATIONS

10.1 Orientation

Non-DOE instructors must receive an LFR user briefing prior to using the LFR. This user briefing will include:

1. NTC Requirements Documents
2. Range Capabilities
3. Range Scheduling
4. Range Sign-in/Sign-out Logs and Range Use Log
5. Firearms Instructor Certifications
6. LFSH Certifications
7. Emergency Medical Personnel Certifications
8. Key and Gate Procedures
9. Vehicle Safety
10. Weapons and Ammunition
11. Target Systems
12. Lighting Systems
13. Range Safety Rules – General and Specific (see Appendix J)
14. Use of Range Flags or Beacons
15. Proper Use of Limit Poles
16. LFR Security
17. Emergency Procedures
18. NTC Cease Fire (Stop Work) Policy
19. Fire Conditions / Danger

10.2 Scheduling the Training Facilities by Non-NTC Users

NTC training courses will have priority for scheduling and use of the LFR facilities.

10.2.1 Non-NTC users may schedule use of the range facilities after the approved NTC training schedule has been posted. It is NTC policy to allow external organizations to

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schedule at least 3 months in advance. The Rangemaster and Assistant Rangemaster will work with requestors to de-conflict any scheduling conflicts.

- 10.2.2 Prior to performing any activities at the LFR, users must submit a completed RUA to the NTC Director and obtain approval. The RUA will be signed by a senior official of the requesting agency and will constitute an agreement to follow all requirements found in this SOP and other applicable documents. (The RUA form is available on the DOE/NTC website.)
- 10.2.3 The LFR Operations Administrative Assistant will maintain a list of the RUAs for all authorized users.
- 10.2.4 The LFR RUA will contain a list of authorized firearms instructors. Only listed instructors will be allowed to conduct training at the LFR. Any additions or deletions to this list must be submitted in writing to the LFR Operations Administrative Assistant and reviewed by the Rangemaster.
- 10.2.5 Scheduling (dates/times) for Area 4, No Sweat Blvd., Ranch House, and Air Force East Range (M-60) needs to be submitted to the Rangemaster 30 days prior to training for CFAC approval.
- 10.2.6 Users shall conduct firing activities only on the individual ranges they have specifically scheduled.
- 10.2.7 Classroom facilities available for non-NTC users after hours are limited to the MP Range Classroom and Classroom F.

10.3 LFR Sign-in/Sign-out

10.3.1 LFR Visitors and Users: Must complete the following tasks:

- 10.3.1.1 Stop at Building 099 and sign-in on the appropriate Sign-in/Sign-out Sheet. Visitors must list the name of the organization they are representing, the number in party, and purpose of visit.

NOTE: If Building 099 is not accessible, sign-in/sign-out logs are located in a yellow box on the east side of the main entrance.

- 10.3.1.2 Stop at Building 099 and sign-out on the appropriate Sign-in/Sign-out Sheet.

10.3.2 All LFR Users: Must complete the following tasks:

10.3.2.1 At Building 099:

1. Sign-in on the Range Use Sign-in/Sign-out Sheet.
2. Sign-in on the Range Activity Board to indicate which ranges will be used, the Lead Instructor, and the activity to be conducted.

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- 10.3.2.2 At each range they use: Sign-in on the Range Use Logs located in the yellow boxes outside of each individual range and document the Lead Instructor, the number of rounds fired by caliber, and the weight of the projectile.
- 10.3.2.3 At Building 099: During duty hours, ensure they erase their information from the Range Activity Board.

NOTE: Repeated failure to complete the Range Use Sign-in/Sign-out sheet fully may be reason to revoke the RUA for future use of the LFR facilities.

10.4 Main Gate and Individual Range Gates

- 10.4.1 During normal duty hours (0700-1630), the main gate and the individual range gates are opened.
- 10.4.2 Approved users will be issued appropriate keys for LFR use during non-duty hours by the Rangemaster or LFR Operations Administrative Assistant. Users will ensure LFR security is maintained during these hours by securing the individual range gate(s) and main gate upon exiting the LFR.
- 10.4.3 Range keys will be returned to the LFR Operations Administrative Assistant within two working days or left in the key drop box located outside the main gate.

10.5 Range Flags or Beacons

10.5.1 Red Range Flags/Beacons

Before any firearms activities can begin on the range, red flags will be raised. When visibility is limited by weather conditions or darkness, the flashing red beacon must be used. The flag will be secured and the flashing red beacon will be turned off at the conclusion of firing.

If the red beacon on any range fails to operate, the NTC instructor will retrieve a portable beacon from the instructor/computer locker and use it on the range where the failure occurred. The non-NTC user shall have a spare beacon readily available for use in the event the NTC beacon fails.

10.5.2 Yellow Range Flags

When personnel are located downrange of the firing line on any individual range, a yellow flag will be displayed indicating the range is closed. Firearms activities will be prohibited on ranges flying yellow flags.

When all ranges display yellow flags, no firing of any weapon will be allowed at the LFR.

Anytime individuals are present on the top of side or impact berms or in the composite SDZ, all ranges will display yellow flags.

Yellow flags may be removed only after the Rangemaster (or designee) inspects the range and authorizes its use.

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10.6 Instructor-to-Shooter Ratios

10.6.1 Instructor-to-shooter ratios will comply with DOE Order 473.3A, as follows:

10.6.1.1 One instructor to one shooter during:

1. Any initial automatic firing
2. Any course of fire involving movement other than straight down range

NOTE: Authorized courses of fire at the NTC shall not exceed the boundaries of the impact area of any individual range.

3. Any course of fire involving grenade launchers or belt-fed weapons

10.6.1.2 One instructor to four shooters during:

1. Initial training for stationary courses of fire
2. Night firing
3. Initial and incumbent shooting on the move courses of fire
4. LFSH activities
5. During requalification or training using controlled bursts for personnel who have qualified on at least one approved automatic course of fire

10.6.1.3 One instructor to eight qualified, stationary shooters firing in semiautomatic mode.

10.6.2 Certified NTC instructors are authorized to practice live fire without additional supervision, but they must:

1. Notify the Rangemaster or Assistant Rangemaster in advance.
2. Carry a radio.
3. Notify the on-duty paramedic (if on site) or take a trauma bag.

10.7 ESS and Training Aids

ESS weapons are not authorized for use at the LFR.

Training aids include mock firearms and simulated edged weapons with the appearance and handling characteristics of a real weapon, must be readily distinguishable from an actual weapon. These mock weapons must be comprised of a homogenous material incapable of accepting any form of magazine, feeding device, ammunition, or projectile, and are readily identifiable from a distance or in low-light conditions from live firearms or actual edged weapons. These training aids must be distinctly color-coded for identification purposes and may be used in conjunction with live fire training activities

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where the use of a training aid mitigates risk. However, they may never be used without fully briefing all possible participants.

An example of live fire training includes, but is not limited to, ballistic breaching training, room clearing, or weapon retention techniques. Training aids can be used when they present a safer training environment than using live weapons and must be incorporated into a risk analysis which addresses their use. These training aids may be used in either a classroom or live fire range environment. They may be stored separately in conjunction with live fire weapons.

Training aids authorized for use at the LFR may not be pointed at humans or used for any force-on-force activities.

10.8 Ammunition

- 10.8.1 Tracer and armor-piercing ammunition are prohibited for use on KAFB, including the NTC LFR. The use or storage of Hazard/Class Division 1.1, 1.2, and 1.3 explosives is prohibited at the LFR.
- 10.8.2 Ammunition and explosive storage, handling, and transportation will be conducted in accordance with DOE-STD-1212-2012, *Explosives Safety*, or AFM 91-201, *Explosives Safety Standards* (whichever is more stringent) and ESH-GP-549.
- 10.8.3 Live ammunition will be kept in factory containers until loaded into appropriate ammunition carriers. When ammunition carriers are unloaded, the live ammunition will be returned to the appropriate factory container. Any partially filled container will be marked to indicate the number of rounds remaining.
- 10.8.4 Ammunition delivered to the ranges will be placed on a bordered table top for dispensing.
- 10.8.5 Two people are required for ammunition issue and return from the ammunition storage bunkers. At least one must be the Rangemaster or LFR Maintenance staff member; the other must be an NTC PFTD instructor.
- 10.8.6 All ammunition must be handled in a safe manner consistent with this SOP and ESH-GP-549.
- 10.8.7 The Rangemaster is responsible for providing ammunition for NTC courses.
- 10.8.8 Lead Instructor: Responsible for the tasks below:
 - 10.8.8.1 At the end of each day of firing, collect and return all unused ammunition to Bunker #1. If an LFR Maintenance staff member is unavailable, the Lead Instructor will ensure all unused ammunition and NFDDs devices are placed in Bunker #1.
 - 10.8.8.2 Complete the NTC Ammunition Issue Log (Appendix D) located in Bunker #1. Record the ammunition types and quantities and the appropriate seal number on the log.
 - 10.8.8.3 Secure the temporary ammunition storage bunker, affix the seal, and request the ammunition bunker's alarm be set.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

10.9 Pyrotechnics

- 10.9.1 Pyrotechnics are authorized for use at the LFR R&D Range. Deviations must be approved by the Rangemaster, Assistant Rangemaster, or designee.
- 10.9.2 Smoke grenades will be limited to white smoke Combined Tactical Systems (CTS) Models 6210 or 8210 and NFDDs Model 7290.
- 10.9.3 Pyrotechnics will only be deployed outside in bang cans or on hard surfaces clear of combustible materials.
- 10.9.4 Pyrotechnics will only be deployed by those who are trained in their use.
- 10.9.5 Respiratory protection for the use of smoke grenades will not be required as long as individuals (instructors, students, and visitors) are not immersed in high-density smoke plumes (within 15 feet of a grenade). If the activity requires participants to remain within the plume for 7 minutes or longer, they must wear an approved respirator or move out of the plume as soon as possible. Instructors should make every attempt to minimize exposure to themselves and their students.
- 10.9.6 Personnel shall minimize their skin contact with smoke combustion byproducts by wearing clothing that covers their arms and legs, and by wearing gloves.
- 10.9.7 Expended pyrotechnics will be handled using leather or Nomex™ gloves. Duds will only be handled by trained, qualified instructors.
- 10.9.8 Instructors shall assure that pyrotechnics do not start fires. Combustibles shall be removed from the immediate area and fire extinguishers shall be available in areas where smoke grenades are being deployed.
- 10.9.9 Instructors will report expended NFDDs device serial numbers to the Rangemaster at the completion of each course.

10.10 Weapons Loading/Unloading

- 10.10.1 Instructor: Ensure shooters unload, clear, and safe firearms at appropriate times (e.g., before breaks, meals, returning to the classroom, placement in rifle racks, brass call, weapons cleaning, at the end of LFR activities, except when returning to duty).
 - 10.10.1.1 All weapons must be loaded and unloaded under the supervision of an instructor:
 - A. On a range, weapon pointed downrange, and within the range limit poles; or
 - B. Into an appropriate bullet containment device; and
 - C. In accordance with approved lesson plans and activity-specific risk analysis reports; and
 - D. At a designated area at the LFSH.
 - 10.10.1.2 Weapons used for dry fire demonstrations on ranges shall be unloaded and independently verified as safe and clear prior to use.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

- 10.10.1.3 All firearms demonstrations must be performed with unloaded or simulated weapons. Before using a firearm for classroom demonstration, clear it into a bullet containment device and ask a student or other instructor to verify that the weapon and magazine to be used have been cleared. Before conducting training within a classroom or training area using inert training rounds, two instructors will verify condition of the weapons and verify inert training rounds to be used.
- 10.10.1.4 Only clearly identifiable inert training rounds verified by two personnel may be used for ranges and classroom demonstrations.
- 10.10.2 Lead Instructor: Ensure instructors have weapons, holsters, radios, and other equipment that are safe and serviceable for use.
- 10.10.3 Instructor: Ensure participants weapons, holsters, radios, and other equipment to be used are in a safe and serviceable condition.

10.11 Exchanging of Firearms

- 10.11.1 LFR Users: Never give a firearm to, or take a firearm from, any person unless directed by an instructor. The weapon must be in a safe condition: safety on if applicable, ammunition and/or magazine removed, action open, and chambers clear.
- 10.11.2 Instructor: Prior to the exchange, verify the action is open, the chamber is empty, and the safety is on, if applicable.

10.12 Brass

NOTE: Do not put live ammunition in LFR trash cans.

- 10.12.1 All brass must be placed in designated containers.
- 10.12.2 Do not mix brass and unexpended ammunition.
- 10.12.3 Do not use hats or pockets to carry brass.

10.13 Breaching

- 10.13.1 Ballistic breaching activities will be allowed on the NTC LFR ranges with the direction of fire within the range limit poles and approval of the Rangemaster or Assistant Rangemaster.
- 10.13.2 Ballistic breaching and thermal and abrasive cutting may be conducted on NTC LFR ranges with the following limitations:
- No closer than 10 yards from the target line;
 - Within the designated range floor areas;
 - No closer than 25 yards from flammable or combustible materials or buildings;
 - Not authorized on the Shotgun Range and Rifle Range 2;
 - Water-filled or dry chemical fire extinguisher must be at each thermal and abrasive cutting station.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

10.14 Weapons Cleaning Rooms

NOTE: Absolutely NO live ammunition will be allowed in the weapon cleaning rooms.

10.14.1 Lead Instructor or designee: Responsible for the tasks below:

1. Inspect weapons for live rounds at the clearing barrel prior to entering weapon cleaning rooms.
2. Ensure the students are familiar with weapon cleaning procedures and use of the facility.
3. Inspect the cleaning rooms for cleanliness, secure cleaning supplies, and secure the cleaning rooms at the end of each day.

10.14.2 LFR Cleaning Room Users: Responsible for the tasks below:

1. Dispose of patches, towels, and other cleaning materials used for weapons cleaning in appropriately marked containers. Do not dispose of liquids in these containers.
2. Wear eye protection in the cleaning rooms when cleaning weapons using solvent and compressed air.
3. Wear protective gloves or barrier cream, which will be provided by the NTC, for hand protection.

NOTE: Compressed air used for cleaning purposes will be regulated at 30 psi maximum.

10.15 Weapons and Ammunition Malfunctions

When a weapon malfunctions and cannot be cleared by prescribed malfunction clearance methods, the shooter will keep the weapon oriented downrange and call for an instructor. If the weapon still cannot be cleared, an NTC gunsmith will be called to the firing line to clear the weapon and render it “safe”.

10.16 Render Safe Actions for NFDDs (Combined Tactical Systems [CTS] Model 7290)

- 10.16.1 Allow the device to sit at least 30 minutes.
- 10.16.2 Approach the device wearing eye and hearing protection, gloves, and long-sleeve shirt.
- 10.16.3 Use a long handled shovel to place the device in a large open plastic container or a flashbang barrel. Move the container to a safe place where it will not be disturbed.
- 10.16.4 Notify the Rangemaster of the location of the container.

NON-PROPRIETARY INFORMATION

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- 10.16.5 The Rangemaster (or designee) will take the container to either the 7-Position Range or the Vehicle Assault Pit, remove the device from the container and destroy it by shooting it with a .223 caliber (or larger) bullet to the center of the body.
- 10.16.6 LFR users that are not using CTS 7290, are required to follow the manufacturer's requirements.

10.17 Render Safe Actions for 40mm Training Practice Rounds

- 10.17.1 Keep the launcher pointed in a safe direction and shout "misfire."
- 10.17.2 Notify an instructor and wait 30 seconds in case the ammunition is a hang fire.
- 10.17.3 Attempt to fire the ammunition again up to three times.
- 10.17.4 If the ammunition will not fire, put the misfired ammunition into its original shipping container and clearly print the word "MISFIRED" on the outside
- 10.17.5 Notify the Rangemaster that the device has been placed in the container for disposal. Place the shipping container in the "Bad Ammo" area in Bunker 4 for disposal.

10.18 Damaged Rifle and Handgun Ammunition

- 10.18.1 When policing brass, retrieve any damaged ammunition and put it in the "Bad Ammo" can.
- 10.18.2 NTC Instructor: If several misfires are experienced with the same lot of ammunition, remove the ammunition from the firing line and notify the Rangemaster.
- 10.18.3 LFR Support Staff or Designated Instructor: Empty the "Bad Ammo" cans daily and transfer the contents to Bunker # 4 in the LFR Ammunition Storage Area.

10.19 Squibs

Warning: When the shooter presses the trigger, a "pop" is heard accompanied by reduced recoil. A squib may have lodged a projectile in the barrel of the weapon. If another round is fired into the obstructed barrel, the barrel could fail, causing an injury to the shooter or nearby personnel.

- 10.19.1 Instructor: Direct the shooter to maintain a position of readiness, with the muzzle pointed safely downrange for 15 seconds. Direct the shooter to unload the firearm.
- 10.19.2 Instructor: Inspect the ammunition to ensure both the projectile and case are intact. If the ammunition is not intact, inspect the bore for obstructions and place the damaged ammunition in the yellow "Bad Ammo" cans located on each range.
- 10.19.3 Gunsmith: Determine appropriate procedure for removing obstruction from barrel.
- 10.19.4 Instructor: Report multiple squib loads from the same lot to the Rangemaster.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

11.0 EMERGENCY PROCEDURES

11.1 Reporting Emergencies

- 11.1.1 Report emergencies at the LFR by dialing 911 (SNL Emergency Operations Center) from a landline phone.

NOTE: If using a cell phone, dial 844-0911. An additional means of reaching the SNL EOC is radio channel C-1.

- 11.1.2 An emergency use phone is located on the outside of Building 108, centrally located at the LFR, for off hour and/or weekend emergency use. A lock box next to the phone contains a charged radio for emergency use. The LFR key opens the lock box.

- 11.1.3 When making the call, individuals should be prepared to state:

1. The nature of the emergency (e.g., fire or medical)
2. The building number or location where emergency responders are needed
3. Their name and the phone number from where they are calling

The following NTC staff should also be informed of emergency situations as appropriate and as soon as possible:

Employee	NTC #
Rangemaster	845-2326
PFTD Manager	845-2321
LFR Safety Specialist	845-2330
ES&H Specialist	845-2058
Facilities Manager	845-2067
General Manager	845-4804
Federal Oversight, Facilities/Infrastructure and S&S Training	845-6359
NTC Director	845-6444

11.2 Emergency Actions

NTC-PM-504, *NTC Emergency Management Plan*, details actions to be taken in the event of an emergency at the LFR. A summary of emergency actions is posted at the emergency telephone located at each range.

11.3 Emergency Exercises

The LFR Safety Specialist and Rangemaster will schedule annual emergency exercises at the LFR to ensure proper actions are taken by emergency responders. Exercises should include supporting organizations such as SNL/NM, KAFB Fire Department, and EMS evacuation assets.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

11.4 Fire Conditions and Restrictions

- 11.4.1 Weather conditions involving long-term periods of dryness can adversely affect firearms activities due to increased fire hazard in Coyote Canyon. This includes the LFR and ISSTEC areas.
- 11.4.2 LFR Safety Specialist: Post the appropriate Fire Conditions Warning Signs and determine when conditions limit certain types of activities. This determination will be made in conjunction with U.S. Forest Service criteria (see Appendix E for such restrictions).

12.0 APPENDICES

- A – Sample Range Use Agreement
- B – Sample Range Sign In/Out Log
- C – Sample Range Use Log
- D – NTC Ammunition Issue Log
- E – U.S. Forest Service Fire Condition Warning Signs and Restrictions
- F – NTC Risk Analysis Compliance Review
- G – Actions to Take in Response to a Significant Event
- H – Live Fire Shoot House
- I – Range Fans of Fire
- J – Range Safety Rules

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

APPENDIX A – SAMPLE RANGE USE AGREEMENT

The current RUA form is available on the NTC website.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

APPENDIX B – SAMPLE RANGE SIGN-IN/SIGN-OUT LOG

Date	Time In	Time Out	Organization	Name	Personnel Information		Facilities Being Used/ Reason For Use
					Lead Instructor		
					Medic**		
					Lead Instructor		
					Medic**		
					Lead Instructor		
					Medic**		
					Lead Instructor		
					Medic**		
					Lead Instructor		
					Medic**		
					Lead Instructor		
					Medic**		
					Lead Instructor		
					Medic**		
					Lead Instructor		
					Medic**		
					Lead Instructor		
					Medic**		
					Lead Instructor		
					Medic**		
					Lead Instructor		
					Medic**		
				** Medical personnel must be a Paramedic or CPR/first aid and gunshot-wound certified.			

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

APPENDIX D – NTC AMMUNITION ISSUE LOG

Caliber:

Manufacturer:

Config:

Location - Magazine:

Date	Class / Purpose	Action By	Amount Out (-)	Amount In (+)	Balance
					(+)
					(-)
ENTER AMMUNITION BALANCE IN THIS BLOCK =====>					
					(+)
					(-)
ENTER AMMUNITION BALANCE IN THIS BLOCK =====>					
					(+)
					(-)
ENTER AMMUNITION BALANCE IN THIS BLOCK =====>					
					(+)
					(-)
ENTER AMMUNITION BALANCE IN THIS BLOCK =====>					
					(+)
					(-)
ENTER AMMUNITION BALANCE IN THIS BLOCK =====>					
					(+)
					(-)
ENTER AMMUNITION BALANCE IN THIS BLOCK =====>					

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

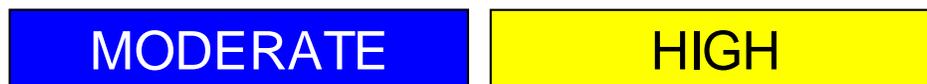
APPENDIX E – U.S. FOREST SERVICE FIRE CONDITION WARNING SIGNS AND RESTRICTIONS

It is Kirtland Air Force Base (KAFB) policy to be one level above the Cibola National Forest Fire Danger Rating.

KAFB will never be at a low Fire Danger Rating.

Ascertain the current fire and weather conditions prior to conducting activities in Coyote Canyon and, in particular, note if a “Red Flag Warning” is in effect for Albuquerque through the National Oceanic and Atmospheric Administration (NOAA) website. Activities outside the confines of the Live Fire Range (LFR) will be terminated or suspended if a “Red Flag Warning” condition is in effect.

The Fire Danger Classes listed below provide specific guidance relative to conditions and restrictions.



MODERATE (blue background with white lettering) and **HIGH** (yellow background and black lettering)

Restricts fires (open flame) and smoking to developed test sites. Use of pyrotechnics or blank ammunition will be permitted on the developed test sites in approved sandbagged or pitted areas and on the blacktop of “No Sweat Boulevard”. Vehicles are restricted to paved or dirt roads or low-grass areas.

Additional guidance:

- Normal activities involving the use of small arms ammunition within the NTC LFR are permitted. No tracer ammunition is allowed.
- Use of flares is prohibited.
- Pyrotechnics are only authorized for use at the LFR R&D Range. Smoke grenades will be limited to white smoke Combined Tactical Systems (CTS) Models 6210 or 8210 and NFDDs Model 7290.
- Pyrotechnics will only be deployed in the LFSHs or outside in bang cans or hard surfaces clear of combustible material. Deviations must be approved by the Rangemaster or Assistant Rangemaster.
- Only designated instructors will deploy pyrotechnics in the above-mentioned approved areas under this fire danger classification.
- Fire extinguishers and water pack extinguishers will be readily available.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

- Off-road vehicle traffic should be minimized and limited to established roads and paths or low-grass areas.

VERY HIGH

VERY HIGH (orange background with black lettering)

Restricts fires (open flames), smoking, and pyrotechnics. Smoking is permitted in non-government vehicles or approved smoking areas only. Use of pyrotechnics is permitted only in approved sandbagged or pitted areas; vehicles are restricted to paved or graded roads. “Burn Site” testing that emits embers with sufficient thermal capacity to start a fire outside of the cleared facility area is not allowed. Welding operations are restricted to areas cleared of weeds and other materials capable of burning to 35 feet.

Additional guidance:

- Normal activities involving the use of small arms ammunition within the NTC LFR are permitted. Rounds must be contained within the confines of the range berms. No tracer ammunition is allowed.
- Use of flares is prohibited.
- Pyrotechnics are only authorized for use at the LFR R&D Range and inside the perimeter fence at the NTC’s Integrated Safety and Security Training and Evaluation Complex (ISSTEC). Smoke grenades will be limited to white smoke Combined Tactical Systems (CTS) Models 6210 or 8210 and NFDDs Model 7290.
- Pyrotechnics will only be deployed at the LFR R&D Range and inside the perimeter fence at the ISSTEC. Pyrotechnics used outside will be exploded in bang cans or on hard surfaces clear of combustible material. Deviations must be approved by the Rangemaster or Assistant Rangemaster.
- Only designated instructors will deploy pyrotechnics in the above mentioned approved areas under this fire danger classification.
- Fire extinguishers and water pack extinguishers will be readily available.
- Off-road vehicle traffic should be minimized and limited to established roads and paths or low-grass areas.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

EXTREME**EXTREME** (red background with white lettering)

Restricts fires (open flames) and pyrotechnics. Use of pyrotechnics will be approved on a case-by-case basis to meet critical mission requirements. Smoking is allowed only inside non-government vehicles. No outside smoking is allowed in the remote Research and Development areas. “No Sweat Boulevard” is off limits to all individuals, even if pyrotechnics are not being used. Suspend non-essential testing operations. Welding operations are restricted to indoor areas or areas that have been shielded by partitions or welding drapes.

Additional guidance:

- Normal activities involving the use of small arms ammunition within the NTC LFR is permitted. Rounds must be contained within the confines of the range berms. No tracer ammunition is allowed.
- Use of flares is prohibited.
- Pyrotechnics are only authorized for use at the LFR R&D Range and inside the perimeter fence at the NTC’s ISSTEC. Smoke grenades will be limited to white smoke CTS Models 6210 or 8210 and NFDDs Model 7290.
- Pyrotechnics will only be deployed at the LFR R&D Range and inside the perimeter fence at the ISSTEC. Pyrotechnics used outside will be exploded in bang cans or on hard surfaces clear of combustible material. Deviations must be approved by the Rangemaster or Assistant Rangemaster.
- Only designated instructors will deploy pyrotechnics in approved areas under this fire danger classification.
- Fire extinguishers and water pack extinguishers will be readily available.
- Off-road vehicle traffic should be minimized and limited to established roads and paths or low-grass areas.

NOTE: The Sandia Site Office will evaluate use of “No Sweat Boulevard” on a case-by-case, activity-specific basis. Contact the Environmental Office at 845-5542 and the 377th ABW Fire Marshall (or delegate). Both have the authority to supersede restrictions.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

APPENDIX F – NTC RISK ANALYSIS COMPLIANCE REVIEW

Name of Class / Process:		Date of Review:			
Name of Lead Instructor / Supervisor:		Location of Review:			
Name of Reviewer:		Activity Being Reviewed:			
Review Points	Yes	No	N/A	Notes	
Are course / process documents complete, current and present?					
Is activity being conducted with correct personnel or student/instructor ratios?					
Are personnel wearing the correct PPE for the activity?					
Is activity being conducted in due consideration of the current weather?					
Is required communication present and in working order?					
Was a safety brief specific to the activity given?					
Is required specialized safety equipment present? (bang cans, fire extinguishers, etc.)					
Is the activity being conducted/performed as per the lesson plan/work plan?					
Is / are the appropriate medical personnel available/present for the activity being performed?				Medic:	
Have the staff, students, and employees / range users been informed of their "stop work" / "cease fire" rights?					

Rev. Jan 2019

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APPENDIX G – ACTIONS TO TAKE IN RESPONSE TO A SIGNIFICANT EVENT

G.1 Policies

Individuals involved in a significant event should immediately take appropriate emergency actions to preserve the safety and well-being of the individuals and equipment involved in the event.

- A. NTC employees are responsible for reporting all details associated with the significant event and complying with all investigative measures.
- B. Non-NTC users will notify the NTC Rangemaster or PFTD Manager as soon as possible.

G.2 Reporting the Event

If a significant event occurs, the affected person (i.e., NTC employee or LFR user) is responsible for reporting the event (as shown in the charts below) and complying with NTC reporting procedures.

Training (Student or Visitor) Accident / Event		
Main Campus	<ul style="list-style-type: none"> ▪ Affected person ▪ Instructor ▪ Training Manager ▪ ES&H Specialist ▪ Contract Security Officer ▪ Senior Management / Directors 	General Manager → NTC Director
LFR	<ul style="list-style-type: none"> ▪ Affected person ▪ Lead Instructor ▪ Senior Instructor ▪ PFTD Manager ▪ LFR Safety Specialist ▪ Rangemaster ▪ Contract Security Officer ▪ Senior Management / Directors 	General Manager → NTC Director
ISSTEC	<ul style="list-style-type: none"> ▪ Affected person ▪ Instructor ▪ Senior Instructor ▪ Training Manager ▪ ES&H Specialist ▪ Rangemaster ▪ Contract Security Officer ▪ Senior Management / Directors 	General Manager → NTC Director

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

Non-Training (Employee) Accident / Event		
Main Campus	<ul style="list-style-type: none"> ▪ Affected person ▪ Manager / Supervisor ▪ ES&H Safety Specialist ▪ Human Resources Generalist ▪ Senior Management / Directors 	General Manager → NTC Director
LFR	<ul style="list-style-type: none"> ▪ Affected person ▪ PFTD Manager ▪ Rangemaster ▪ ES&H Safety Specialist ▪ Human Resources Generalist ▪ Senior Management / Directors 	General Manager → NTC Director
ISSTEC	<ul style="list-style-type: none"> ▪ Affected person ▪ Rangemaster ▪ ES&H Safety Specialist ▪ Human Resources Generalist ▪ Senior Management / Directors 	General Manager → NTC Director

If required:

1. NTC employees are responsible for compliance with ESH-GP-527, *Occurrence Reporting*.
2. The Human Resources Generalist will be contacted if there is potential for a Worker's Compensation claim.
3. The ES&H Specialist will complete an occurrence report and/or Computerized Accident and Injury Reporting System (CAIRS) report, and submit the report(s) to the DOE Occurrence Reporting Processing System (ORPS) or DOE CAIRS database.
4. The Contract Security Manager will coordinate with DOE Headquarters regarding submission of an occurrence report to the DOE Safeguards and Security Information Management System (SSIMS) database.

G.3 Investigating the Event

1. Senior Instructor and ES&H Staff:
 - a. Secure the incident scene as an "accident scene" in order to preserve evidence.
 - b. For incidents involving firearms, secure weapon(s) for gunsmith's evaluation.

NOTE: If a UD has occurred, call a "CEASE FIRE," stop all live fire activities on that range, unload the individual's firearm(s), and remove them from the range to a controlled location.
 - c. Obtain written statements from all involved parties (instructors, students, and observers) as soon as practicable.
 - d. Collect evidence (including but not limited to):

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This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

- Photographs, if possible;
 - Accurate, measured diagrams of the scene showing locations of all instructors, students, and observers; target locations; direction of fire; and bullet(s) and fragment(s) impact(s) locations;
 - Ammunition details, including lot number, firearm type (including description and serial number), and firearm condition immediately after a UD; and
 - Environmental conditions such as temperature, wind speed and direction, and lighting conditions.
- e. Complete Supervisor's Report Form for Work-Related Injuries/Illnesses/Vehicle Accidents/Near Misses/Property Damage, including photographs, drawings, statements, and evidence.
- f. Consider accident reconstruction to evaluate events with concurrence of the Rangemaster or PFTD Manager and NTC Director or designee, under written test plans, and in a manner to preserve evidence.
- g. Obtain Cognizant DOE Authority (NTC Director) authorization of:
- The release of the incident scene;
 - The release of firearms, related equipment, and other evidence for use;
 - Affected personnel to return to duty; and
 - Resumption of the suspended activity.

G.4 UD-Specific Procedures

1. Lead Instructor: In addition to the above requirements, follow the UD-specific procedures below:
 - a. Immediately cease the training, qualification, or firearms activities in which the UD occurred.
 - b. Clear the firearm(s) that fired and make them safe under the observation of a firearms instructor.
 - c. Begin the incident investigation.
2. Firearms Instructor: Record the condition of the firearm(s) and any comments on any observed firearm-related topics (for example, malfunctions).
3. Lead Instructor:
 - a. Immediately take the firearm(s) that fired the UD and any involved equipment (such as holsters, tactical bags, body armor, equipment vests, etc.) into custody as evidence and control it to preserve and record the chain of custody.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

- b. Provide the firearm(s) involved in the UD to an NTC gunsmith for a function check.
4. Gunsmith: Document the function check findings.
5. Cognizant DOE Authority (NTC Director): Must authorize:
 - The release of the incident scene
 - The release of firearms, related equipment, and other evidence for use
 - Personnel to return to duty
 - Resumption of the activity

APPENDIX H – LIVE FIRE SHOOT HOUSE

H.1 Scope

This document applies to all LFSH operations except maintenance. Applicable operations include training, demonstrations, rehearsals, testing or evaluation, and live-fire or dry practice exercises under day and night conditions. This document applies to DOE Federal or contractor personnel, NTC instructors and staff (both permanent and intermittent part-time), students (regardless of their place of employment), non-DOE agencies that may use LFSH 114 and LFSH 115, and observers.

Failure to comply with the safety rules presented in this document may be cause for removal from LFSH 114 and LFSH 115. NTC employees may be subject to disciplinary actions, up to and including termination.

H.2 Definitions

H.2.1 ELEVATED OBSERVATION CONTROL PLATFORM (EOCP). The observation platform that overlooks the rooms in an LFSH. Use of this platform enhances the ability of the instructors to observe and control training operations within an LFSH.

H.2.2 LIVE FIRE SHOOT HOUSE INSTRUCTOR. An instructor who has successfully completed TRF-420 and PFT-501 (for DOE instructors) or has had their certifications reviewed and approved by the PFTD Manager or designee.

H.3 Responsibilities

H.3.1 Rangemaster

H.3.1.1 Responsible for approving bullet traps and ammunition used within a LFSH.

H.3.1.2 Ensures compliance with LFR safety rules.

H.3.1.3 Reports significant events to the General Manager (see Appendix G, Section G.2)

H.3.2 PFTD Manager

H.3.2.1 Responsible for the safe operation of LFSH training, qualification, and evaluation activities for all users.

H.3.2.2 Ensures instructors are qualified to operate a LFSH.

H.3.2.3 Reviews and approves LFSH certifications for all instructors.

H.3.1.3 Reports significant events to the General Manager (see Appendix G, Section G.2)

H.3.3 Lead Instructor

The Lead Instructor is responsible for the overall safe conduct of activities at LFSHs. The Lead Instructor must be present during all operations and may serve as the Range

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

Safety Officer (or this function may be designated to a qualified instructor with delineated LFSH safety responsibilities).

- H.3.3.1 Ensures the requirements to support activities are arranged (e.g., targets, ammunition, medical support, support equipment, classrooms, and training aids).
- H.3.3.2 Delegates and assigns responsibilities to other instructors.
- H.3.3.3 Notifies NTC management and any injured individual's supervisor of any occupational injuries/illnesses that require medical attention other than minor first aid as soon as it is practical.
- H.3.3.4 Ensures compliance with LFR safety rules.
- H.3.3.5 Ensures all training operations are conducted in accordance with approved lesson plans, risk analyses, and SOPs.
- H.3.3.6 Ensures LFSH instructors are briefed on their responsibilities for the safe conduct of the training.
- H.3.3.7 Assigns at least one EOCP instructor to observe the training operation and one ground instructor per four students.
- H.3.3.8 Reports significant events to the PFTD Manager and Rangemaster.

H.3.4 Range Safety Officer

The Range Safety Officer is responsible for the overall safe conduct of activities at LFSHs. The Lead Instructor must be present during all operations and may serve as the Range Safety Officer (or this function may be designated to another instructor with delineated safety responsibilities).

- H.3.4.1 Ensures the requirements to support activities are arranged (e.g., targets, ammunition, medical support, support equipment, classrooms, and training aids).
- H.3.4.2 Delegates and assigns responsibilities to other instructors.
- H.3.4.3 Ensures all participants and observers in LFSHs and on the EOCP during a live-fire exercise are wearing eye and hearing protection and non-slip above-the-ankle footwear.
- H.3.4.4 Notifies any injured individual's supervisor and NTC management of any occupational injuries/illnesses that require medical attention other than minor first aid as soon as it is practical.
- H.3.4.5 Ensures compliance with LFR safety rules.
- H.3.4.6 Ensures all training operations are conducted in accordance with approved lesson plans, risk analyses, and SOPs.

NON-PROPRIETARY INFORMATION

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- H.3.4.7 Ensures LFSH instructors are briefed on their responsibilities for the safe conduct of the training.
- H.3.4.8 Assigns at least one EOCP instructor to observe the training operation and one ground instructor per four students.
- H.3.4.9 Reports significant events to the PFTD Manager and Rangemaster.

H.3.5 Instructors

- H.3.5.1 Evaluate and document student performance during firearms activities.
- H.3.5.2 Ensure LFSH 114 or LFSH 115 is clear of personnel before firearms activities begin.
- H.3.5.3 Ensure there are no tripping hazards such as trash expended ammunition, pooled water, or snow or ice on the floor of LFSH rooms.
- H.3.5.4 Gives commands of execution and observes actions in the LFSH.
- H.3.5.5 Supervise and control the issue, use, turn-in, and disposal of all ammunition and NFDDs used during training.
- H.3.5.6 Ensure shooters have received training on the NFDDs to be used in a LFSH. This training will include nomenclature, safety features, deployment procedures, procedures for handling unexploded devices (duds), and other relevant item-specific information.

NOTE: Students must not handle dud NFDDs.

H.3.6 LFR Maintenance Staff

- H.3.6.1 Work under the direction of the Rangemaster.
- H.3.6.2 Ensure the LFSHs are free of trash, water, snow, or ice accumulations prior to training.
- H.3.6.3 Conduct bullet trap checks when the LFSHs are operational, and document all maintenance to the bullet traps on the LFR Bullet Trap Maintenance Record (Annex E).
- H.3.6.4 Document all bullet trap maintenance identified in as needed inspections on the LFR Bullet Trap Maintenance Record, and submit documentation to the LFR Training Coordinator (see Annex E for a list of inspection and approval requirements).

NOTE: As needed, the bullet traps will undergo a detailed inspection. If required, replace the steel, Linatex®, all 2 x 4 framing, and casters, welds, plywood, and counter weights in accordance with the DOE Use of Bullet Traps and Steel Targets.

- H.3.6.5 Inspect and maintain LFSH walls, doors, all wood coverings, breaching training aids, walking and working surfaces and interior and exterior lighting.

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H.3.7 LFR Safety Specialist (or designee)

- H.3.7.1 Conducts a weekly walk-through inspection of the condition of all walls and bullet traps, recording results on the LFSH weekly inspection forms (Annexes F and G).
- H.3.7.2 Ensures compliance with LFSH safety rules.

H.3.8 RUA Users

- H.3.8.1 May use an LFSH if:
 - A. There is authorization from the NTC Director in the form of a current RUA.
 - B. The LFSH has been scheduled through the NTC web site.
 - C. The requirements of DOE O 473.3A for first aid, cardiopulmonary resuscitation (CPR) certification, and handling of gunshot wound training have been met, and copies of the certifications are on file with the RUA at the LFR.
- H.3.8.2 Adhere to established safety policies and procedures at all times.
- H.3.8.3 Prior to and upon completion of scheduled LFSH operations, conduct a daily walk-through inspection of the condition of all walls and bullet traps, recording results on the LFSH Pre- and Post-Training Walk-Through Form (Annexes A and B), and place the completed inspection forms in the form box located at the entrance to LFSH 114 or LFSH 115.

H.4 LFSH Operations

H.4.1 LFSH Instructor Qualification Requirements

- H.4.1.1 All qualifications and training of LFSH instructors must be documented.
- H.4.1.2 Qualifications for non-DOE users will be documented and reviewed by the LFR Administrative Assistant, Rangemaster, or PFTD Manager prior to using the LFSH, and filed with the RUA and LFSH User Agreement (LFSHUA).
- H.4.1.3 NTC LFSH Instructors: Must have successfully completed the following:
 - A. All requirements for PFT-501, *Live Fire Shoot House Instructor Certification*
 - B. Recertification requirements (documented) for:
 1. Semi-annual completion of the LFSH qualification test with a minimum score of 90%, and
 2. Semi-annual completion of the DOE "Shooting On The Move" qualification courses for pistol and long gun with a minimum score of 90%, and
 3. Annual completion of 20 hours of live-fire operations within the LFSH.

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H.4.2 Student Qualification Requirements

- H.4.2.1 NTC students must qualify on the “Combined Qualification” course of fire at 90% prior to participating in LFSH activities.
- H.4.2.2 RUA users must complete a comparable course of fire as approved Rangemaster and the PFTD Manager or designees.

H.4.3 Targets and Bullet Traps

Types of targets approved for use in LFSH 114 and LFSH 115 are:

- A. Paper Targets. Paper targets are stapled to the bullet trap and centered, left to right, on the bullet trap. The head-scoring zone of the target must be placed a minimum of 6 inches below the top of the bullet trap.
- B. Three-dimensional (3-D) Targets. 3-D targets may be used in front of the bullet traps or other backstop materials approved by the NTC Rangemaster. The targets must be placed in front of, and centered on, bullet traps.
- C. Drop Targets. The drop target system must operate in such a manner that the shooter can recognize when the target is no longer a threat and does not require additional rounds on target. The drop target system may use a blinder, which hides the target after it has fallen from the bullet trap, or the target may fall to the ground in front of or to the side of the bullet trap.

See Figure H-1, Bullet Trap Design.

H.4.4 Bullet Trap Positioning

Bullet traps will be positioned so that if a round misses a target, it will not cross the path of another person’s movement. Bullet traps will be positioned so that a shooter cannot engage a target at greater than 30 degrees from either left or right of center. Blinders, obstructions, or other means may be used to accomplish this angle limitation.

H.4.5 Bullet Trap Rules of Engagement

In the event a shooter misses the bullet trap, the following actions will be followed:

- H.4.5.1 Once discovered, an instructor will call a cease fire and notify the Rangemaster and PFTD Manager or designee immediately.
- H.4.5.2 If caused by an NTC participant, that participant will be removed from LFSH activities.
- H.4.5.3 If caused by a RUA participant, that participant shall no longer be authorized access to the LFSHs until otherwise authorized by the Rangemaster or PFTD Manager. Costs for damages may be charged to the RUA holder.

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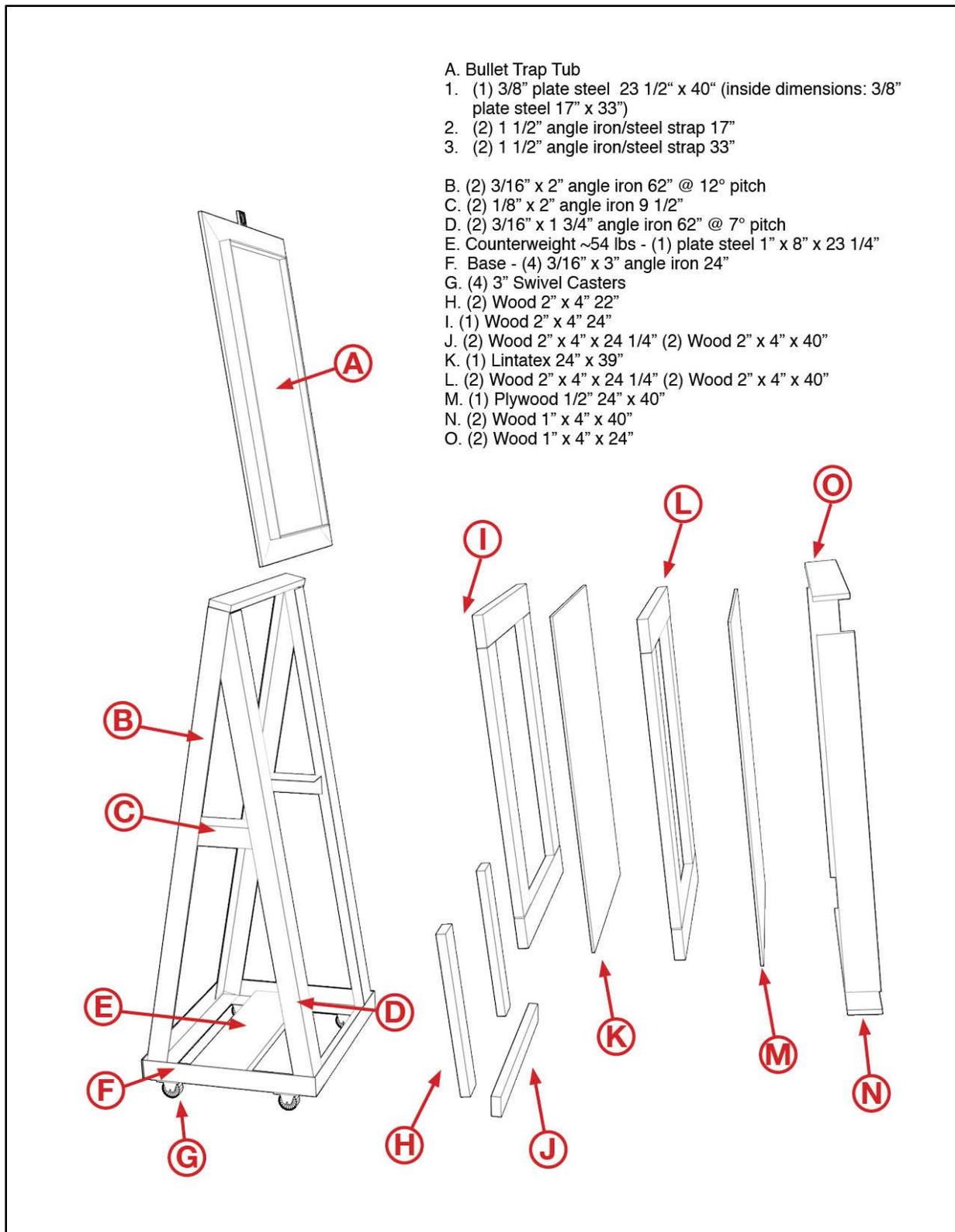


Figure H-1. Bullet Trap Design

NON-PROPRIETARY INFORMATION

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H.4.6 Elevated Observation Control Platform

All individuals on the EOCP during live-fire training operations must wear eye and hearing protection, non-slip shoes, and body armor.

Dignitaries requesting to observe activities conducted by non-NTC agencies require notification of the NTC Director prior to activities being conducted.

H.4.7 LFSH Safety Briefing

Shooters must receive a safety briefing before participating in training. The initial briefing must include the Four General Firearms Safety Rules and the Specific Range Safety Rules per DOE O 473.3A and the following LFSH Specific Rules. Daily briefings will include the Four General Firearms Safety Rules and the LFSH Specific Rules.

LFSH Rules:

1. During all movement, keep your weapon at the low-ready position.
2. As soon as your sights come off the target, place your trigger finger straight along the frame.
3. As soon as your offensive actions have stopped or any time you plan to move a significant distance, place the weapon on safe if so equipped.
4. Immediately upon termination of an operation, weapons must be in the low-ready position, safety on if so equipped, and trigger finger straight along the frame. Await further commands from the instructor.
5. Every participant is a safety officer. If you observe an unsafe act or condition, shout "CEASE FIRE."
6. Whenever you hear a whistle blast or "CEASE FIRE", freeze and place your trigger finger straight along the frame. Wait for further commands from the instructor.
7. Remain constantly alert to weapons manipulation and muzzle discipline. Never cover anyone with a weapon.
8. Direct all rounds into the bullet traps or target backstops. Do not engage a target at an angle greater than 30°.
9. A missed shot off a bullet trap by an NTC student during the course of LFSH activities will result in that individual no longer participating in LFSH activities.
10. Remain aware of your target's background. If the target is too near a teammate or instructor, don't shoot. Remember the 1-meter rule.
11. Unless you are certain that a shot is safe, don't shoot.
12. Never follow someone going the wrong way. Take over their assigned area of responsibility.

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13. If you go the wrong way by mistake, don't attempt to turn back. You are committed to your new course.
14. Never shoot across an open space into a teammate's area of responsibility.
15. Exercise fire discipline using the fewest number of rounds to solve the problem.
16. Never stop to clear a malfunction. If your primary weapon malfunctions, keep moving and transition to your handgun.

Additional briefings that must be conducted are the NFDDs and the breaching shotgun safety briefings when they will be used as part of the activity.

H.4.8 Instructor-to-Shooter Ratios

All LFSH users must comply with the instructor-to-shooter ratios found in DOE O 473.3A. The minimum ratios will be 1-to-4 for all TRF operations and 1-to-1 for all non-TRF operations. Ratios may be increased (more instructors may be assigned), as necessary, based on the instructor's evaluation of student's language barrier, physical abilities, skill level, weapon manipulation, and overall adherence to safety.

H.4.9 Weapons and Ammunition Allowed

NOTE 1: Failure to comply with the LFSH weapon and ammunition restrictions may result in the loss of privileges at LFSH 114 or LFSH 115. Concealed weapons are prohibited at NTC facilities.

NOTE 2: Non-modified agency-issued weapons are authorized for use in the LFSH 114, LFSH 115 or elsewhere at the LFR. Privately owned weapons officially recognized as duty weapons by non-NTC user agencies may only be authorized for use in LFSH 114, LFSH 115, or elsewhere at the LFR after they have been inspected by an NTC gunsmith and approved by the Rangemaster or the PFTD Manager.

H.4.9.1 Only DOE ammunition will be used with DOE weapons.

H.4.9.2 All weapons and ammunition must be stored in an approved location.

H.4.9.3 LFSH 114 or LFSH 115 are designed and built for the use of handgun caliber and 5.56mm frangible lead free rifle ammunition. All personnel within a LFSH will ensure that only the below specified firearms and ammunition are used during training.

A. Weapons Allowed: Conventional caliber handguns, submachine guns, rifles firing frangible lead free 5.56 mm/.223 Remington ammunition, and shotguns firing lead free breaching rounds are approved for use in an LFSH.

B. Ammunition Allowed:

1. The following ammunition has been approved by the NTC Rangemaster and may be used within an LFSH:
 - Frangible, lead free handgun ammunition

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- 5.56mm frangible, lead free rifle ammunition
- Lead free shotgun breaching rounds

In addition, non-fragmenting NFDDs devices may be used.

2. When requesting use of a LFSH, non-DOE users must specify what type of ammunition will be used. The Rangemaster will approve or disapprove the request based upon the ammunition listed at the time the request is submitted.

H.4.10 ESS and Training Aids

ESS weapons are not authorized for use at the LFR.

Training aids include mock firearms and simulated edged weapons with the appearance and handling characteristics of a real weapon, yet are readily distinguishable from an actual weapon. These mock weapons are comprised of a homogenous material incapable of accepting any form of magazine, feeding device, ammunition, or projectile, and are readily identifiable from a distance or in low-light conditions from live firearms or actual edged weapons. These training aids must be distinctly color-coded for identification purposes and may be used in conjunction with live fire training activities where the use of a training aid mitigates risk. However, they may never be used without fully briefing all possible participants.

An example of live fire training includes, but is not limited to, ballistic breaching training, room clearing, or weapon retention techniques. Training aids can be used when they present a safer training environment than using live weapons and must be incorporated into a risk analysis which addresses their use. These training aids may be used in either a classroom or live fire range environment. They may be stored separately in conjunction with live fire weapons.

Training aids authorized for use at the LFR may not be pointed at humans or used for any force-on-force activities.

H.4.11 Noise Flash Diversionary Devices (NFDDs)

- H.4.11.1 Shooters must wear fire-resistant gloves during NFDD deployment.
- H.4.11.2 Full-charge NFDDs must not be deployed in occupied rooms except under controlled training conditions with an approved safety analysis.
- H.4.11.3 Sub-charge NFDDs may be deployed in occupied areas or rooms with approval of the ES&H Department.
- H.4.11.4 Instructions on the approved procedures for the safe handling of dud NFDDs must be provided to all participants and will be followed at all times.
- H.4.11.5 Participants must not deploy operational (full power) or training NFDDs into rooms or hallways that are occupied by personnel.
- H.4.11.6 Instructors will report expended NFDDs device serial numbers to the Rangemaster at the completion of each course.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

H.4.12 Night Operations

Lead Instructor: Prior to nighttime LFSH activities, the following actions must be accomplished.

- H.4.12.1 Verify the LFSH lighting system is operational.
- H.4.12.2 Verify the weapon-mounted or handheld lighting systems are operational.
- H.4.12.3 Ensure different colored chemical light sticks are available for ready identification of instructors, students, and observers.
- H.4.12.4 Practice the activity in daylight prior to conducting the activity in low-light or night conditions.

H.4.13 Safety

- H.4.13.1 Lead Instructor: Responsible for the safety of all instructors, shooters, students, and observers at all times. For non-DOE users, the safety briefing will be signed by the instructor and observers.
- H.4.13.2 Observer: Adhere to the requirements below:
 - A. Wear required PPE (eye protection, hearing protection, non-slip footwear, and body armor) while on the EOCP.
 - B. Follow the directions of the Lead Instructor at all times. The Lead Instructor will designate where observers are to stand during observation of training.
 - C. Never attempt to communicate with a shooter without the permission of an instructor. If a potentially hazardous situation is noticed, immediately notify an instructor.
- H.4.13.3 Neither instructors nor observers should ever stand directly above, adjacent to, or transition over a bullet trap while that trap is being engaged by a shooter.

H.4.14 Duty Equipment

All Personnel: Use the following duty equipment when training in a LFSH:

- A. Non-slip, above-the-ankle boots must be worn by personnel directly involved in LFSH activities.
- B. Personnel in an LFSH who deploy NFDDs must wear serviceable, fire-resistant gloves, long-sleeve shirts, and eye and hearing protection.
- C. Personnel in an LFSH who are shooters participating in NTC TRF courses will wear helmets when required. NTC will provide helmets when they are required.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

H.4.15 Risk Analyses

All LFSH users will adhere to the risk controls identified in NTC LFSH risk analysis report that is available. Users should contact the LFR Administrative Assistant to view a copy of the LFSH risk analysis report

H.4.16 Post-operational Procedures

H.4.16.1 Lead Instructor: At the conclusion of activities at a LFSH, ensures the following actions are completed:

- A. All weapons are safe, cleared, and inspected to ensure no live ammunition is present.
- B. All weapons, ammunition, NFDDs, body armor, and any other equipment used during the activity have been accounted for.
- C. All weapons, ammunition, and equipment are properly stored.
- D. All brass has been collected and all debris within the LFSH has been removed.
- E. All injuries sustained by students during the activity have been reported.

H.4.16.2 LFSH Users: Prior to and upon completion of scheduled LFSH operations, the user shall conduct a walk-through inspection of the condition of all walls and bullet traps, recording results on the LFSH weekly inspection forms (Annexes F and G). The completed form shall be provided to the LFR Training Coordinator. During non-duty hours, the completed inspection forms should be placed in the form box located at the entrances to LFSH 114 and LFSH 115. Failure to comply may result in the suspension of that organization's RUA; for NTC personnel, appropriate administrative action may apply.

H.4.17 Video Recording

H.4.17.1 LFSH video recording is only authorized for use to support NTC activities.

H.4.17.2 NTC instructors or staff wanting to use the video technology in LFSH 115 must have prior approval from the NTC Rangemaster or PFTD Manager. At that time, the Rangemaster, PFTD Manager, or LFR Technology Coordinator will provide a detailed description of the system and directions for its use.

H.4.17.3 Course-specific videos will not be authorized for distribution and will be deleted at the end of each course.

H.4.17.4 Videos produced to support NTC courses must be reviewed by subject matter experts (SMEs) prior to use in a course and may not be shared without NTC Director's approval.

H.5 ANNEXES

A – LFSH 114 Pre- / Post-Training Walk-Through Form

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

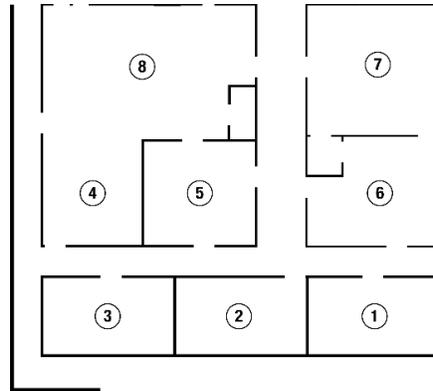
- B – LFSH 115 Pre- / Post-Training Walk-Through Form
- C – Bullet Trap Maintenance Record
- D – LFSH 114 Weekly Inspection
- E – LFSH 115 Weekly Inspection
- F – Bullet Trap Detailed Inspection Criteria
- G – Bullet Trap Daily User Inspection Criteria
- H – LFSH Video Recording Authorization Form
- I – Observer Safety Brief

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

ANNEX A – LFSH 114 PRE- and POST-TRAINING WALK-THROUGH FORM

Organization: _____



NOTE: Damage to moveable walls or partitions must be indicated on this schematic.

Comments: _____

Prior to training in the NTC LFSH, the user shall perform a walk-through inspection of the facility and identify all bullet holes in walls, inspect bullet traps, and note other damage. (Questionable bullet traps will be taken out of service). Damaged bullet traps will be marked with a large X, taken outside, and removed from service immediately.

LFSH INSPECTION

- _____ Walls (bullet holes, large fragments, loose panels)
- _____ Doors (on hinges, inserts)

BULLET TRAP INSPECTION

- _____ 360-degree inspection of seam caps and frame (look for voids, gaps, and missing seam caps).
- _____ Inspect Linatex for self-sealing qualities (ensure that steel is not visible and no holes bigger than ¼-inch).
- _____ Inspect rear of armor plate for holes, cracks, and bulges (ensure you cannot feel dimpling on back of steel plate).
- _____ Inspect frame, casters, bullet traps, and counter-weights for breakage or loose bolts.

NOTE: Report all discrepancies to the Rangemaster or designee. Upon completion of training, the user shall perform another walk-through inspection of the facility and identify any bullet holes in walls, damaged bullet traps, or other damage. The completed inspection forms are to be placed in the form box located at the entrance to LFSH 114 upon completion of inspection. Failure of the organization to document all damage found in the facility could result in termination of use privileges and collection of repair cost from their agency. Any questions should be directed to the LFR Rangemaster.

Organization Representative (printed) _____

User Signature _____

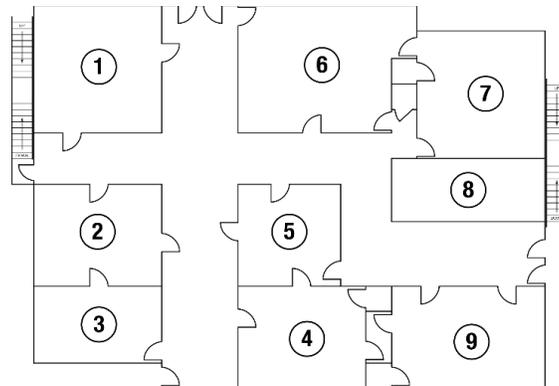
Date/Time of Use/Ammunition Used (specify) _____

NON-PROPRIETARY INFORMATION

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ANNEX B – LFSH 115 PRE- and POST-TRAINING WALK-THROUGH FORM

Organization: _____



NOTE: Damage to moveable walls or partitions must be indicated on this schematic.

Comments: _____

Prior to training in the NTC LFSH, the user shall perform a walk-through inspection of the facility and identify all bullet holes in walls, inspect bullet traps, and note other damage. (Questionable bullet traps will be taken out of service). Damaged bullet traps will be marked with a large X, taken outside, and removed from service immediately.

LFSH INSPECTION

- _____ Walls (bullet holes, large fragments, loose panels)
- _____ Doors (on hinges, inserts)

BULLET TRAP INSPECTION

- _____ 360-degree inspection of seam caps and frame (look for voids, gaps, and missing seam caps).
- _____ Inspect Linatex for self-sealing qualities (ensure that steel is not visible and no holes bigger than ¼-inch).
- _____ Inspect rear of armor plate for holes, cracks, and bulges (ensure you cannot feel dimpling on back of steel plate).
- _____ Inspect frame, casters, bullet traps, and counter-weights for breakage or loose bolts.

NOTE: Report all discrepancies to the Rangemaster or designee. Upon completion of training, the user shall perform another walk-through inspection of the facility and identify any bullet holes in walls, damaged bullet traps, or other damage. The completed inspection forms are to be placed in the form box located at the entrance to LFSH 115 upon completion of inspection. Failure of the organization to document all damage found in the facility could result in termination of use privileges and collection of repair cost from their agency. Any questions should be directed to the LFR Rangemaster.

Organization Representative (printed) _____

User Signature _____

Date/Time of Use/Ammunition Used (specify) _____

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ANNEX C – LFR BULLET TRAP MAINTENANCE RECORD



Bullet Trap	Steel	Linatex®	2x4 Frame	Casters	Frame	Caps	Welds	Ply Wood
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
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Signature: Rangemaster or Designee Approval

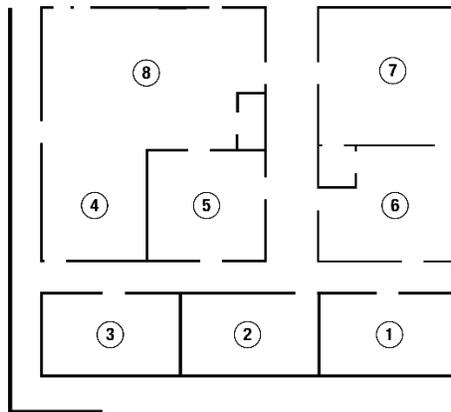
Date:

NON-PROPRIETARY INFORMATION

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ANNEX D – LFSH 114 WEEKLY INSPECTION

Person Inspecting: _____ Date: _____



Comments: _____

LFSH INSPECTION

- _____ Walls (bullet holes, large fragments, loose panels)
- _____ Doors (on hinges, inserts secure, sliders operational)
- _____ Floors (water, snow, ice, breaching debris)
- _____ Elevated Observation Control Platform (EOCP – catwalk)
- _____ Roof (sound-deadening, nests)
- _____ Lighting (bulbs, fixtures, rheostats)

BULLET TRAP INSPECTION

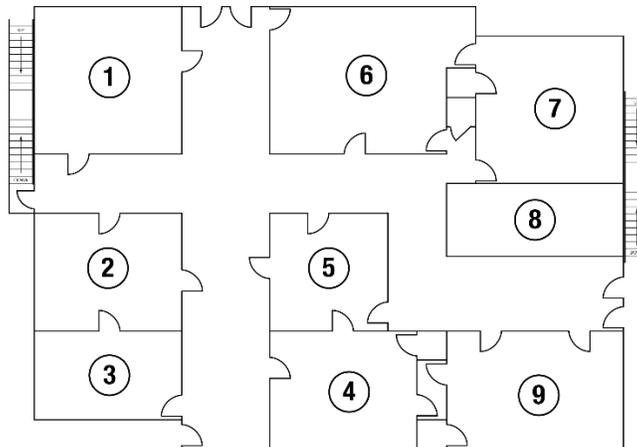
- _____ Conduct 360-degree inspection of seam caps and frame (look for voids, gaps, and missing seam caps).
- _____ Inspect Linatex for self-sealing qualities. Ensure steel is not visible, and there are no holes bigger than ¼-inch.
- _____ Inspect rear of armor plate (holes, cracks, concave/convex bulges, reverse dimpling). Ensure excessive dimpling can't be felt on back of steel plate.
- _____ Inspect frame, casters, trap, and counter-weights for breakage or loose bolts.

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ANNEX E – LFSH 115 WEEKLY INSPECTION

Person Inspecting: _____ Date: _____



Comments: _____

LFSH INSPECTION

- _____ Walls (bullet holes, large fragments, loose panels)
- _____ Doors (on hinges, inserts secure, sliders operational)
- _____ Floors (water, snow, ice, breaching debris)
- _____ Elevated Observation Control Platform (EOCP – catwalk)
- _____ Roof (sound-deadening, nests)
- _____ Lighting (bulbs, fixtures, rheostats)
- _____ Technology (cameras, special effects equipment)

BULLET TRAP INSPECTION

- _____ Conduct 360-degree inspection of seam caps and frame (look for voids, gaps, and missing seam caps).
- _____ Inspect Linatex for self-sealing qualities.
- _____ Ensure steel is not visible, and there are no holes bigger than ¼-inch. Inspect rear of armor plate (holes, cracks, concave/convex bulges, reverse dimpling).
- _____ Ensure excessive dimpling can't be felt on back of steel plate. Inspect frame, casters, trap, and counter-weights for breakage or loose bolts.

NON-PROPRIETARY INFORMATION

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ANNEX F – BULLET TRAP DETAILED INSPECTION CRITERIA

The NTC Rangemaster and LFR Maintenance staff will conduct the following detailed 360-degree inspection of the NTC's bullet traps every 6 months (or more frequently as needed).

1. Frame

Inspect all welds for cracks, breakage, and general damage.

2. Base

Inspect casters for smoothness in rolling, tightness, and check counter weight for loose bolts.

3. Front of trap

- Remove plywood and replace as needed, along with inside material and 2 x 4 framing.
- Traps must be constructed for easy inspection of the inside of the fascia material Linatex® and the face of the steel.
- Front steel inspection consists of checking the welds around the bath tub and ensuring the steel plate backing hasn't deteriorated beyond 50%. If deterioration is over 50%, the steel plate backing needs to be replaced.

4. Back of trap

Check for dimpling in the impact area. If dimpling is found, the steel plate backing needs to be replaced.

5. Reassembly

- Ensure all welds, casters, counter weight, steel plate backing, Linatex®, 2 x 4 frame, and fascia material have been inspected, repaired, or replaced, as needed.
- Ensure the trap components are flush and squared before applying the caps on the top, sides, and bottom.
- Any discrepancies that are noted will be documented and brought to the attention of the Rangemaster or designee. If the trap is deemed unsafe, it will be removed from service immediately.
- Documentation of the detailed inspection will be logged on the LFR Bullet Trap Maintenance Record.
- The Rangemaster will sign the LFR Bullet Trap Maintenance Record to approve the bullet trap for use in the LFSH.
- The LFR Bullet Trap Maintenance Record will be kept with the LFR Training Coordinator.

NON-PROPRIETARY INFORMATION

This SOP was prepared by the PFT and ES&H departments and is scheduled for annual review in April 2021.

ANNEX G – BULLET TRAP DAILY USER INSPECTION CRITERIA

Daily users of the NTC's live fire shoot houses (LFSH 114 and LFSH 115) will conduct the following 360-degree inspection of the bullet traps:

1. Frame

Inspect all welds for cracks, breakage, and general damage.

2. Base

Inspect casters for smoothness in rolling, tightness, and check counterweight for loose bolts.

3. Front of trap

Check the fascia material to ensure serviceability of plywood. The plywood must be inspected when the integrity of the material allows rounds to splash back onto the shooters.

4. Back of trap

Check for dimpling in the impact area. If dimpling is found, the steel plate backing needs to be replaced.

5. Documentation of inspection

If the trap is deemed unsafe, it will be removed from service immediately by the user and the user will mark the disabled with a big **X** across the face of the trap. Any discrepancies that are noted will be documented and brought to the attention of the Rangemaster or designee. Documentation of the inspection will be logged on the Pre- and Post-Training Walk-Through Forms (Annex D for LFSH 114 or Annex E for LFSH 115), signed by the user, and placed in the designated marked box located at each LFSH. These forms will be retrieved by the LFR Maintenance staff or Rangemaster and kept with the LFR Training Coordinator.

NON-PROPRIETARY INFORMATION

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ANNEX H – LFSH VIDEO RECORDING AUTHORIZATION FORM

LFSH Video Recording Authorization Form

- 1) Requestor:
- 2) Purpose of the video:
- 3) What recording times are needed? Date ___/___/___ Start ___:___ End ___:___
- 4) Do you need the video available for playback on a different system? ___ Yes ___ No
- 5) Do you need any editing or layout changes made to the video? ___ Yes ___ No
- 6) If yes, please describe:

Requestor Signature:

Date:

Rangemaster Signature:

Date:

PFTD Manager Signature:

Date:

Disclaimer: Course-specific videos will not be authorized for distribution and will be deleted at the end of each course.

NON-PROPRIETARY INFORMATION

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ANNEX I – OBSERVER SAFETY BRIEF

1. Wear required personal protective equipment (eye protection, hearing protection, body armor) while on the elevated observation control platform.
2. Follow the directions of the instructors at all times. The instructors will designate where observers should be located during observation of training.
3. Never attempt to communicate with a shooter without the permission of an instructor.
4. If a potentially hazardous situation is noticed, immediately notify an instructor.
5. Never stand directly above, adjacent to, or transition over a bullet trap while that trap is being engaged by a shooter.

Lead Instructor: _____ Observer: _____

Organization: _____ Date: _____

NON-PROPRIETARY INFORMATION

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APPENDIX I – RANGE FANS OF FIRE

Fans of fire have been established for each range to ensure that any projectiles leaving the range impact in an approved Surface Danger Zone (SDZ) established for the LFR according to AR 385-63. **These fans of fire are mandatory.** Any live fire will be in a direction such that, if the bullet misses a berm or bullet containment device, it will land within a designated SDZ.

Limit of fire markers (limit poles) must be placed to denote right and left limits of fire. The maximum horizontal angle of bullet travel is determined by observing the pole alignment from the firing point. The horizontal angle from range centerline must not exceed the angle created by the poles (see Figures 1, 2, and 3). Red limit poles will be used to control all rifle caliber fire. Green limit poles will be used to control pistol caliber and shotgun fire.

NON-PROPRIETARY INFORMATION

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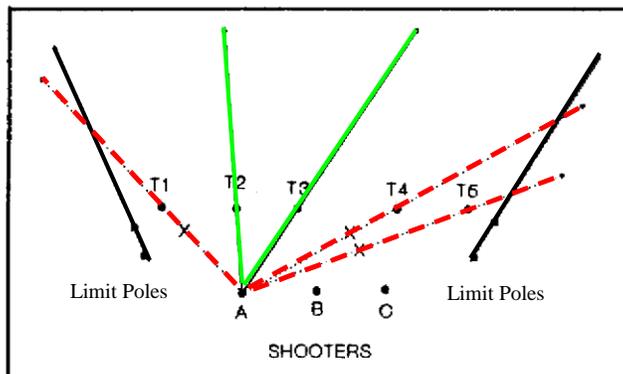


Figure 1. Shooter A may engage targets 2 and 3, but not 1, 4, or 5.

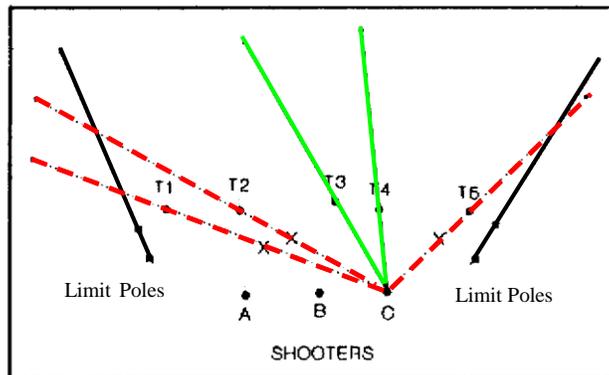


Figure 2. Shooter C may engage targets 3 and 4, but not 1, 2, or 5.

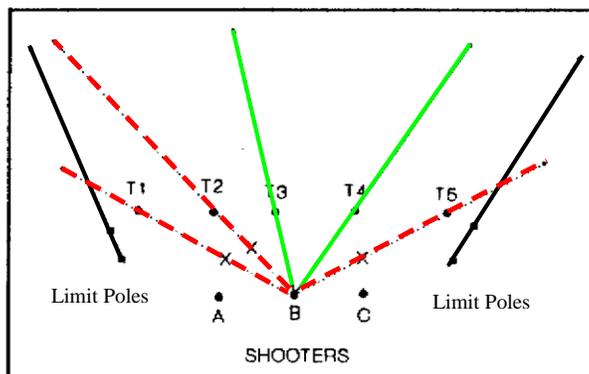


Figure 3. Shooter B may engage targets 3 and 4, but not 1, 2, or 5.

Figure I-1. Range Fans of Fire

NON-PROPRIETARY INFORMATION

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APPENDIX J – RANGE SAFETY RULES

Source: DOE O 473.3A, Att. 2, Section J, Section 1.f (3) and (4), pp. 2-46 and 2-47

J.1 Four General Firearms Safety Rules

1. All firearms are always loaded.
2. Never point a firearm at anything you are not willing to destroy.
3. Keep your finger off the trigger until your sights are on the target.
4. Be sure of your target.

J.2 Specific Range Safety Rules

1. Unauthorized discharge, as defined by the site and the circumstances, must result in immediate removal of the FPF member from the range until the cause has been determined and any required retraining has been completed.
2. Covering an individual with the muzzle of a firearm must result in the immediate removal of the FPF member from the range until retraining has been completed.
3. Until the firing line has been declared safe by the firearms instructor, shooters must not move past or bend over on the line. Violation of this rule must result in immediate removal of the FPF member from the range until retraining has been completed.
4. Failure to obey safety related commands must result in immediate removal of the FPF member from the range until retraining has been completed.
5. It is mandatory to use approved eye and ear protection and other PPE as required by the range safety officer.
6. Unsafe conditions must be reported immediately to an instructor.
7. A firearm may only be exchanged with another shooter under the direct supervision of an instructor.
8. Firearms must not be left unattended or unsecured.
9. Firearm loading and firing may commence only on command.
10. Shooters are not permitted to talk during a firing activity, except in reply to an instructor as a part of the activity or to shout "CEASE FIRE" in an unsafe situation.
11. All shooters must be trained on what constitutes an unsafe condition and to shout "CEASE FIRE" when such a condition is observed.
12. Smoking, eating, or drinking must be prohibited while shooting.

NON-PROPRIETARY INFORMATION

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13. Alcoholic beverages and drugs are prohibited on firing ranges. Shooters taking medication must report this fact to the Designated Physician or other appropriate medical professional before reporting to the firing line. The medical professional shall be responsible for determining whether a shooter is fit to use the range. The determination must be based on the medication taken, the physical condition of the shooter, and/or whether other reasons exist to believe the shooter may be under the influence of alcohol or drugs. Where the firearms instructor has reason to believe a shooter is unfit to use the range, the firearms instructor shall refer the shooter to the Designated Physician or other appropriate medical professional.
14. Shooters must take precautions to prevent hot spent cartridges and gunshot residues from getting inside their clothing.
15. When a training session is completed, each firearm must be physically examined by the shooter and by a designated range safety officer or qualified firearms instructor to ensure that it is unloaded and in safe condition before leaving the range. If the shooter is using a duty firearm on the range, he or she may reload that weapon at the range if returning directly to duty.
16. Shooters must collect unexpended ammunition and return it to a firearms instructor.
17. While a firearm is being cleaned, live ammunition must not be allowed in the cleaning area.

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