



**US Army Corps
of Engineers®**
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**Draft Final Preliminary Assessment Report
Locust Point Anti-Aircraft Artillery Firing Area
FUDS Property No. G05OH0996**

Volume 2 of 2

**Contract No. W912QR-08-D-0013
Task Order No. DN01**

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Shaw® Shaw Environmental, Inc.

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Appendix A

Reference Sources and Records Reviewed

1. References Reviewed
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1. References Reviewed

Appendix A – Reference Sources and Records Reviewed

10 USC 101. *Chapter 1 – Definitions, Sec. 101 Definitions*. U.S. Government Printing Office. January 20, 2004. Website: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=browse_usc&docid=Cite:+10USC101.

10 USC 2701 et seq. *Chapter 160 – Environmental Restoration, Sec. 2701 Environmental restoration program*. U.S. Government Printing Office. January 20, 2004. Website: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=browse_usc&docid=Cite:+10USC2701.

10 USC 2710 et seq. *Chapter 160 – Environmental Restoration, Sec. 2710 Inventory of unexploded ordnance, discarded military munitions, and munitions constituents at defense sites (other than operational ranges)*. U.S. Government Printing Office. January 3, 2005. Website: <http://frwebgate2.access.gpo.gov/cgi-bin/waisgate.cgi?WAISdocID=33328023600+0+0+0&WAISaction=retrieve>.

32 CFR 179.3 (Code of Federal Regulation Title 32, Part 179). 2007. *Munitions Response Site Prioritization Protocol (MRSP)*. Website: <http://www.gpoaccess.gov/cfr/index.html>. Washington, D.C.

40 CFR 260-270 (Code of Federal Regulation Title 40, Part 260-270), *Military Munitions Rule*.

40 CFR 300 (Code of Federal Regulation Title 40, Part 300). 2006. *National Oil and Hazardous Substances Pollution Contingency Plan*. Website: <http://www.gpoaccess.gov/cfr/index.html>. Washington, D.C. October 4, 2006.

42 USC 9601. *Hazardous Substances Releases, Liability, and Compensation*. U.S. Government Printing Office. January 7, 2003. Website: <http://frwebgate5.access.gpo.gov/cgi-bin/waisgate.cgi?WAISdocID=209840153119+0+0+0&WAISaction=retrieve>

42 United States Code (USC) §§9601-9675, *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986*.

70 FR 58016. Federal Register, Vol. 70, No. 192. *Rules and Regulations – Munitions Response Site Prioritization Protocol, Preamble*. Codified 32 CFR Part 179. October 5, 2005.

70 FR 58028. Federal Register, Vol. 70, No. 192. *Munitions Response Site Prioritization Protocol, Final Rule*. Codified 32 CFR Part 179. October 5, 2005.

** American Technologies. 2002. *Time Critical Removal Action*.

ASTM International (ASTM). 2005. ASTM E 1527-05, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*.

Carroll Water & Sewer District Water Treatment Plant. 2005. *Drinking Water Consumer Confidence Report for 2005*. Oak Harbor, Ohio. 2005.

** Davis-Besse. 1996. Morning Report No. 3-96-0114. October 31, 1996.

Department of Defense (DoD) 6055.9-STD, *DoD Ammunition and Explosives Safety Standards*, 29 February, 2008 (Incorporating Change 1, March 24, 2009).

Department of Defense (DoD). 2001. *Management Guidance for the Defense Environmental Restoration Program*. September 2001.

Department of Defense (DoD). 2006. *Defense Environmental Programs Annual Report to Congress Fiscal Year 2006*. Website: <http://deparc.egovservices.net/deparc/do/home>.

** Department of Defense (DoD). 2008. *Defense Environmental Programs Annual Report to Congress Fiscal Year 2008, MMRP Inventory*. Website: <http://deparc.xservices.com/do/home>.

Efroymson, R.A., G.W. Suter II, B.E. Sample, and D.S. Jones. 1997. *Preliminary Remediation Goals for Ecological Endpoints*. Lockheed Martin Energy Systems, Inc. Oak Ridge National Laboratory ES/ER/TM-162/R2.

EM (Engineer Manual) 385-1-1, *Safety and Health Requirements Manual, U.S. Army Corps of Engineers*, 15 September 2008.

Environmental Data Resources, Inc. (EDR). 2005. *The EDR Radius Map with GeoCheck®*, Erie Army Depot, Lacarne, OH. Inquiry Number: 1555850.2s. November 15, 2005.

** Environmental Data Resources Inc. (EDR). 2009. The EDR Radius Map Report with GeoCheck, Locust Point AAAFA. Inquiry numbers 2658783.2s 2658783.8s.

** Environmental Security Technology Certification Program (ESTCP). 2007. *Final Report - Assessment of Munitions Contamination at the Former Erie Army Depot Lake Erie Impact Area and Toussaint River*. August 2007.

ER 385-1-92, *Safety and Occupational Health Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW) Activities, U.S. Army Corps of Engineers*, 1 May 2007.

ER 385-1-95, *Safety and Health Requirements for Munitions and Explosives of Concerns (MEC) Operations, U.S. Army Corps of Engineers*, 30 March 2007

ER (Engineer Regulation) 200-3-1, *Environmental Quality, Formerly Used Defense Sites (FUDS) Program Policy, Department of the Army, U.S. Army Corps of Engineers*, 10 May 2004.

ESRI. 2006. StreetMap 2006 database distributed with ArcGIS software. ESRI, 380 New York Street, Redlands, California. Website: <http://www.esri.com/>.

Executive Order 12580. 1987. *Superfund Implementation*. 52 FR 2923. January 23, 1987. Website: <http://www.archives.gov/federal-register/codification/executive-order/12580.html>.

Executive Order 13016. 1996. *Amendment to Executive Order No. 12580*. 61 FR 45871. August, 28, 1996. Website: <http://www.archives.gov/federal-register/executive-orders/1996.html>.

General Services Administration (GSA). 1967. Quitclaim Deed, Contract No. GS-05U(R)-606 (Property in Township of Erie, Ottawa County, Ohio). Prepared by John E. Coffey, GSA, Chicago, Illinois. January 1, 1967.

Guidance for Performing Preliminary Assessments Under FUDS, Formerly Used Defense Sites (FUDS) Program, U.S. Army Corps of Engineers, September 2005.

** Human Factors Applications, Inc. (HFA). 1996. *Unexploded Ordnance Support for the Toussaint River Dredging Demonstration Project, Ottawa County, Ohio: Final Removal Report, June 28, 1995 to October 28, 1995*. February 1, 1996.

Interim Guidance for Incorporating Munitions Response Site Prioritization Protocol and Military Munitions Area Screen Data Requirements Into the PA Guidance for FUDS Projects, U.S. Army Corps of Engineers, 13 February 2006.

Interstate Technical and Regulatory Council (ITRC). 2003. *Characterization and Remediation of Soils at Closed Small Arms Firing Ranges*. Technical Regulatory Guidelines. 2003.

LighthouseFriends. Subject: West Sister Island, Ohio. Website: <http://www.lighthousefriends.com>.

Los Alamos National Laboratory (LANL). 2005. *Eco Risk Database*. Release 2.2. September 2005.

Myers, J. and K. Thorbjornsen. 2004. *Identifying Metals Contamination in Soil: A Geochemical Approach*. Soil & Sediment Contamination: An International Journal, Vol. 13, No. 1, pp. 1-16.

NAVSEA OP 1664, *U.S. Explosive Ordnance*, May 1947.

NAVSEA OP 1664, *Vol 1, U.S. Explosive Ordnance*, May 1947

Office of Solid Waste and Emergency Response (OSWER) Directive 9272.0-19, *Federal Facilities Remedial Preliminary Assessment Summary Guide*, Environmental Protection Agency, 21 July 2005.

Ohio Department of Natural Resources (ODNR). 2006. Teleconference between R. Ollis (ODNR) and G. McGraw (Shaw). July 11, 2006.

Ohio Environmental Protection Agency (Ohio EPA). 2003. *Guidance for Conducting Ecological Risk Assessments*. Division of Emergency and Remedial Response. Columbus, OH. DERR-00-RR-031. 2003.

OSWER Directive 9345.0-01A, *Guidance for Performing Preliminary Assessments Under CERCLA*, EPA/540/G-91/013, September 1991.

OSWER Directive 9345.1-05, *Guidance for Performing Site Inspections Under CERCLA*, EPA/540-R-92-021, September 1992.

Port Clinton News Herald. 2006. "Helicopter Crashes Near Davis Besse." September 17, 2006.

Richards, T. 2006. Personal communication between T. Richards (Shaw E&I Team Leader) and M. Weisberg (Shaw E&I Risk Assessment Specialist). November 10, 2006.

Shaw Environmental, Inc. (Shaw). 2006a. *Final Type I Work Plan, Site Inspections at Multiple Sites, NWO Region, Formerly Used Defense Sites, Military Munitions Response Program*. Prepared for U.S. Army Corps of Engineers. February 2006.

Shaw Environmental, Inc. (Shaw). 2006b. *Final Technical Project Planning Memorandum, Erie Army Depot, FUDS ID G050H0027*. Prepared for U.S. Army Corps of Engineers. June 8, 2006.

Shaw Environmental, Inc. (Shaw). 2006c. *Final Site-Specific Work Plan, Erie Army Depot, FUDS ID G050H0027*. Prepared for U.S. Army Corps of Engineers. August 9, 2006.

Shaw Environmental, Inc. (Shaw). 2006d. *Final Technical Program Planning Memorandum, Erie Army Depot*. Prepared for U.S. Army Corps of Engineers, Omaha Design Center. June 2006.

** Shaw Environmental, Inc. (Shaw). 2008. *Final Site Inspection Report, Erie Army Depot*. Prepared for U.S. Army Corps of Engineers, Omaha Design Center. June 2008.

** Standard Practice for Environmental Site Assessments: 2005. *Phase I Environmental Site Assessment Process, American Society for Testing and Materials (ASTM) Designation E 1527-05*.

Suter, G.W., and C.L. Tsao. 1996. *Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota*. Great Lakes Tier II Water Quality Criteria. 1996 Rev. ES/ER/TM-96/R2.

Swartjes, F.A. 1999. "Risk-based Assessment of Soil and Groundwater Quality in the Netherlands: Standards and Remediation Urgency." *Risk Analysis*. Vol. 19. No. 6. pp. 1235-1249.

Talmage, S.S., D.M. Opresko, C.J. Maxwell, C.J.E. Welsh, F.M. Cretella, P.H. Reno, and F.B. Daniel. 1999. "Nitroaromatic Munition Compounds: Environmental Effects and Screening Values." *Reviews of Environmental Contamination & Toxicology*.

TM 9-1300-203, *Artillery Ammunition*, April 1977.

TM 9-1300-205, *Ammunition for Mortars*, September 1960.

TM 9-1900, *Ammunition General*, June 1945.

TM 9-1901, *Artillery Ammunition*, September 1950.

TM 9-1901, *Artillery Ammunition*, March 1954; TM 9-1300-203, *Artillery Ammunition*, April 1967.

TM 9-1901-1, *Ammunition for Aircraft Guns*, December 1957.

TM 9-1904, *Ammunition Inspection Guide*, March 1944.

TM 9-1950, *Rockets*, July 1950, TM 43-0001-30, *Army Data Sheets, Rockets, Rocket Systems, Rocket fuzes, Rocket Motors*, December 1981.

TM 43-0001-28, *Army Ammunition Data Sheets, Artillery Ammunition*, April 1977.

TM 43-0001-29, *Army Ammunition Data Sheet for Grenades*, October 1977.

** U.S. Army Corps of Engineers (USACE). 1991. *DERP-FUDS, Inventory Project Report for Site No. G05OH0027, Erie Army Depot, Carroll Township, Ohio*.

** U.S. Army Corps of Engineers (USACE). 1993. *Archives Search Report, Findings for the Erie Army Depot, Carroll Township, Ohio*. August 1993.

U.S. Army Corps of Engineers (USACE). 2003. *Explosives Safety Submission*, Engineer Pamphlet 385-1-95b.

U.S. Army Corps of Engineers (USACE). 2004a. *Defense Environmental Restoration Program (DERP) Formerly Used Defense Sites (FUDS) Program Policy*. Engineer Regulation (ER) 200-3-1. May 10, 2004.

** U.S. Army Corps of Engineers (USACE). 2004b. *Archives Search Report Supplement, Erie Army Depot, Carroll Township, Ohio*. November 2004.

U.S. Army Corps of Engineers (USACE). 2004c. *ASR Supplement, Erie Army Depot FUDS Property Number: G05OH0027*. November 26, 2004.

U.S. Army Corps of Engineers (USACE). 2005. *Formerly Used Defense Sites (FUDS) Military Munitions Response Program (MMRP) Site Inspections. Program Management Plan*. February 2005.

U.S. Army Corps of Engineers (USACE). 2006. *Screening-Level Ecological Risk Assessments for FUDS MMRP Site Inspections*. Prepared by USACE HTRW CX. August 11, 2006.

** U.S. Army Corps of Engineers (USACE). 2007a. *Revised Findings and Determination of Eligibility (FDE) for Erie Army Depot, Port Clinton, Ohio, Property Number G05OH0027*. Prepared by USACE Louisville District. June 5, 2007.

U.S. Army Corps of Engineers (USACE). 2007b. Notes of Telephone Communication. Re: Conference Call – Eire Army Depot, Second Technical Project Planning Meeting. August 16, 2007.

U.S. Army Corps of Engineers (USACE). 2008. Personal E-mail communication from Mr. Jay Trumble (USACE-Louisville) and Mr. Peter Kelsall (Shaw Environmental Inc.). Re: Ohio EPA Letter on Final SI Report for Erie Army Depot. March 28, 2008.

** U.S. Army Corps of Engineers (USACE). 2009a. Findings and Determination of Eligibility; Locust Point Anti-Aircraft Artillery Firing Area/ Property Number G05OH0996. Prepared by USACE Louisville District. April 2009.

** U.S. Army Corps of Engineers (USACE). 2009b. *Scope of Work Preliminary Assessment for Locust Point Anti-Artillery Firing Area, Ottawa County, Ohio, Property Number G05OH0996*. Prepared by USACE Buffalo District. August 2009.

** U.S. Census. 2000. Website: <http://www.census.gov/main/www/cen2000.html>. Queried January 2010.

U.S. Department of Agriculture (USDA). 2006. Aerial photograph, Ottawa County. USDA Service Center Agencies, USDA-APFO National Agricultural Inventory Project.

U.S. Department of Agriculture. 2008. *Natural Resources Conservation Service, Web Soil Survey of the National Cooperative Soil Survey*. Interactive online database. Website: <http://websoilsurvey.nrcs.usda.gov/app/>. Queried January 2010.

U.S. Environmental Protection Agency (EPA). 1989. *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Final Guidance*. Office of Solid Waste, Waste Management Division. USEPA/530/SW-89/026. July 1989.

U.S. Environmental Protection Agency (EPA). 1990. *Appendix A to Part 300 – The Hazard Ranking System*, Title 40 CFR Part 300, 55 FR 51624. December 14, 1990.

U.S. Environmental Protection Agency (EPA). 1992a. *Guidance for Performing Site Inspections Under CERCLA, Interim Final*. EPA 540-R-92-021, Office of Emergency and Remedial Response, Washington DC, Directive # 9345.1-05. September 1992.

U.S. Environmental Protection Agency (EPA). 1992b. *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance*. Environmental Statistics and Information Division, Office of Policy, Planning, and Evaluation. USEPA/530/R-93/003. July 1992.

U.S. Environmental Protection Agency (EPA). 1994. *Statistical Methods for Evaluating the Attainment of Cleanup Standards*. Environmental Statistics and Information Division, Office of Policy, Planning, and Evaluation. USEPA/230/R-94/004. June 1994.

U.S. Environmental Protection Agency (EPA). 1995. *Determination of Background Concentrations of Inorganics in Soils and Sediments at Hazardous Waste Sites*. Office of Research and Development, EPA/540/S-96/500. December 1995.

U.S. Environmental Protection Agency (EPA). 1997. *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecologic I Risk Assessments* (ERAGS). EPA 540-R-97-006, OSWER Directive # 9285.7-25. June 1997.

U.S. Environmental Protection Agency (EPA). 1999. *Contract Laboratory Program (CLP): National Functional Guidelines for Organic Data Review*. USEPA/540/R-99/008, OSWER Directive # 9240.1-05A-P. October 1999.

U.S. Environmental Protection Agency (EPA). 2000. Bioaccumulation Testing and Interpretation for the Purposes of Sediment Quality Assessment: Status and Needs.

U.S. Environmental Protection Agency (EPA). 2002. *Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites*. Office of Emergency and Remedial Response. USEPA/540/R-01/003. September 2002.

U.S. Environmental Protection Agency (EPA). 2003. Region 5 Ecological Screening Levels (ESLs). August 2003.

U.S. Environmental Protection Agency (EPA). 2004a. *Contract Laboratory Program (CLP): National Functional Guidelines for Inorganic Data Review*. USEPA/540/R-04/004, OSWER Directive # 9240.1-45. October 2004.

U.S. Environmental Protection Agency (EPA). 2004b. Region 9 Preliminary Remediation Goal Table. October 2004 and addendum dated December 28, 2004.

U.S. Environmental Protection Agency (EPA). 2005. *Guidance for Developing Ecological Soil Screening Levels (Eco-SSLs)*. OSWER Directive 9285.7-55. Office of Solid Waste and Emergency Response. November 2005. Website: <http://www.epa.gov/ecotox/ecossl>. Last updated March 15, 2005.

U.S. Environmental Protection Agency (EPA). 2006a. Personal communication between Catherine Wooster-Brown (Eco Risk Assessor, EPA Region 7) and Mark Weisberg (Shaw Environmental, Inc.). Subject: Soil, sediment, and/or surface water ESL recommendations. March 2006.

U.S. Environmental Protection Agency (EPA). 2006b. Personal communication between Dale Hoff (Eco Risk Assessor, EPA Region 8) and Mark Weisberg (Shaw Environmental, Inc.). Subject: Soil, sediment, and/or surface water ESL recommendations. March 2006.

U.S. Environmental Protection Agency (EPA). 2006c. Personal communication between Joseph Goulet (Eco Risk Assessor, EPA Region 10) and Mark Weisberg (Shaw Environmental, Inc.). Subject: Soil, sediment, and/or surface water ESL recommendations. March 2006.

U.S. Environmental Protection Agency (EPA). 2006d. *Risk Based Concentrations*. Region III. April 2006.

U.S. Environmental Protection Agency (EPA). 2006e. National Recommended Water Quality Criteria. Website: <http://www.epa.gov/waterscience/criteria/wqctable>.

** U.S. Environmental Protection Agency (EPA). 2010. *Safe Drinking Water Information System (SDWIS)*. Website: http://www.epa.gov/enviro/html/sdwis/sdwis_query.html. Queried January 2010.

U.S. Environmental Protection Agency. 2004a. *Drinking Water Standards and Health Advisories*. Office of Water. Winter 2004.

U.S. Fish and Wildlife Service (USFWS). 2006. NWIDBA.CONUS_wet_poly: Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, FWS/OBS-79/31. Branch of Habitat Assessment, Washington, D.C. May 2006.

U.S. Fish and Wildlife Service (USFWS). 2006. Teleconference between S. Selbo (Ohio office, USFWS) and G. McGraw (Shaw). July 14, 2006.

U.S. Navy. 2002. *Guidance for Environmental Background Analysis, Volume I: Soil*. NFESC. User's Guide UG-2049-ENV. Naval Facilities Engineering Command. Washington, D.C. April 2002.

U.S. Navy. 2003. *Guidance for Environmental Background Analysis, Volume II: Sediment*. NFESC User's Guide UG-2054-ENV. Naval Facilities Engineering Command. Washington, D.C. April 2003.

** Zapata Engineering. 2006. *Final Engineering Evaluation/Cost Analysis (EE/CA) Wet & Dry Impact Areas and West Sister Island, Former Erie Army Depot Carroll Township, Ohio*. Prepared for U.S. Army Corps of Engineers. April 2006.

** = Reference sources and records cited in the text.

2. USACE-LRB Record of Site Documents

DRAFT

	Document title	Author	Date		Pages	
	Archives Search Report	USACE	1993			
Final	Removal Report	(Human Factors Application Inc.	1996			
	Technical Report CERC-96-1 Beach and Underwater Occurrences of Ordnance at a Former Defense Site: Erie Army Depot, Ohio	USACE Waterways Experiment Station (J. Pope, R.D. Lewis, and T. Welp)	1996	Jan	32	
	Work Plan Time Critical Ordnance and Explosive (OE) Removal Action, Former EAD (Beach Area), Carroll Township, OH	American Technologies, Inc., Oakridge, TN	2002	Jan 8	100+	DACA87-00-D-0035
Final	Time Critical Ordnance and Explosive (OE) Removal Action, Former EAD (Beach Area), Carroll Township, OH	American Technologies, Inc., Oakridge, TN	2002	Sep 30	100+	Task Order 0002
Draft	Archives Search Report Supplement (USACE, 2004)	USACE	2004			
	Engineering Evaluation/Cost Analysis (Beach Area) Work Plan (Site Specific) for MMRP MEC and MD, Non-TCRA, Former EAD (Beach Area), Carroll Township, OH	Zapata Engineering, Charlotte, NC	2006	April		DACA87-00-D-0034
Final	Work Plan for MMRP Non-TCRA, Former EAD (Beach Area), Carroll Township, OH	EOTI Explosive Ordnance Technologies, Oakridge, TN	2008	Feb 14	100+	Task Order 0022
Final	Work Plan for MMRP Non-TCRA, Former EAD (Beach Area), Carroll Township, OH	EOTI Explosive Ordnance Technologies, Oakridge, TN	2008	Oct 10	75+	W912DY-04-0009
	MMRP Non-TCRA, Former EAD, Carroll Township, OH	EOTI Explosive Ordnance Technologies, Oakridge, TN	2009	Dec 16	182+	Task Order 007
Draft-Final	Interim Report 1 for MMRP, Non-TCRA Report (Environmental Security Technology Certification Program, 2007)	EOTI Explosive Ordnance Technologies, Oakridge, TN	2009	Apr 10	75+	W912DY-04-D-0009
Final						Task Order 0014





Appendix B

References

1. References Used in PA Report

Appendix B - References

- American Technologies. 2002. *Time Critical Removal Action*.
- Davis-Besse. 1996. Morning Report No. 3-96-0114. October 31, 1996.
- Department of Defense (DoD). 2008. *Defense Environmental Programs Annual Report to Congress Fiscal Year 2008, MMRP Inventory*. Website: <http://deparc.xservices.com/do/home>.
- Environmental Data Resources Inc. (EDR). 2009. The EDR Radius Map Report with GeoCheck, Locust Point AAAFA. Inquiry numbers 2658783.2s 2658783.8s.
- Environmental Security Technology Certification Program (ESTCP). 2007. *Final Report - Assessment of Munitions Contamination at the Former Erie Army Depot Lake Erie Impact Area and Toussaint River*. August 2007.
- Human Factor Applications, Inc. 1996. *Unexploded ordnance support for the Toussaint River Dredging Demonstration Report- Final Removal Report*. Prepared for USACE Huntsville Office. February 1, 1996.
- Shaw Environmental, Inc. (Shaw). 2008. *Final Site Inspection Report, Erie Army Depot*. Prepared for U.S. Army Corps of Engineers, Omaha Design Center. June 2008.
- Standard Practice for Environmental Site Assessments: 2005. *Phase I Environmental Site Assessment Process, American Society for Testing and Materials (ASTM) Designation E 1527-05*.
- U.S. Army Corps of Engineers (USACE). 1991. *DERP-FUDS, Inventory Project Report for Site No. G05OH0027, Erie Army Depot, Carroll Township, Ohio*.
- U.S. Army Corps of Engineers (USACE). 1993. *Archives Search Report, Erie Army Depot, Carroll Township, Ohio*. August 1993.
- U.S. Army Corps of Engineers (USACE). 2004. *Archives Search Report Supplement, Erie Army Depot, Carroll Township, Ohio*. November 2004.
- U.S. Army Corps of Engineers (USACE). 2007. *Revised Findings and Determination of Eligibility (FDE) for Erie Army Depot, Port Clinton, Ohio, Property Number G05OH0027*. Prepared by USACE Louisville District. June 5, 2007.
- U.S. Army Corps of Engineers (USACE). 2009a. *Findings and Determination of Eligibility; Locust Point Anti-Aircraft Artillery Firing Area/ Property Number G05OH0996*. Prepared by USACE Louisville District. April 2009.
- U.S. Army Corps of Engineers (USACE). 2009b. *Scope of Work Preliminary Assessment for Locust Point Anti-Artillery Firing Area, Ottawa County, Ohio, Property Number G05OH0996*. Prepared by USACE Buffalo District. August 2009.

U.S. Census. 2000. Website: <http://www.census.gov/main/www/cen2000.html>. Queried January 2010.

U.S. Environmental Protection Agency (EPA). 2010. *Safe Drinking Water Information System (SDWIS)*. Website: http://www.epa.gov/enviro/html/sdwis/sdwis_query.html. Queried January 2010.

Zapata Engineering. 2006. *Final Engineering Evaluation/Cost Analysis (EE/CA) Wet & Dry Impact Areas and West Sister Island, Former Erie Army Depot Carroll Township, Ohio*. Prepared for U.S. Army Corps of Engineers. April 2006.



Appendix C

Acronyms and Abbreviations

1. List of Acronyms and Abbreviations

Appendix C - Acronyms and Abbreviations

°F	degrees Fahrenheit
AAA	anti-aircraft artillery
AAAFA	Anti-Aircraft Artillery Firing Area
AOI	Area of Interest
APP	Accident Prevention Plan
ASR	Archives Search Report
BD/DR	building demolition/debris removal
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CON/HTRW	containerized HTRW
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
EDR	Environmental Data Resources
EE/CA	Engineering Evaluation/Cost Analysis
EM	Engineer Manual
ER	Engineer Regulation
ESTCP	Environmental Security Technology Certification Program
FDE	Findings and Determination of Eligibility
ft	foot or feet
FUDS	Formerly Used Defense Sites
GIS	Geographic Information System
GOCO	government owned, contractor operated
GSA	General Services Administration
HRS	Hazard Ranking System
HTRW	hazardous, toxic, and radioactive wastes
IEP	Important Ecological Place
IPR/PA	Inventory Project Report/Preliminary Assessment
MC	munitions constituents
MEC	munitions and explosives of concern
mm	millimeter
MMRP	Military Munitions Response Program
MPPEH	Material Potentially Presenting an Explosive Hazard
MRSP	Munitions Response Site Prioritization Protocol
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NDAI	No Department of Defense Action Indicated
NWO	Northwestern Division Omaha District
ODNR	Ohio Department of Natural Resources
PA	Preliminary Assessment
RAC	Risk Assessment Code
RCAT	Remote Controlled Aerial Targets
RCWM	recovered chemical warfare materiel
SARA	Superfund Amendment and Reauthorization Act

Appendix C - Acronyms and Abbreviations (continued)

SDWIS	Safe Drinking Water Information System
Shaw	Shaw Environmental & Infrastructure, Inc.
SI	Site Inspection
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Services
UTM	Universal Transverse Mercator
UXO	unexploded ordnance



Appendix D


Glossary
(Not Used)

Appendix E

Preliminary Assessment Form

1. PA Data and Site Characteristics Form

OMB Approval Number: 2050-0095
Approved for Use Through: 1/92

 Potential Hazardous Waste Site Preliminary Assessment Form		Identification				
		State:		CERCLIS Number:		
		CERCLIS Discovery Date:				
1. General Site Information						
Name: <u>LOCUST POINT AIRCRAFT ARTILLERY FIRING AREA</u>		Street Address: <u>NA</u>				
City: <u>PORT CLINTON</u>		State: <u>OH</u>	Zip Code: <u>43449</u>	County: <u>OTTAWA</u>	Co. Code: <u>39</u>	Cong. Dist: <u>9</u>
Latitude: <u>41° 35' 50.4"</u> Longitude: <u>-83° 4' 13.0"</u>		Approximate Area of Site: <u>69.32</u> Acres		Status of Site: <input type="checkbox"/> Active <input type="checkbox"/> Not Specified <input checked="" type="checkbox"/> Inactive <input type="checkbox"/> NA (OW plume, etc.)		
2. Owner/Operator Information						
Owner: <u>FIRST ENERGY CORPORATION</u>		Operator: <u>FIRST ENERGY CORPORATION</u>				
Street Address: <u>76 SOUTH MAIN STREET</u>		Street Address: <u>SA</u>				
City: <u>AKRON</u>		City: <u>SA</u>				
State: <u>OH</u>	Zip Code: <u>44308</u>	Telephone: <u>(303) 364-3800</u>	State: <u>SA</u>	Zip Code: <u>SA</u>	Telephone: <u>SA</u>	
Type of Ownership: <input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal Agency <input type="checkbox"/> State <input type="checkbox"/> Indian			How Initially Identified: <input type="checkbox"/> Citizen Complaint <input type="checkbox"/> PA Petition <input type="checkbox"/> State/Local Program <input type="checkbox"/> RCRA/CERCLA Notification			
<input type="checkbox"/> County <input type="checkbox"/> Municipal <input type="checkbox"/> Not Specified <input type="checkbox"/> Other			<input checked="" type="checkbox"/> Federal Program <input type="checkbox"/> Incidental <input type="checkbox"/> Not Specified <input type="checkbox"/> Other			
3. Site Evaluator Information						
Name of Evaluator: <u>BILL McCABE</u>		Agency/Organization:		Date Prepared: <u>30 Aug 2010</u>		
Street Address: <u>3050 SECTION AVENUE</u>		City: <u>CINCINNATI</u>		State: <u>OH</u>		
Name of EPA or State Agency Contact: <u>OHIO EPA DERR</u>		Street Address: <u>50 W. TOWN STREET</u>				
City: <u>Columbus</u>		State: <u>OH</u>	Telephone: <u>(614) 644-2924</u>			
4. Site Disposition (for EPA use only)						
Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____		CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other _____ Date: _____		Signature: Name (typed): Position:		



Potential Hazardous Waste Site
Preliminary Assessment Form - Page 2 of 4

CERCLIS Number:

5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site (check all that apply):

- ☐ Industrial ☐ Agriculture ☐ DOT
☐ Commercial ☐ Mining ☒ Other Federal Facility
☐ Residential ☐ DOD
☒ Forest/Fields ☐ DOB ☐ Other _____

Site Setting:

- ☐ Urban
☐ Suburban
☒ Rural

Years of Operation:

Beginning Year 1953

Ending Year 1967

☐ Unknown

Type of Site Operations (check all that apply):

- ☐ Manufacturing (must check subcategory)
☐ Lumber and Wood Products
☐ Inorganic Chemicals
☐ Plastic and/or Rubber Products
☐ Paints, Varnishes
☐ Industrial Organic Chemicals
☐ Agricultural Chemicals
(e.g., pesticides, fertilizers)
☐ Miscellaneous Chemical Products
(e.g., adhesives, explosives, ink)
☐ Primary Metals
☐ Metal Coating, Plating, Engraving
☐ Metal Forging, Stamping
☐ Fabricated Structural Metal Products
☐ Electronic Equipment
☐ Other Manufacturing
☐ Mining
☐ Metals
☐ Coal
☐ Oil and Gas
☐ Non-metallic Minerals
☐ Retail
☐ Recycling
☐ Junk/Salvage Yard
☐ Municipal Landfill
☐ Other Landfill
☒ DOD
☐ DOB
☐ DOI
☐ Other Federal Facility _____
☐ RCRA
☐ Treatment, Storage, or Disposal
☐ Large Quantity Generator
☐ Small Quantity Generator
☐ Subtitle D
☐ Municipal
☐ Industrial
☐ "Converter"
☐ "Protective Filter"
☐ "Non- or Late Filer"
☐ Not Specified
☐ Other _____

Waste Generated:

- ☒ Onsite
☐ Offsite
☐ Onsite and Offsite

Waste Disposition Authorized By:

- ☐ Present Owner
☒ Former Owner
☐ Present & Former Owner
☐ Unauthorized
☐ Unknown

Waste Accessible to the Public:

- ☐ Yes
☒ No

Distance to Nearest Dwelling,
School, or Workplace:

5000 Feet

6. Waste Characteristics Information

Source Type:
(check all that apply)

Source Waste Quantity:
(include units)

Tier*:

General Types of Waste (check all that apply)

- ☐ Landfill
☐ Surface Impoundment
☐ Drums
☐ Tanks and Non-Drum Containers
☐ Chemical Waste Pile
☐ Scrap Metal or Junk Pile
☐ Tailings Pile
☐ Trash Pile (open dump)
☐ Land Treatment
☐ Contaminated Ground Water Plume
(unidentified source)
☐ Contaminated Surface Water/Sediment
(unidentified source)
☐ Contaminated Soil
☐ Other _____
☒ No Sources

- ☐ Metals ☐ Pesticides/Herbicides
☐ Organics ☐ Acids/Bases
☐ Inorganics ☐ Oily Waste
☐ Solvents ☐ Municipal Waste
☐ Paints/Pigments ☐ Mining Waste
☐ Laboratory/Hospital Waste ☒ Explosives
☐ Radioactive Waste Other Mun. Trus
☐ Construction/Demolition DEPS
Waste

Physical State of Waste as Deposited (check all that
apply):

- ☒ Solid ☐ Sludge ☐ Powder
☐ Liquid ☐ Gas

* C = Constituent, W = Wastestream, V = Volume, A = Area



Potential Hazardous Waste Site
Preliminary Assessment Form - Page 3 of 4

CERCLIS Number:

7. Ground Water Pathway

Is Ground Water Used for Drinking Water Within 4 Miles:

☒ Yes
☐ No

Type of Drinking Water Wells Within 4 Miles (check all that apply):

☒ Municipal
☐ Private
☐ None

Is There a Suspected Release to Ground Water:

☐ Yes
☒ No

Have Primary Target Drinking Water Wells Been Identified:

☐ Yes
☒ No

If Yes, Enter Primary Target Population:

_____ People

List Secondary Target Population Served by Ground Water Withdrawn From:

0 - ¼ Mile _____

> ¼ - ½ Mile _____

> ½ - 1 Mile _____

> 1 - 2 Miles _____

> 2 - 3 Miles _____

> 3 - 4 Miles _____

Total Within 4 Miles _____

Depth to Shallowest Aquifer:

_____ Feet

Karst Terrain/Aquifer Present:

☐ Yes
☒ No

Nearest Designated Wellhead Protection Area:

☐ Underlies Site
☐ > 0 - 4 Miles
☒ None Within 4 Miles

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):

☒ Stream ☒ River ☐ Pond ☒ Lake
☐ Bay ☐ Ocean ☐ Other _____

Shortest Overland Distance From Any Source to Surface Water:

0 Feet

_____ Miles

Is There a Suspected Release to Surface Water:

☐ Yes
☒ No

Site is Located in:

☒ Annual - 10 yr Floodplain
☐ > 10 yr - 100 yr Floodplain
☐ > 100 yr - 500 yr Floodplain
☐ > 500 yr Floodplain

Drinking Water Intakes Located Along the Surface Water Migration Path:

☐ Yes
☒ No

Have Primary Target Drinking Water Intakes Been Identified:

☐ Yes
☒ No

If Yes, Enter Population Served by Primary Target Intakes:

_____ People

List All Secondary Target Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
------	------------	------------	-------------------



Potential Hazardous Waste Site
Preliminary Assessment Form - Page 4 of 4

CERCLIS Number:

8. Surface Water Pathway (continued)

Wetlands Located Along the Surface Water Migration Path:

☒ Yes
☐ No

Have Primary Target Wetlands Been Identified:

☐ Yes
☒ No

List Secondary Target Wetlands:

Water Body Flow (cfs) Proximity Miles

Water Body	Flow (cfs)	Proximity Miles

Other Sensitive Environments Located Along the Surface Water Migration Path:

☒ Yes
☐ No

Have Primary Target Sensitive Environments Been Identified:

☐ Yes
☒ No

List Secondary Target Sensitive Environments:

Water Body Flow (cfs) Sensitive Environment Type

Water Body	Flow (cfs)	Sensitive Environment Type

9. Soil Exposure Pathway

Are People Occupying Residences or
Attending School or Daycare on or Within 200
Feet of Areas of Known or Suspected
Contamination:

☐ Yes
☒ No

If Yes, Enter Total Resident Population:

People

Number of Workers Onsite:

☒ None
☐ 1 - 100
☐ 101 - 1,000
☐ > 1,000

Have Terrestrial Sensitive Environments Been Identified on
or Within 200 Feet of Areas of Known or Suspected
Contamination:

☒ Yes
☐ No

If Yes, List Each Terrestrial Sensitive Environment:

WETLANDS

10. Air Pathway

Is There a Suspected Release to Air:

☐ Yes
☒ No

Enter Total Population on or Within:

Onsite

0 - 1/4 Mile

> 1/4 - 1/2 Mile

> 1/2 - 1 Mile

> 1 - 2 Miles

> 2 - 3 Miles

> 3 - 4 Miles

Total Within 4 Miles

Wetlands Located Within 4 Miles of the Site:

☒ Yes
☐ No

Other Sensitive Environments Located Within 4 Miles of the Site:

☒ Yes
☐ No

List All Sensitive Environments Within 1/2 Mile of the Site:

Distance Sensitive Environment Type/Wetlands Area (Acres)

Onsite

69 ACRES

0 - 1/4 Mile

LAKE ERIE / TOUSSAINT RIVER

> 1/4 - 1/2 Mile

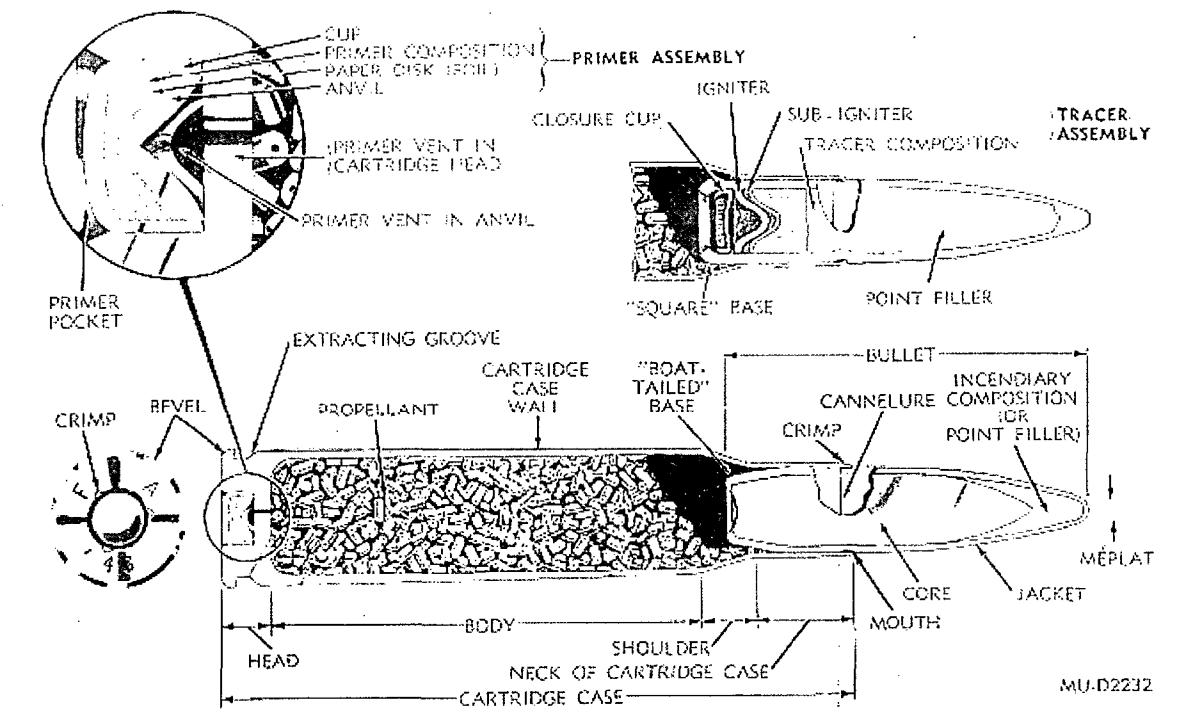


Appendix F

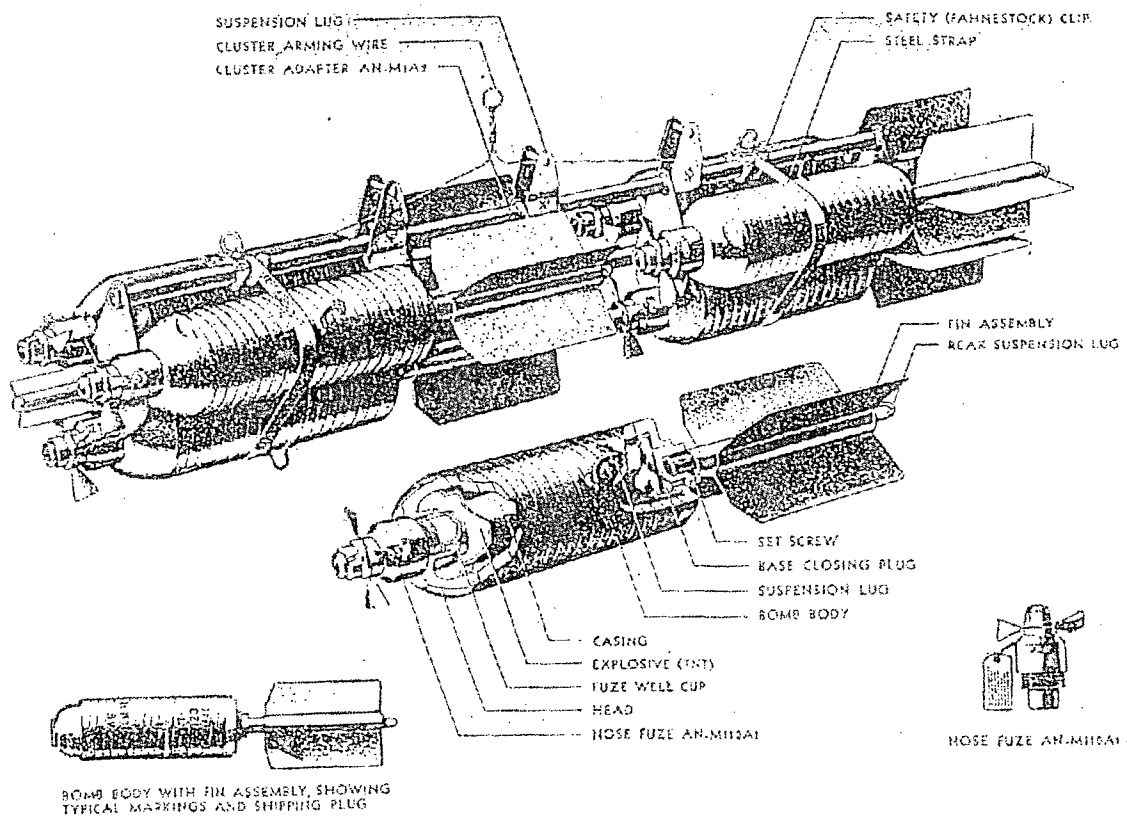
Ordnance Technical Data Sheets

1. Technical Data Sheets

Small Arms Ammunition (.50-caliber or smaller)



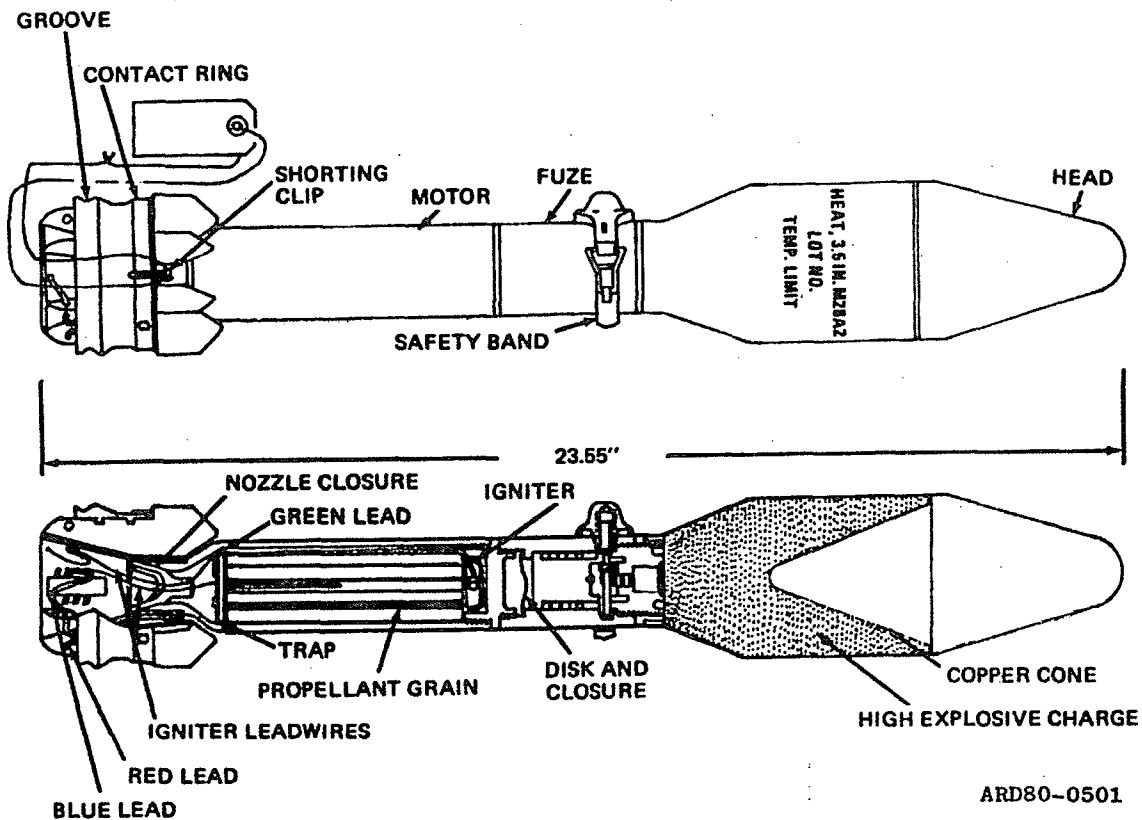
Bomb, Fragmentation, 20-lbs, AN-M41 and AN-M41A1



Over-all length.....	19.5 inches
Body length.....	11.3 inches
Diameter.....	3.6 inches
Over all weight.....	20.3 pounds
Filler.....	TNT
Filler weight.....	2.7 pounds
Fuzing.....	M158, AN-M110A1, M110, M109

Reference: NAVSEA OP 1664, *U.S. Explosive Ordnance*, May 1947.

Rocket, HEAT, 3.5-inch, M28

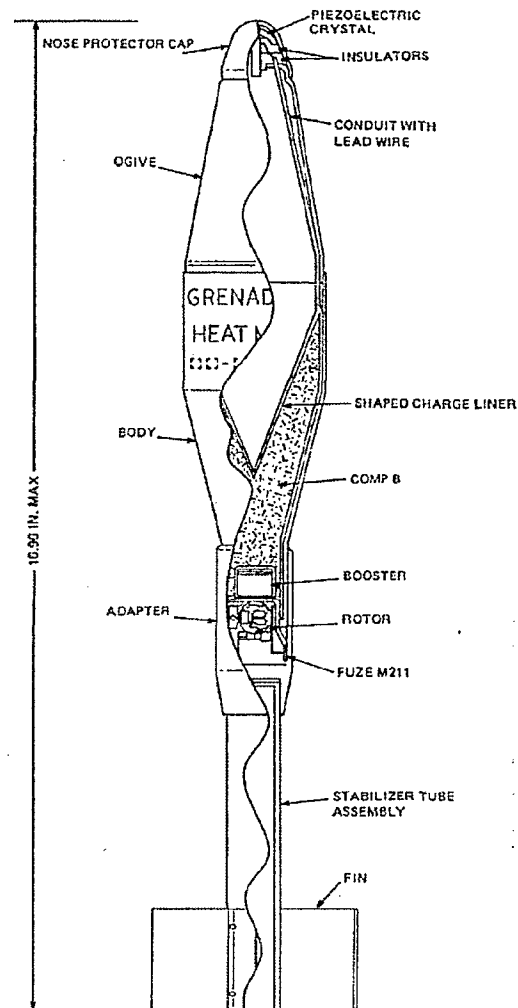


ARD80-0501

Over-all length.....	23.67 inches
Diameter.....	3.5 inches
Weight.....	8.61 pounds
Filler.....	Comp B
Filler weight.....	1.82 pounds
Propellant.....	M7 propellant powder
Propellant weight.....	12 grains
Igniter.....	M20

Reference: TM 9-1950, *Rockets*, July 1950, TM 43-0001-30, *Army Data Sheets, Rockets, Rocket Systems, Rocket fuzes, Rocket Motors*, December 1981.

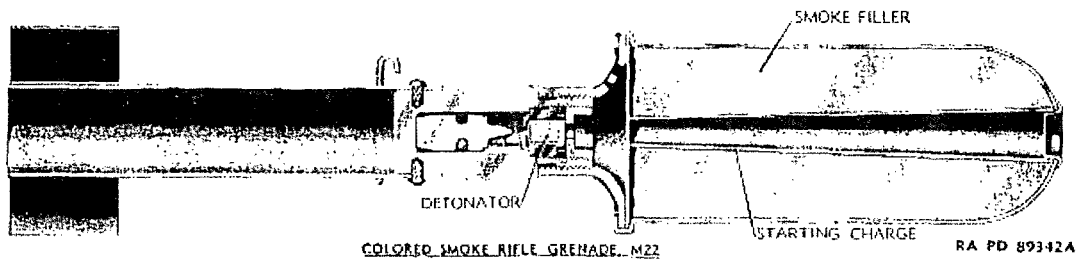
Rifle Grenade, HEAT, M31



Length.....16.96 inches
Diameter.....2.61 inches
Filler.....Comp B, 9.92 ounces
Fuze.....M211, PIBD
Body.....Steel
Color.....Olive drab with yellow markings

Reference: TM 43-0001-29, *Army Ammunition Data Sheet for Grenades*, October 1977.

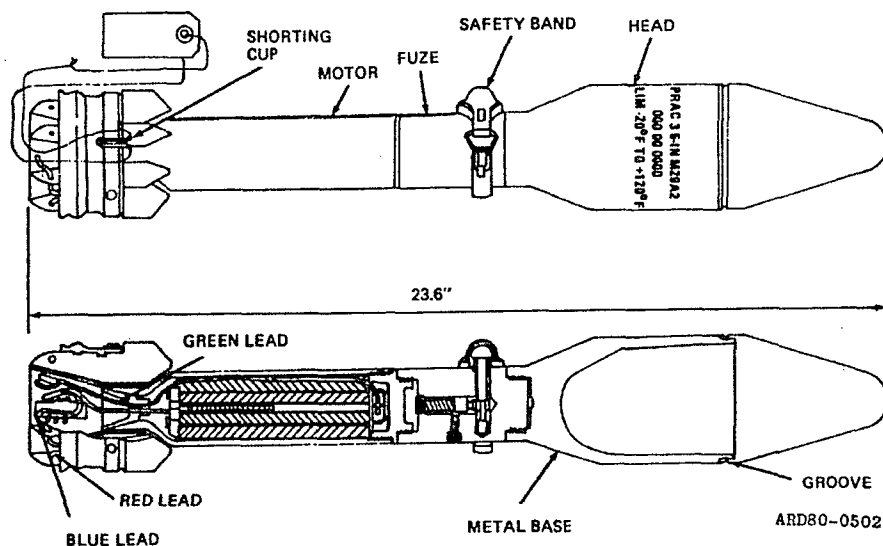
Rifle Grenade, Smoke, M22



Length.....10.72 inches
Diameter.....2.0 inches
Color.....Blue Grey
Filler.....Smoke mixture

Reference: NAVSEA OP 1664, *U.S. Explosive Ordnance*, May 1947; TM 9-1900, *Ammunition General*, June 1945.

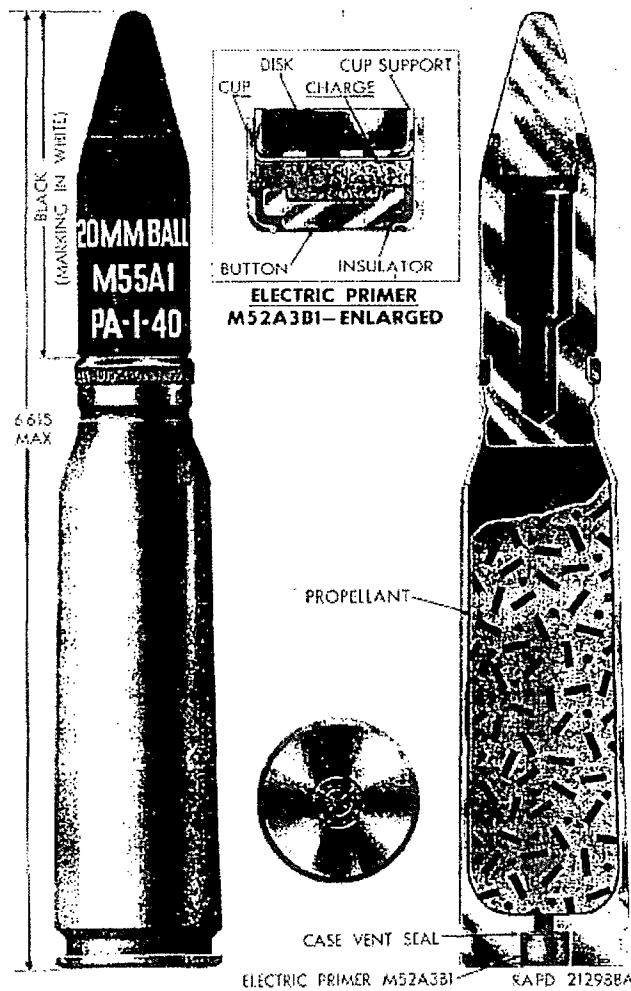
Rocket, Practice, 3.5-inch, M29



Over-all length.....	23.67 inches
Diameter.....	3.5 inches
Weight.....	8.61 pounds
Filler.....	Plaster of paris/stearic acid
Propellant.....	M7 propellant powder
Propellant weight.....	12 grains
Igniter.....	M20

Reference: TM 9-1950, *Rockets*, July 1950, TM 43-0001-30, *Army Data Sheets, Rockets, Rocket Systems, Rocket fuzes, Rocket Motors*, December 1981.

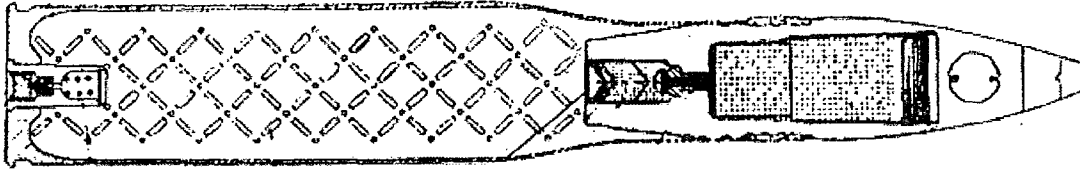
Cartridge, 20mm, Ball, M55A1



Weight of complete round.....	0.56 pounds
Length of projectile, as fired.....	0.22 inches
Length of complete round.....	6.165 inches (max)
Length of projectile.....	2.98 inches
Length of cartridge case.....	4.015 inches
Width of rotating band.....	0.203 inches
Color.....	Black with white markings

Reference: TM 9-1901-1, *Ammunition for Aircraft Guns*, December 1957.

Cartridge, 37mm, HE, FIXED, M54 With Self Destruct Tracer



Cartridge case. The M17 Case is "standard", the M17B1 is "Substitute Standard".

Primer. The M23A2 is "Standard". Some rounds on hand may be primed with the M23A1.

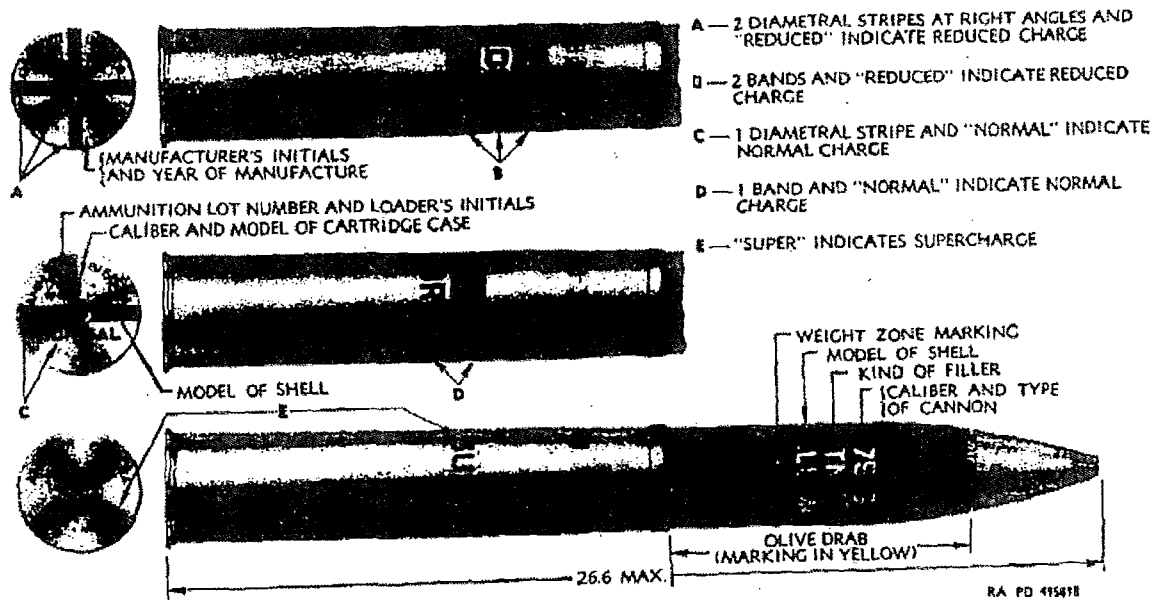
Propelling charge. A muzzle velocity of 2,600 feet per second is imparted to the projectile by 6 ounces of FNH powder.

Projectile. The projectile M54, as fired, weighs 1.34 pounds and is about 5.9 inches long. It is the same projectile as the M54 fired from the M4 Antiaircraft Gun. The projectile consists of three components: the body itself protrudes from the cartridge case. The base of the projectile is very thick (over 1 1/2 inches) and is tapered for streamlining purposes. The cavity for the shell-destroying tracer is machined into this heavy base. The bursting charge of 0.10 pound of tetryl is pressed into the body in two increments: a base pellet and a main charge. The shell destroying tracer assembly consists of a quantity of tracer composition, an ignited charge, a celluloid closing cup, a relay igniting charge and a relay pellet. When the tracer composition is almost completely burned, it initiates the relay pellet and in turn detonates the tetryl base pellet of the bursting charge, and finally the main bursting charge itself.

Fuze. Point Detonating, M56. Since the High-explosive Round M54 is required to function on impact with light materials such as those used in planes, a supersensitive fuze is needed. A super-sensitive fuze is one which will detonate on very slight impact such as with a double thickness of airplane fabric. The M56 is both supersensitive and superquick because the firing pin is protected only by a very thin aluminum closing cup and rests, at the time of impact, right on the detonator which initiates an almost uninterrupted train of detonating explosives. The body of the fuze is divided into three parts; the body loading assembly, the head assembly, and cap. The booster of tetryl is pressed into a cavity in the lower part of the body. The complete round of M54, HE Shell can be identified by the presence of the M56 Fuze.

Reference: TM 9-1904, *Ammunition Inspection Guide*, March 1944

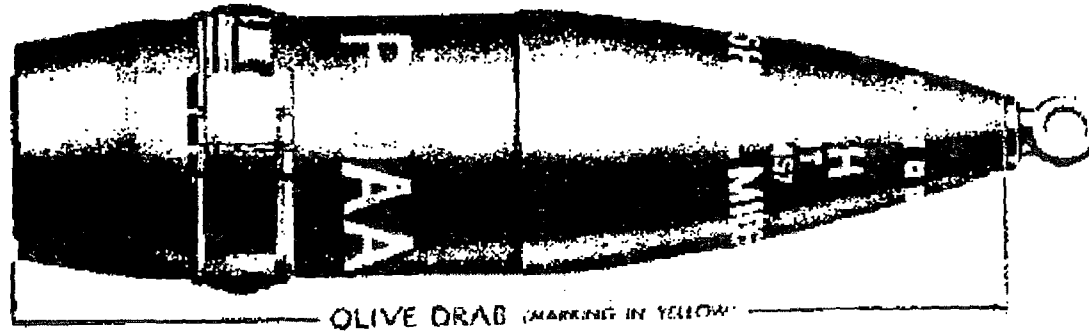
Shell, 75mm, Gun HE, M48



Over-all Length (max).....	26.6 inches
Diameter (body).....	2.925 inches
Total Weight.....	(+) 18.0 pounds
	(++) 18.5 pounds
	(+++) 19.3 pounds
Filler.....	TNT
Filler weight.....	1.49 pounds
Cartridge Case.....	M18, M18B1
Propellant.....	FNH powder
Primer.....	M22A3, M22-series and M31
Fuze.....	M48A2, M54, M51A4, M21A4
Color.....	Olive drab with yellow markings

Reference: TM 9-1904, *Ammunition Inspection Guide*, March 1944.

Projectile, 8-inch, HE, M106



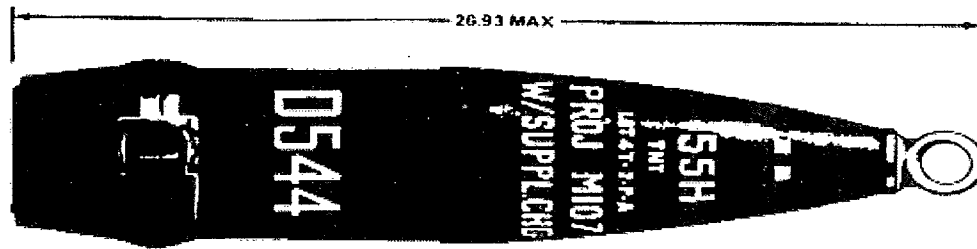
OLIVE DRAB (MARKING IN YELLOW)

RA PD 104864

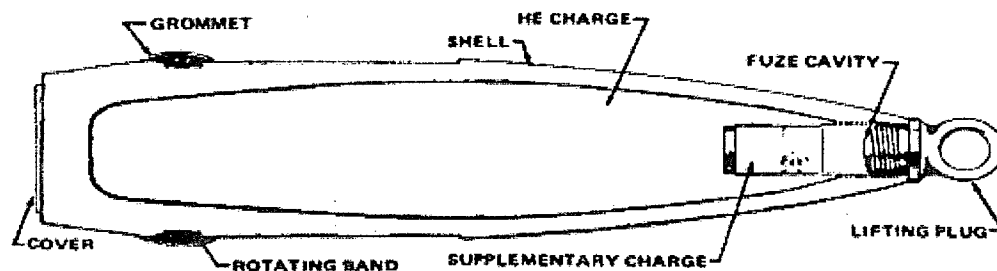
Weight of Projectile as fired.....	240.37 pounds
Length of Projectile.....	40.95 inches
Width of rotating band.....	3.33 inches
Filler and weight.....	TNT, 36.75 pounds
Fuzes.....	MTSQ, M500; PD, M51A5; MT, M67A3; CP, M78, M78A1; VT, M96
Propelling charges.....	M1, M2
Color.....	Olive drab with yellow markings

Reference: TM 9-1901, *Artillery Ammunition*, September 1950.

155mm, HE, M107 – Large Caliber (37mm and larger), HE



AR199685

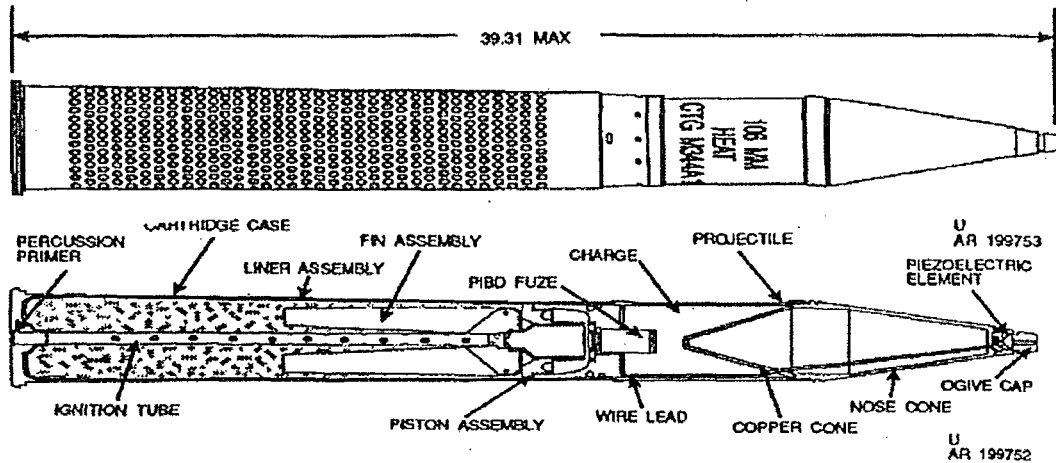


AR199684

Weight.....	94.36 pounds
Length (w/o lifting lug)	23.89 inches
Filler and weight	
Comp B.....	15.4 pounds
TNT.....	14.6 pounds
Fuzes.....	PD: M557, M78 series, M739 series MTSQ: M564, M582 series Prox: M728, M732
Propelling charge.....	M3, M3A1, M4A1, M4A2, M119, M119A1
Color.....	Olive drab with yellow markings

Reference: TM 43-0001-28, *Army Ammunition Data Sheets, Artillery Ammunition*, April 1977.

Cartridge, 106mm, Recoilless Rifle, HEAT, M344

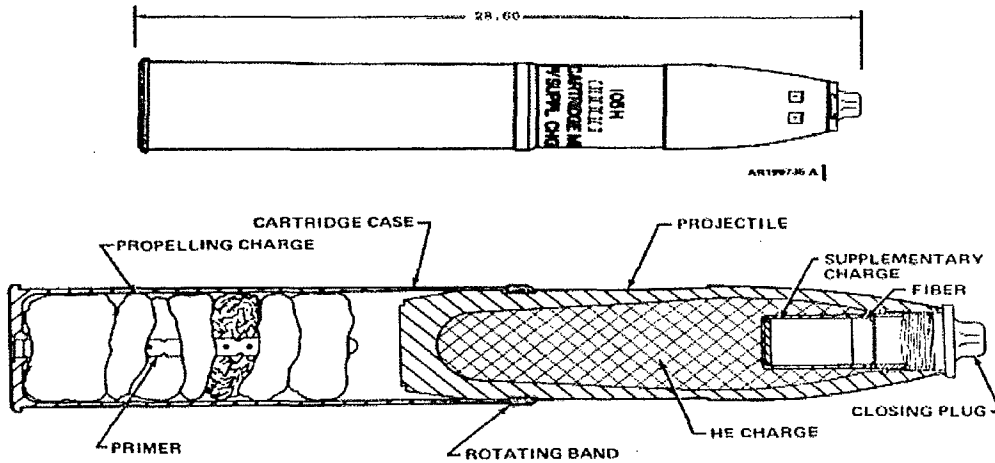


Complete round

Length.....	39.31 inches
Weight.....	37.23 pounds
Filler and weight.....	Comp B, 2.79 pounds
Propelling charge.....	M26, M10
Fuze.....	PIBD M509A1
Color	
Old manufacture.....	Olive drab with yellow markings
New manufacture.....	Black with yellow markings

Reference: TM 43-0001-28, *Army Ammunition Data Sheets, Artillery Ammunition*, April 1977.

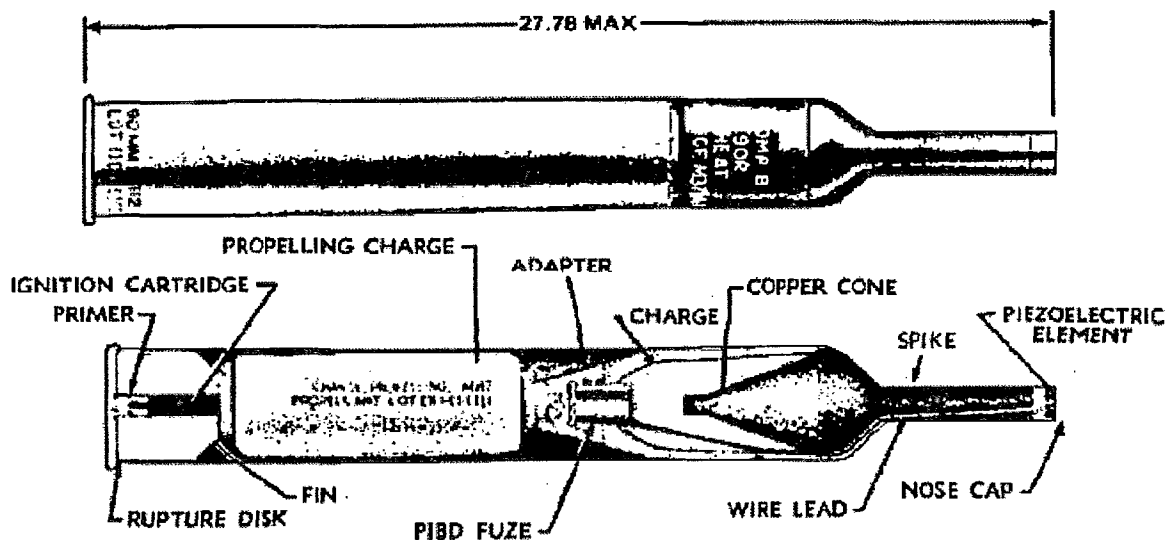
Cartridge, 105mm, HE, M1



Weight	39.92 pounds
Length of Closing Plug	28.60 inches
Filler and Weight	
Normal Cavity	Comp B, 5.08 pounds
	TNT, 4.80 pounds
Deep Cavity	Comp B, 4.60 pounds
	TNT, 4.25 pounds
Propellant Charge (max weigh	2.83 pounds
Color	Olive drab w/ yellow

Reference: TM 43-0001-28, *Army Ammunition Data Sheets, Artillery Ammunition*, April 1977.

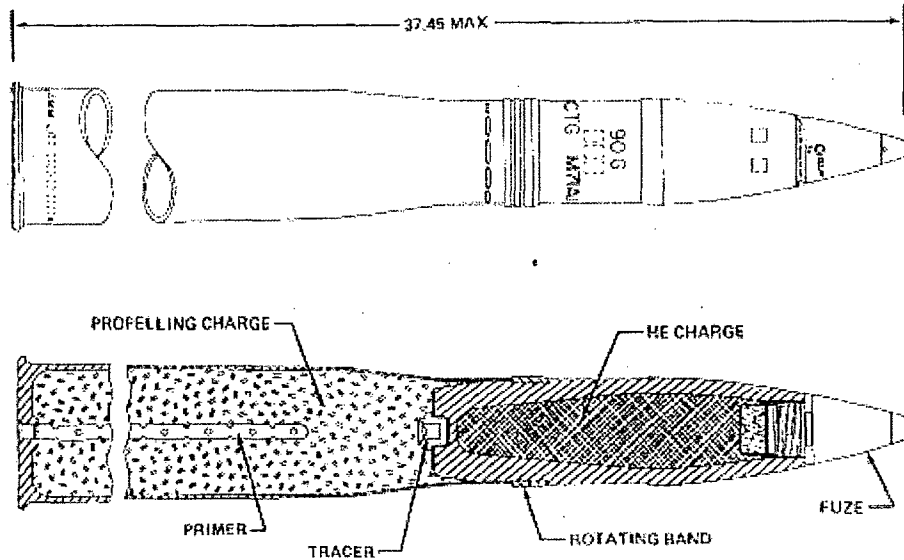
Cartridge, 90mm, Recoilless Rifle, HEAT, M371A1



Over-all Length (max).....	27.78 pounds
Weight with fuze.....	9.25 pounds
Filler and weight.....	Comp B, 1.72 pounds
Propelling charge.....	M82
Fuze.....	PIBD, M530A1, M530
Color	
Old manufacture.....	Olive drab with yellow markings
New manufacture.....	Black with yellow markings

Reference: TM 43-0001-28, *Army Ammunition Data Sheets, Artillery Ammunition*, April 1977.

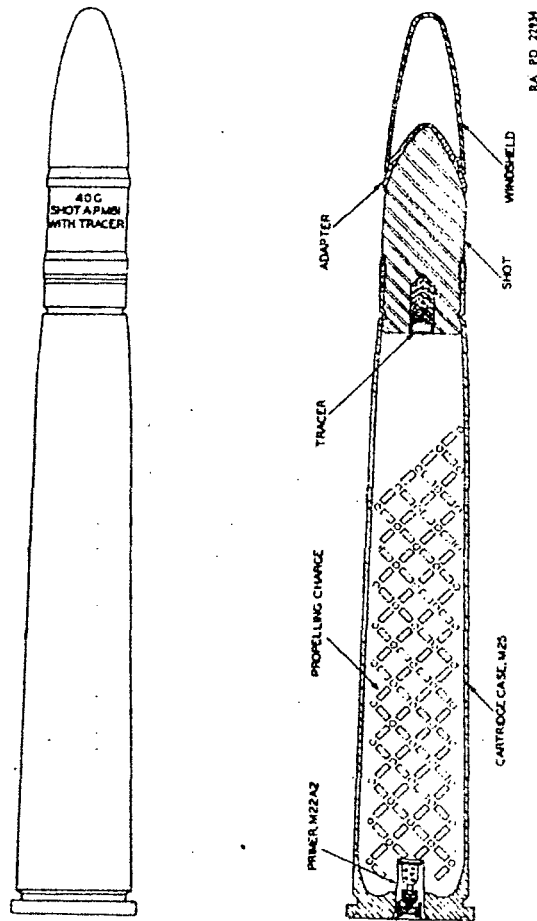
Cartridge, 90mm, HE, M71 and HE-T, M71A1



Length.....	37.45 inches
Diameter.....	3.62 inches
Weight.....	M7, 141.19 - 41.93 pounds M7A1, 38.80 - 39.54 pounds
Filler.....	TNT or Comp B
Weight of filler	
Normal fuze well.....	2.15 pounds
Deep Cavity fuze well.....	1.68 pounds
Fuze.....	PD M48, M48A1, M51A5, M557; MT M43A3; MTSQ M520 series, M564
Propelling charge.....	M1, 5.33 pounds M6 & M15; 7.31 pounds
Color.....	Olive drab with yellow marking

Reference: TM 9-1300-203, *Artillery Ammunition*, April 1977.

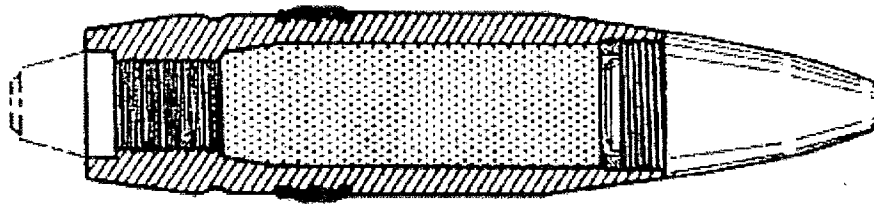
Cartridge, 40mm, AP-T, M 81



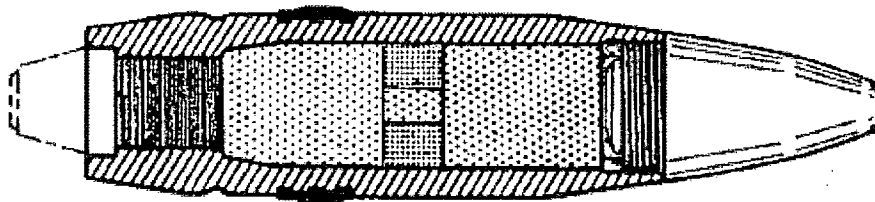
Length.....17.62 inches
Diameter.....1.56 inches
Weight.....4.53 pounds
Color.....Black with white marking
Filler.....None
Fuze.....None

Reference: TM 9-1904, *Ammunition Inspection Guide*, March 1944.

Projectile, 40mm, HE, HE-I, Mk 2



MK 2 HE



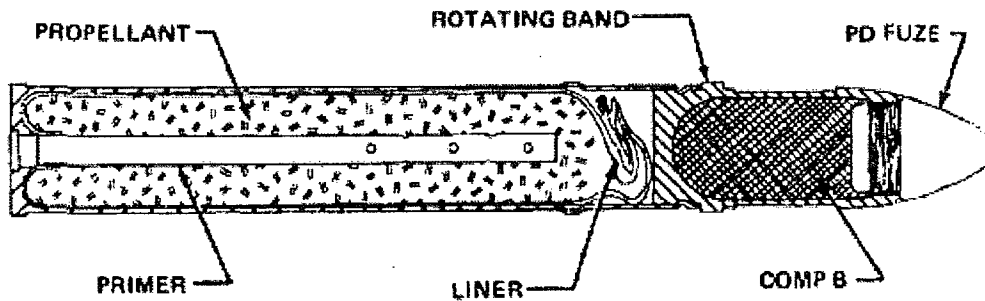
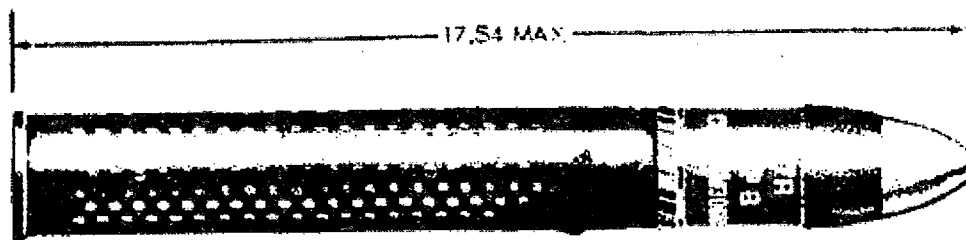
MK 2 HE-I

Over-all length of Projectile

With nose fuze.....	7.1 inches
Without nose fuze.....	5.2 inches
Diameter of bourrelet.....	1.57 inches
Filler.....	H.E.: Cast TNT H.E.-I.: Cast TNT and Incendiary
Weight of filler.....	H.E.: 0.148 pounds H.E.-I.: 0.150 pounds
Weight of loaded round.....	1.985 pound
Fuze.....	Mk 27, PD
Primer.....	Percussion

Reference: NAVSEA OP 1664, Vol 1, U.S. Explosive Ordnance, May 1947.

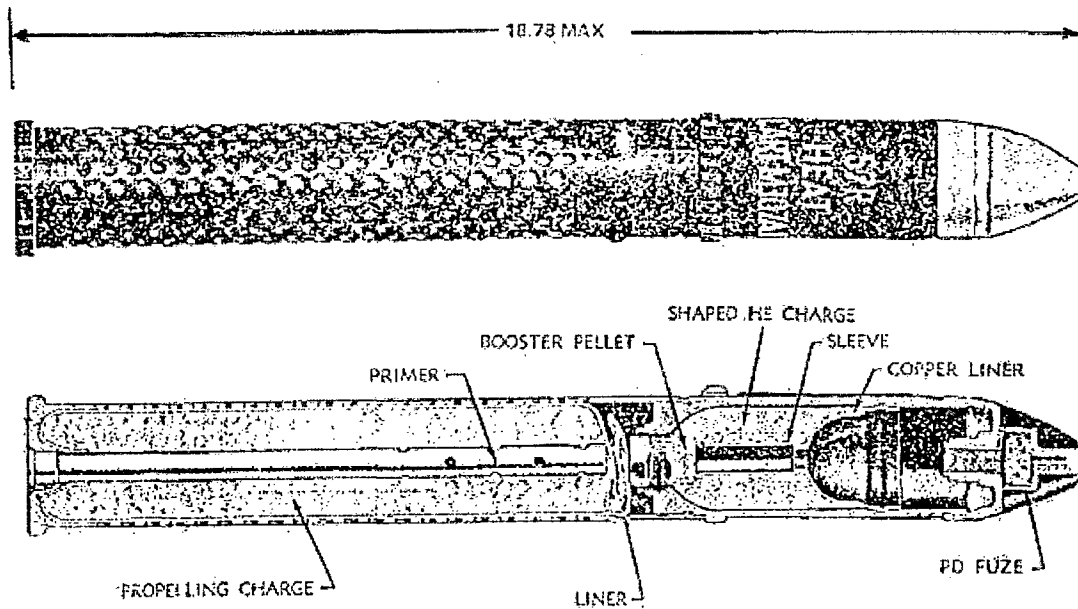
Cartridge, 57mm, Recoilless Rifle, HE, M306A1



Over-all Length (max).....	17.54 inches
Weight of complete round.....	5.46 pounds
Filler and weight.....	M306A1, Comp B, 0.55 pounds
	M306, TNT, 0.55 pounds
Propelling charge.....	M10
Color.....	Olive drab with yellow markings

Reference: TM 43-0001-28, *Army Ammunition Data Sheets, Artillery Ammunition*, April 1977.

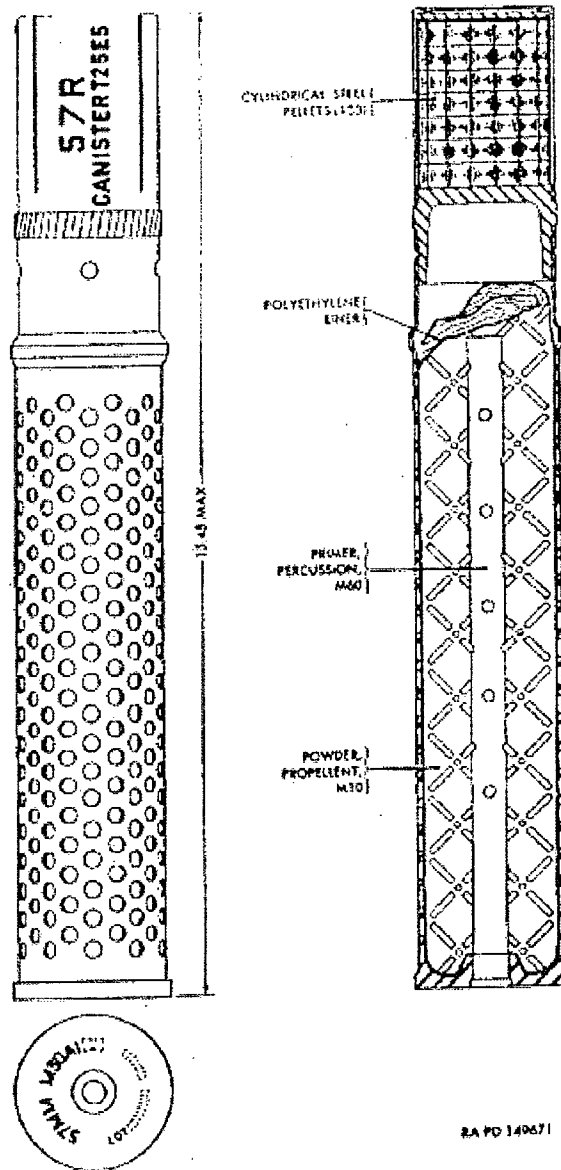
Cartridge, 57mm, Recoilless Rifle, HEAT, M307 & M307A1



Over-all Length (max).....	18.78 inches
Weight of complete round.....	5.43 pounds
Filler and weight.....	Comp B or 50-50 Pentolite, 0.40 pounds
Propelling.....	M10
Color.....	Olive drab with yellow markings

Reference: TM 9-1901, *Artillery Ammunition*, September 1950; TM 43-0001-28, *Army Ammunition Data Sheets, Artillery Ammunition*, April 1977.

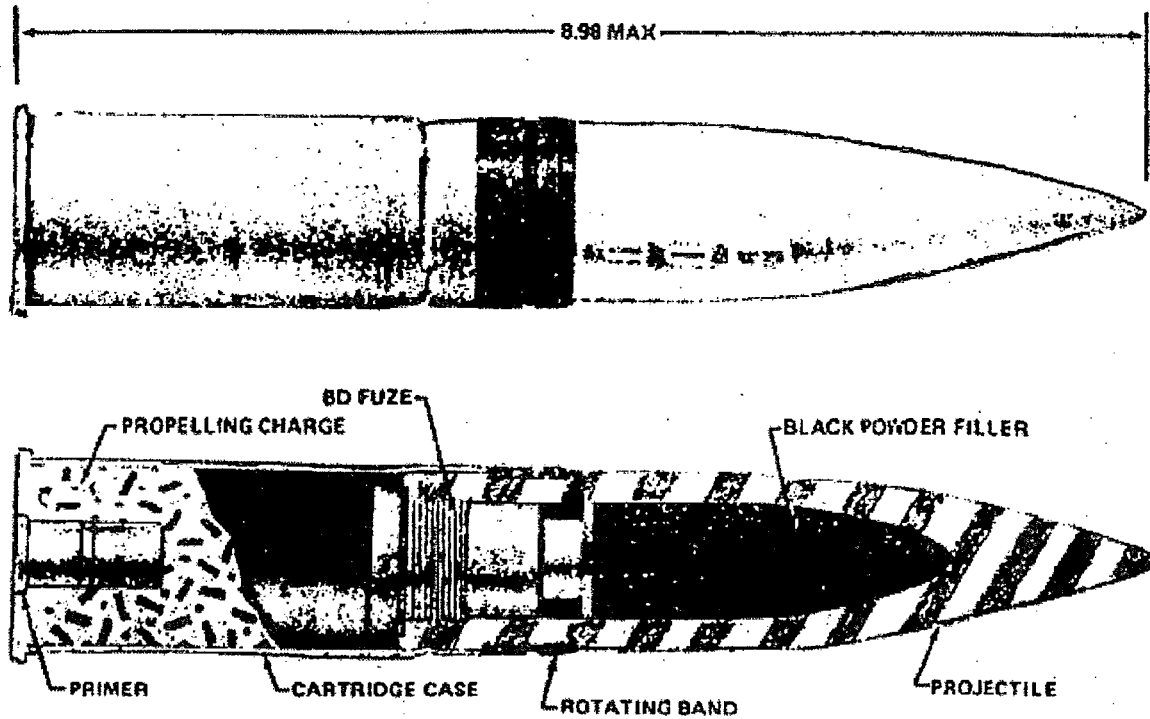
Cartridge, 57mm, Canister, T25E5, Recoilless Rifle



Over-all Length (max).....15.48 inches
 Weight of complete round.....5.43 pounds
 Weight of propelling charge.....1.0 pounds

Reference: TM 9-1901, *Artillery Ammunition*, March 1954; TM 9-1300-203, *Artillery Ammunition*, April 1967.

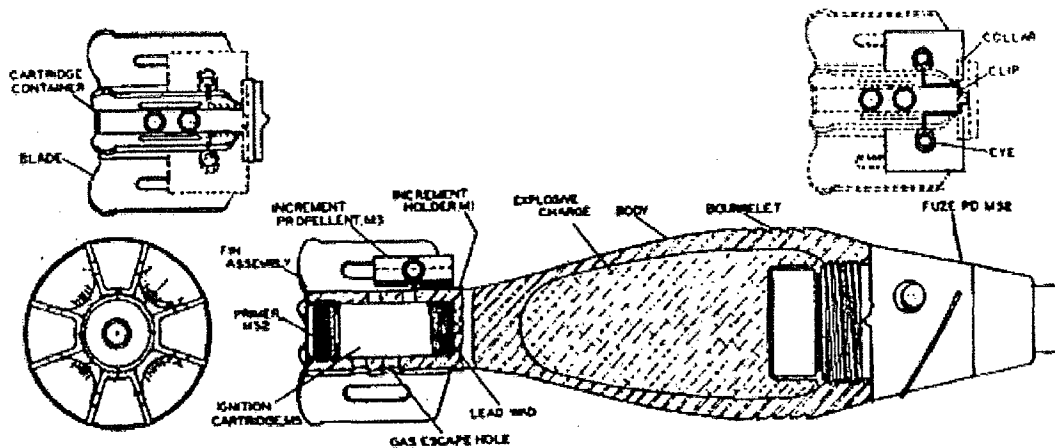
Shell, 37mm, TP, M63 MOD 1



Weight.....	2.01 pounds
Length.....	8.98 inches
Filler.....	Black Powder
Filler weight.....	0.084 pounds
Cartridge case.....	MK1A2, MK1A2B1
Propellant.....	M2, 0.56 pounds
Color.....	Blue with white markings (brown band for later manufacture)

Reference: TM 43-0001-28, *Army Ammunition Data Sheets, Artillery Ammunition*, April 1977.

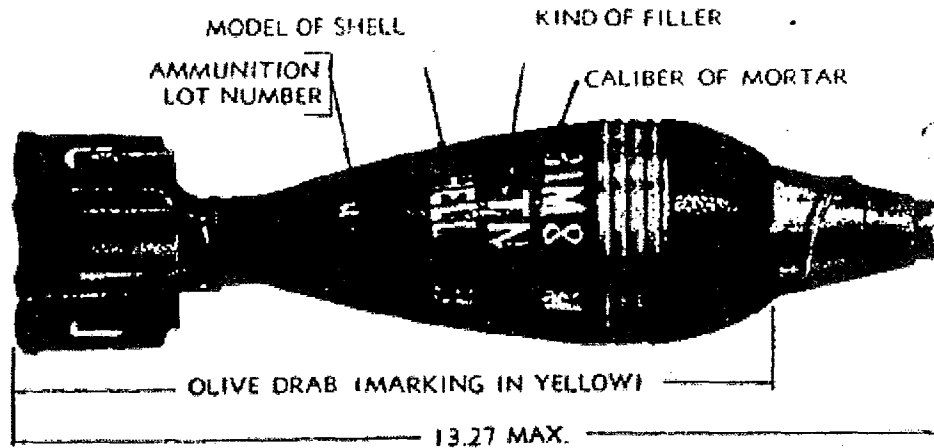
Mortar, 60mm, HE, M49 Practice, M50A2



Over-all Length.....	9.5 inch
Diameter (body).....	2.34 inches
Total Weight.....	2.94 pounds
Filler.....	TNT (flaked)
Filler weight.....	0.34 pounds
Propellant.....	ballistite
Fuze.....	M52 PD
	M525A1 PD
Painting and markings.....	Olive drab with yellow markings

Reference: TM 9-1904, *Ammunition Inspection Guide*, March 1944. TM 9-1300205, *Ammunition for Mortars*, September 1960.

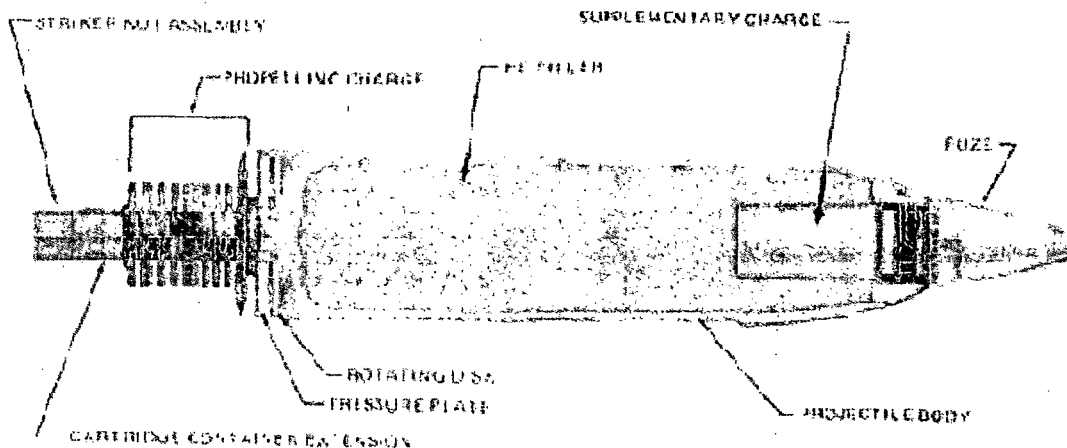
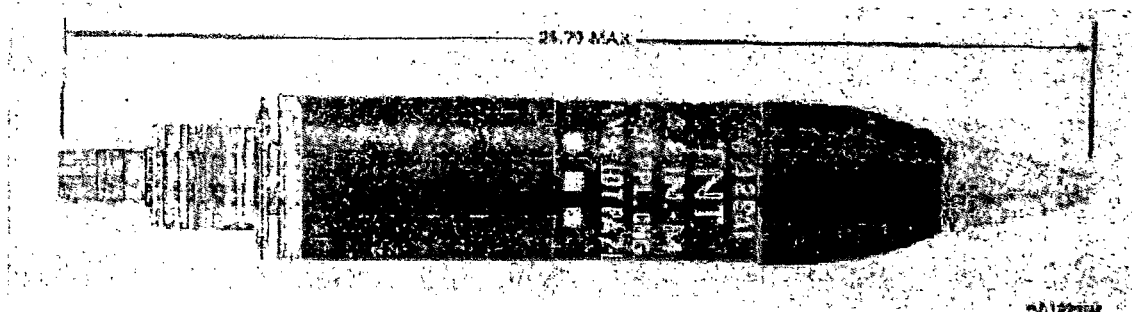
Mortar, 81mm, HE and Practice, M43A1



Over-all Length.....	13.25 inch
Diameter (body).....	3.16 inches
Total Weight.....	7.05 pounds
Filler	
HE.....	TNT, 1.22 pound
Practice.....	Black powder, 0.16 pound
Propellant.....	Ballistite
Fuze.....	M45, point-detonating
	<i>Painting and markings</i>
HE.....	Olive drab with yellow markings
Practice.....	Blue with white markings

Reference: TM 9-1904, *Ammunition Inspection Guide*, March 1944.

Mortar, 4.2-inch, HE, M329A1



Over-all Length.....	25.79 inches
Diameter (body).....	4.2 inches
Total Weight.....	27.07 pounds
Filler.....	TNT
Filler weight.....	7.08 pounds
Supplementary charge.....	0.365 pounds
Propellant.....	M36A1
Fuze.....	PD, M557; PD, M739, MTSQ M520 series; MTSQ, M564; Proximity, M513 series; M728; M732
Color.....	Olive drab with yellow markings

Reference: TM 43-0001-28, *Army Ammunition Data Sheets, Artillery Ammunition*, April 1977.



Appendix G

Textual References of Source Documents

1. Establishment of AAA Facilities at Camp Perry (Army, 1949)
2. Erie Echo News (Erie Echo, 1950)
3. Locust Point Land Lease (Army, 1953)
4. AAA Camp Perry Firing Notice (Army, 1959)
5. Erie Army Depot ASR (USACE, 1993) *(on attached CD)*
6. Final Removal Report (HFA, 1996) *(on attached CD)*
7. Camp Perry Revisited (Bovia, 1997)
8. Summary Report for Former Erie Ordnance Depot (USACE, 1999)
9. Erie Army Depot ASR Supplement (USACE, 2004) *(on attached CD)*
10. Final Report (ESTCP, 2007)
11. Final Site Investigation Report Erie Army Depot (Shaw, 2008) *(on attached CD)*
12. Locust Point AAAFA Findings and Determination of Eligibility (USACE, 2009)
13. Toussaint River Erie Army Depot Timeline of Events (USACE, 2009)
14. Sanborn EDR Map 1 (EDR, 2009)
15. Sanborn EDR Map 2 (EDR, 2009)
16. Radius EDR Report 1 (EDR, 2009)
17. Radius EDR Report 2 (EDR, 2009)
18. EDR Historical Topographic Map (EDR, 2009)
19. EDR Historical Topographic Map 2 (EDR, 2009)

1. Establishment of AAA Facilities at Camp Perry

HEADQUARTERS SECOND ARMY

OFFICE OF THE COMMANDING GENERAL

FORT GEORGE G. MEADE, MARYLAND

680.3 (cp. Perry) Ohio
AIAEN-R 600.1 (Camp Perry, Ohio)

31 DEC 1948

SUBJECT: Establishment of AA Facilities at Camp Perry, Ohio

THRU: Chief
National Guard Bureau,
Department of the Army
Washington 25, D. C.

TO: The Adjutant General
State of Ohio
State Building
Columbus, Ohio

1. Reference is made to Report of Board of Officers appointed by letter, Headquarters Second Army, for the purpose of determining whether present facilities at Camp Perry, Ohio, are adequate to establish an Anti-Aircraft Artillery Center thereat for Civilian Component Training and to determine additional requirements for establishment of such a center, copy thereof inclosed.

2. This headquarters approves the findings of the Board and desires to proceed with action to establish the Center.

3. In view of the fact that existing facilities at Camp Perry are owned by the State of Ohio, it is the opinion of this headquarters that responsibility for operation, maintenance, and acquisition of additional required lands for the AAA Training Center should be retained by the State of Ohio. This is predicated on the assumption that National Guard Bureau will allocate sufficient funds to secure additional land, construct firing points, access roads and control tower; and provide funds for the annual costs for opening, operating and closing the installation. It is estimated that cost of building tower, clearing, building and repairing roads and bridge will be \$43,000.

4. If the above responsibilities are acceptable to the National Guard Bureau and the Adjutant General, State of Ohio, this headquarters will take action to secure permission from the Chief of Ordnance for use of Erie Ordnance Depot facilities to assist in providing logistical and technical support and a possible course of instruction on materiel and fire control equipment.

5. Action has been taken to obtain, through the Chief of Engineers, the necessary restricted water area to permit firing, as indicated on

X 680.3 2nd army
X 600.1 2nd army & Ohio II

[Handwritten signature and initials]
True to face
Base attached

Log

SUBJ: Ltr Hqs 2nd Army, Ft. Geo. G. Meade, Md., AIAEN-R 600.1 (Camp Perry, Ohio), "Establishment of AA Facilities at Camp Perry, Ohio" 1941

Exhibit "C" of attached Board Proceedings. Requests for further enlargement or changes of this area should be transmitted through this headquarters to Chief of Engineers (ENGWR).

6. Your concurrence or comments are requested.

FOR THE COMMANDING GENERAL:

4 Incls:

- 1 - Rpt of Proceedings of Bd of Officers
- 2 - Map of Lake Erie
- 3 - Map Site Plan of Cp Perry
- 4 - Map Cp Perry & Vicinity

M. E. Gasker
M. E. Gasker
Capt AGD
Asst Adjutant General

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REPORT OF BOARD OF OFFICERS APPOINTED BY
LETTER HEADQUARTERS SECOND ARMY SUBJECT:
"APPOINTMENT OF BOARD OF OFFICERS" (LETTER
ORDER NO. 11-86) DATED 12 NOVEMBER 1948)
FOR THE PURPOSE OF DETERMINING WHETHER
PRESENT FACILITIES AT CAMP PERRY, OHIO ARE
ADEQUATE TO ESTABLISH AN ANTI-AIRCRAFT
ARTILLERY CENTER THEREAT FOR CIVILIAN COM-
PONENT TRAINING, AND TO DETERMINE ADDITIONAL
REQUIREMENTS FOR ESTABLISHMENT OF SUCH A
CENTER

Incl. #1-a

Camp Perry, Ohio
26 Nov 1948

PROCEEDINGS OF A BOARD OF OFFICERS WHICH CONVENED AT CAMP
PERRY, OHIO, PURSUANT TO LETTER ORDER NUMBER 11-86, HQ 2ND
ARMY, DATED 12 NOVEMBER 1948 A COPY OF WHICH IS ATTACHED AS
EXHIBIT "A".

1. The board met Pursuant to the foregoing order at Camp Perry, Ohio
at 1100 hours, on 22 November 1948.

Members present:

Colonel Donald McLean	015284 CAC
Mr. Charles R. Sansbury,	Louisville, Ky, representing Col J. L. Person, 01751, CE, as designated in letter attached as exhibit "B".
Lt Col Alvin T. Bowers	016107 CAC
Major Clarence E. Gushurst	022998 CAC

Members Absent:
None

2. ACTIVITIES OF THE BOARD:- Upon convening at Camp Perry the board
contacted Mr. Harry H. Kerr, the State officer in permanent charge of Main-
tainance of Camp Perry, and acquainted him with the purpose of the board.
He extended permission on behalf of the Adjutant General of Ohio for the
Board to inspect Camp Perry and furnished the Board with site plans of the
Camp. The board then proceeded to the Erie Ordnance Depot, met Colonel
James E.B. McInerney, Ord, Commanding the Depot, and explained the purpose
of the board to him. Col McInerney personally conducted the board on a tour
of inspection of the firing points, control tower, and beach areas within
the depot, and furnished Maps and technical information regarding present
and previous impact areas to the board.

3. During the afternoon of 22 Nov the board proceeded to the Vicinity
of Locust Point and reconnoitered the road net between Camp Perry and Locust
Point as far west as Turtle Creek by Automobile. Following the access road
to the beach at the point called Sand Beach to its eastern termination on the
beach, the board proceeded on foot along the beach nearly to the mouth of the
Toussaint River. (See Coast Chart Number 36; Vermilion to Port Clinton, Ohio;
and Coast Chart Number 37; Port Clinton, Ohio, to Pointe Monillee, Mich; Lake
Erie, War Department, Corps of Engineers, Survey of the Northern and North-
western Lakes. Scale 1:80000 attached as Exhibit "C". Overlays only for
duplicate and triplicate copies of report.)

26 Nov 48

4. Upon returning to the Erie Ordnance Depot the board determined a water impact area suitable for firing of Anti-aircraft weapons. This Area is defined as that water area enclosed by a line from a point on the south shore of Lake Erie at approximately 83° 51' 24" W Long. 41° 36' 30" N Lat. thence on a bearing of approximately 329° True to a point in Lake Erie approximately 83° 12' 30" W Long. 41° 45' 15" N Lat. thence on a bearing of approximately 58° True to a point 83° 31' 10" W Long. 41° 49' 30" N Lat. thence on a bearing approximately 115 to a point at approximately 82° 52' 0" W Long. 41° 46' 0" N. Lat. thence on a bearing of approximately 187° True to a point at approximately 82° 54' 30" W Long. 41° 35' 30" N Lat. thence on a bearing of approximately 239° True to a point on the south shore of Lake Erie at approximately 83° 11' 0" Long. 41° 32' 45" North Lat. This area was determined by considering danger areas generated by swinging arcs with radii as indicated in the table below for various types of Anti-aircraft ammunition with centers both at Camp Perry and at Locust Point.

AMMUNITION	MAXIMUM DUD RANGE	REQUIRED SAFETY	MAXIMUM SAFE RANGE
		ZONE AR 750-10	
40mm H E MK II	10,850 yds	1000 yds	11,850 yds
90mm H E M 71	19,560 yds	1000 yds	20,560 yds
120mm H E M 73	28,250 yds	1000 yds	29,250 yds

These arcs are indicated on the attached map and overlays (Exhibit C). Boundaries nearest land areas were placed so as to be over 1000 yards away from the approximate location of the nearest inhabited points.

5. On the morning of 23rd November the board, utilizing a DUKW provided by the Commanding Officer Erie Ordnance Depot, reconnoitered by water the entire beach from Camp Perry to beyond the mouth of the Toussaint River landing west of the mouth of the river and proceeding partially by walking west to the access road at Sand Beach, the only usable part of this beach is that extending two miles west of the mouth of the Toussaint River. The beach is in most places very narrow but several areas, particularly near the mouth of the Toussaint River and one area about one (1) mile west of the Toussaint River, have sufficient depth if cleared. The entire beach from Camp Perry to the Toussaint River is too narrow to warrant construction of firing points. All other areas in the vicinity of Locust Point are too thickly built up to warrant consideration as firing points. The general area containing suitable firing points may be described as that area from a point approximately 50 yards east of the Eastern-most dwelling on the South Shore of Lake Erie East of the vicinity of Locust Point, extending Eastward along the shoreline to the mouth of the Toussaint River with an approximate depth inland from the shore of 150 yards.

26 Nov 48

6. The board was accorded excellent cooperation by State authorities and very commendable assistance by Col James E.B. McInerney, commanding the Erie Ordnance Depot.

FINDINGS:

7. Camp Perry proper has 1070 hutments 16' x 16' and 112 additional larger hutments designed for officer use, all hutments are arranged to accommodate 6 persons, and are in general in excellent condition.

8. Adequate mess halls, latrines Unit Administrative buildings are available contiguous to hutment areas, and are, in general, in excellent condition.

9. Camp Headquarters, Post Exchange, Theatre, Chapel, Fire House are all modern and centrally located.

10. Adequate railheads for troops and supplies are located centrally and contiguous to excellent warehouse and cold storage facilities, see attached site plan (Exhibit "D") for detailed location.

11. Housekeeping and administrative facilities at this Camp are ample to care for from 4000 to 8000 officers and men.

12. Port Clinton, Ohio, 4500 population, 6 miles from Camp Perry and Sandusky, Ohio, 24,875 population, 26 miles from Camp Perry are the nearest towns. The Camp railhead is connected to the tracks of the New York Central Rail Road.

13. Training Facilities include;

a. Small arms ranges with 90 or more targets on each 200, 600, 800, and 1000 yard ranges.

b. Parade ground and additional instruction areas located on the south end of the reservation.

c. Liaison type aircraft can land safely at Camp Perry.

d. The Toledo Airport has runways 4200 feet long and is 34 air miles from Camp Perry. Selfridge Field is 65 Air miles from Camp Perry.

14. Utilizing an area in front (South of) the target butts on the 1000 yard (Western most) range and a small area behind the butts on the 800 yard range a front of approximately 500 yards is available for emplacing guns, at Camp Perry. This is generally in prolongation of the firing position used at E.O.D. The firing front at E.O.D. consists of 15 firing bays each capable of mounting 4 each 120mm or 90mm guns. See map of Camp Perry and Vicinity, Office of the Engineer, 5th Corps area 1923 Attached as Exhibit "E". It is believed that arrangements should be made to use this additional firing area, during the encampment period.

26 Nov 48

15. The Erie Ordnance Depot could furnish logistic support and technical maintenance assistance to troops at Camp Perry. The present restricted impact area now used by the Erie Ordnance Depot is not large enough to be considered adequate for Anti-aircraft fire at either towed or controlled targets from firing points at either Erie Ordnance Depot or at Camp Perry. To provide an adequate field of fire for 120mm guns in the vicinity of Camp Perry the expanded restricted area described above must be acquired (See area outlined on attached map, Exhibit "C".)

16. If the increased impact area is secured, a field of fire from gun sites available at Camp Perry and Erie Ordnance Depot, of approximately 57° for 120mm, approximately 71° for 90mm, and approximately 96° for 40mm and cal. .50 MG will be available. Except for ~~Anti-aircraft~~ *Automatic* weapons this is not considered an adequate Field of Fire.

17. If gun sites are procured in the vicinity of Locust Point a field of fire of approximately 84° can be obtained for 90mm firing and approximately 130° field of fire for automatic weapons. The firing of 120mm from this vicinity would be unsatisfactory because the danger area would extend into Canadian waters and into the dredged ship channel to Toledo, Ohio, (See Arc on Map) the establishment of Gun sites at Locust Point will require about two miles of access road, tree clearing for 25 yards south of the beach crest and construction of a fifty foot control tower. A reasonable estimate of costs involved cannot be made at this time without an adequate engineer survey of the area.

18. With the acquisition of the expanded impact area described in paragraph 4 Camp Perry would be satisfactory for training of Anti-aircraft units.

RECOMMENDATIONS:

19. It is recommended that appropriate action be taken to secure:

- a. The expanded restricted area described in paragraph 4 above.
- b. Firing positions at Locust Point as described in paragraph 5 above.

20. The board adjourned at 1300 on 23 November 1948.

Alvin T. Bowers
Lt Col Alvin T. Bowers

Donald McLean
Colonel Donald McLean

Clarence E. Gushurst
Major Clarence E. Gushurst

Charles R. Sansbury
Mr. Charles R. Sansbury
Representing Col J.L. Person

COPIES



7/11/1954

11 June 1959

Honorable Thomas Ludlow Ashley

House of Representatives

Dear Mr. Ashley:

This is in reply to your inquiry in behalf of the Cooley Canal Sportsman Club relative to a change in the schedule for the antiaircraft artillery schedule at Camp Perry and the Erie Ordnance Depot during the period from June 18 to July 26.

The Department of the Army has brought this matter to the attention of the National Guard authorities concerned, the Commanding Officer, Erie Ordnance Depot, and the Commanding General, Second United States Army for their consideration and appropriate action.

You may be sure that efforts will be directed toward the minimum disruption in the use of the water area, consistent with the accomplishment of training objectives of the military units concerned.

Your interest in this matter is appreciated.

Sincerely,

JOHN W. B. WALTERS
Lt Colonel, GS
Office, Chief of
Legislative Liaison

cc: NGB
House Br.

M/R: Reply based on info furn by NGB



Not to be used

Prep 9 June 59

HQ-IN 353.4 Ohio
(25 May 59)

Firing Schedule for Erie Ordnance Depot and
Camp Perry During Summer Months

JUN 9 1959

SACLL

Actg C/MOS

Mrs Grew/71266/mj

1. Forwarded herewith is a draft reply to the attached letter from the Honorable Thomas Ludlow Ashley relative to changing the artillery firing schedule at Camp Perry and Erie Ordnance Depot during the period from June 13 to July 26.
2. It is recommended that copies of the Congressman's letter and the reply be forwarded to the Commanding General, Second United States Army, and the Commanding Officer, Erie Ordnance Depot.
3. Request that a copy of the reply be returned to the National Guard Bureau for forwarding to the Adjutant General of Ohio in order that he may also be advised.

FOR THE ACTING CHIEF, NATIONAL GUARD BUREAU:

2 Inal

1. R/S dtd 25 May 59 w/incl
2. Draft reply

Wk JAMES E. HANSEN, Colonel, MOS
Executive

DISPATCHED

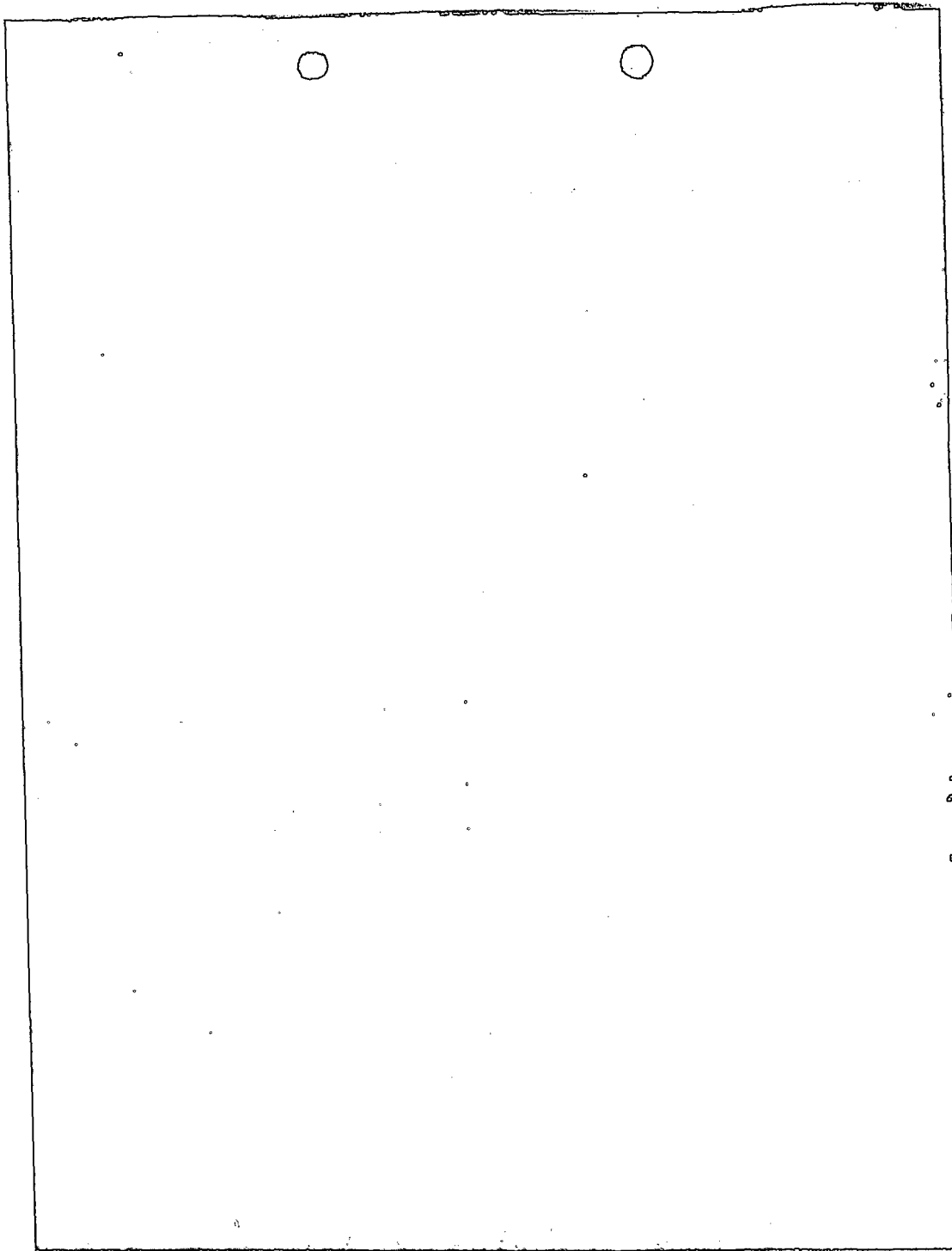
1959 JUN 9 12 51

NATIONAL GUARD BUREAU
MAIL & RECORD SECTION

SNOWFLAKE F587066

HAND CARRIED

By Mrs Johnson



DECLASSIFIED

Authority 775001
By 42 NARA Date 1-27-10ASSISTANT AREA 1 AMMUNITION INSPECTOR
RAVENNA ARSENAL
APCO, OHIORECORD
IKHaywood/mpr

17 May 1949

SUBJECT: Inspection of Erie Ordnance Depot

THRU: Commanding Officer
Erie Ordnance Depot
La Carne, OhioTO: Chief of Ordnance
Washington, 25, D.C.

ATTENTION: CRDFA - Tech

1. The undersigned visited Erie Ordnance Depot, La Carne, Ohio 16 May 1949, with reference to storage and inspection of ammunition and ammunition components. The following personnel were contacted:

Colonel E. S. Gruver, Commanding Officer
Lt Col M. M. Duncan, Chief, Supply Division
Lt John G. D'Amato, Storage Officer
Mr. J. M. Braddock, Civilian Chief, Depot Property

2. Magazine Storage

a. The following classes of ammunition are in storage at this establishment:

<u>Class</u>	<u>Quantity</u>
Inert	7,358 tons
1	5
3	10
6	1

b. It is advised that of the seven thousand, three hundred and fifty-eight (7,358) tons of inert items listed in para. (a) above, there are two million, four hundred thousand, nine hundred and ninety-eight (2,400,998) Case, Cartridge, M14, Unprimed, for 105MM Howitzer. A spot inspection of the storage of these Cases show that approximately ten percent (10%) of the cardboard boxes have deteriorated. It is believed that approximately five percent (5%) of these Cases will be dented or will require cleaning upon a 100% inspection. A large percentage inspection will be conducted during the annual inspection in August.

3. Condition of Magazines

a. The Ammunition Storage Area comprising five (5) igloo magazines, three (3) are 40 feet long and two (2) are 26 feet 6 inches long, were inspected and found satisfactory.

DECLASSIFIED

Authority 775001
By A2 NARA Date 1-27-10

Erie Ordnance Depot
9201

Inspection of Erie Ordnance Depot

17 May 49

b. The lightning protection system has been tested electrically for continuity and adequacy of grounding for calendar year 1949 and found to be satisfactory.

4. Annual Inspection

The annual inspection of ammunition and ammunition components is due in August. It is recommended that this inspection be supervised by an Ammunition Inspector from Ravenna Arsenal as there is no trained personnel to conduct this inspection on the Depot.

5. Demilitarization of Ammunition

Erie Ordnance Depot has received a letter from Headquarters, Second Army to demilitarize one thousand, three hundred and fifty (1,350) chemical grenades. It was recommended that an Ammunition Inspector from Ravenna Arsenal supervise the destruction of these grenades.

6. Normal Maintenance Funds

It is advised that this installation has overspent their funds for normal maintenance by \$1165.75 as of 1 May 1949. They are requesting \$ 2500 additional for the balance of the fiscal year by separate letter.

S. K. Haywood
I.K. HAYWOOD

Assistant Area Ammunition Inspector
Area 1

cc: Area Ammunition Inspector, Area 1
Letterkenny Ordnance Depot
Chambersburg, Pa.

ORDNH 333/18

1st Ind

Erie Ordnance Depot, Lacarne, Ohio, 18 May 49

TO: Office, Chief of Ordnance, Washington, 25 D. C. ATTN: ORDEA - Tech

Noted.

Earl S. Gruver

EARL S. GRUVER
Colonel, Ord Dept
Commanding

DECLASSIFIED
 Authority 715001
 By A2 NARA Date 1-22-10

O.O.333.1/2001 Erie O.D.
 Attn: ORDFA
 ORDJH 333/18

2nd Ind

WJThomas/s/3575

Dept Army, Ord O, Washington 25, D. C.

31 MAY 1949

TO: CO, Raritan Arsenal, Metuchen, N. J. Attn: ORDJR-Q

Forwarded for action your office.

BY COMMAND OF MAJOR GENERAL HUGHES:

S. E. FURNELL

S. E. FURNELL
 Maj, Ord Dept
 Assistant

RECORD

ATTN: ORDJR-QTS
 O.O.333.1/2001 Erie O.D.
 ORDJH 333/18

3rd Ind

GDeVos/bb/559

Ord Dept, Raritan Arsenal, Metuchen, New Jersey, 13 June 1949

TO: Chief of Ordnance, Washington 25, D. C., ATTN: ORDFA

1. Basic report of Inspection of Erie Ordnance Depot by Assistant Area Ammunition Inspector, Area No. 1 has been reviewed and is returned herewith.

2. Reference paragraph 2b, Erie has been requested to report Cartridge Case, M4 on OO Form 1116. A copy of letter is inclosed herewith.

3. Reference paragraphs 4 and 5, Ravenna has been requested to make available an Ammunition Inspector to Erie Ordnance Depot for Supervision of annual inspection of ammunition and ammunition components and for the demilitarization of chemical grenades. A copy of letter is inclosed herewith.

4. Reference paragraph 6, inclosed herewith is copy of 1st indorsement requesting justifications of additional funds.

FOR THE COMMANDING OFFICER:

- 3 Incls
 1. Ltr to Erie
 2. Ltr to Ravenna
 3. 1st Ind to Erie

3

R. M. RADER
 R. M. RADER
 Major, Ord Dept
 Assistant

*715001
 28 Aug 50*

2. Erie Echo News

DECLASSIFIED

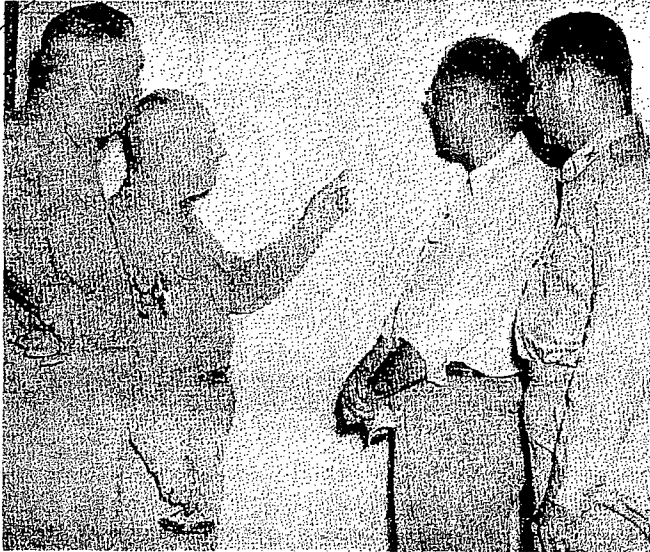
Authority NAIP 776004
By CYNARA Date 12/23/09

Page 6

ERIE ECHO

14 July 1950

GENERAL KREBER ANNOUNCES RECORD SEASON FOR CAMP PERRY



Maj. Gen. Leo M. Kreber, Adjutant General of Ohio, who was at Camp Perry the first of the week, told visiting newspapermen that this is a record season for Camp Perry, and credited the increase in the number of Regular Army, Organized Reserve Corps, and National Guard groups training there to the anti-aircraft training facilities. Gen. Kreber is shown pointing out AA firing bases to Brig. Gen. Kenneth Cooper, assistant Adjutant General of Ohio, (left), and Walter A. Krupp, editor of the Port Clinton Herald, and Col. Wilbur H. Fricke, Commanding Officer of the 371st AA group.

RADIO CONTROLLED AA TARGET USED IN FIRST OHIO PRACTICE AROUSES CURIOSITY OF EODERS

Curiosity may have killed the proverbial cat, but it doesn't phase Camp Perry's little R-CATS.

That's well, for there's curiosity aplenty about the little airplane that buzzes EOD daily.

R-CAT really stands for radio-controlled anti-aircraft target, and that's exactly what the airplane is. It can simulate dive bombing and other tactics, providing almost perfect target practice for the AA gun crews.

The plane has a 12 foot span, and a 66-horse power gasoline motor, propeller driven. It can go 230 miles an hour, and 15,000 feet high. It is launched from a whirligig, and controlled by radio installed in a truck located at the rear of the gun emplacements. It is brought down by parachute, and descends by parachute if hit in a vital spot during target practice.

Yes, it can get out of control, but if it does, it is immediately shot down from the radio truck.

The R-CAT Detachment from Second Army is in charge of the R-CATS at Camp Perry, and Lt. Charles Dennen of Fort Bliss, Texas, instructed the group in the maneuvering and control of it, and the Echo is indebted to him for this information.

This is the first time the R-CATS have been used for anti-aircraft practice in Ohio.

ABOUT YOU AND ME

ENGINEERING AND INSPECTION NEWS by Leona Schneider

Leo Perry recently returned to work after an enjoyable two-week vacation spent with his family at International Falls, Minn., and the Lake of the Woods area in Canada. He reports many fine catches of fish on this trip as usual. He's a real fisherman.

Inspection Branch families have been visited quite frequently of late by "ole" Mr. Stork. Mr. and Mrs. George Kuhns have a little red-headed gal whom they named Kathy; Mr. and Mrs. Bert Alexander have a little son whom they call Ronnie; and Mr. and Mrs. George Robinson have a son, also, whom they named Jackie. Congratulations to all of you! We think it's wonderful.

This past week we lost Capt. Elwood L. Fogleman who left with his family for an extended trip through Louisiana, Texas, Teton, Yellowstone and Glacier National Park, and Lake Louise in the Canadian Rockies prior to his assignment overseas. In his short stay with our division he became very well liked by all and all of us who had the good fortune to know him and work with him felt quite badly about his leaving.

Lt. Chester J. Jaroch took Capt. Fogleman's place in our division as our new Proof Officer. We hope that he will like it here with us.

Harold Sperber is back to work (with a fancy new haircut) after two-week's training with the Air Force

Reserve at Camp Atterbury, Ind., and Robert Mathias is now on military leave for two weeks in Fort Knox, Ky.

We hear from Howard Garner that his wife is doing fine and is coming home this week. We were mighty glad to hear that, Howard.

POST ENGINEER NEWS by Lois Cooley

Bob Cotterman "reported" a pretty good catch 29th June out on the patrol boat.

Jerry Hunt, son of Mike Hunt, Paint Shop, has enlisted in the U.S. Navy and will leave in a few days for Great Lakes Naval Training Station. Mike certainly has reason to be proud as he is a U. S. Navy vet.

Personal friends favored Sgt. Charles Salts with a farewell party and picnic at East Harbor State Park, 7 July. "Salty" was given a beautiful Eversharp pen and pencil set as a token of friendship.

Richard Alexander dislocated his left elbow while playing ball at East Harbor, 7th July, and was taken to Magruder Hospital and will be released some time this week. Sorry this happened to you, Dick.

Mr. and Mrs. Milton Hehr attended the Conn Dealers Convention at Elkhart, Ind., this past weekend, and met several representatives of the forty-eight states, Canada and England.

3. Locust Point Land Lease

VOL 019 PAGE 57

Division, Civil Pro.

ENG-132

FILE F1515

LAND LEASE

FRED W. DANFET

THE UNITED STATES OF AMERICA

day of January

by and betw

whose address is Dorling Green, Oldo,

for himself, his

heirs, executor

WITNESSETH: The parties hereto for the consideration hereinafter mentioned covenant and agree as follows:

Situate in the State of Ohio, County of Ottawa, Range 15E, Township 7 North,
Sections 1 and 6, more particularly described as follows: (Cordell Township)

Being in Section 1, Twp 7N, R15E and described as follows: A strip of land 40 feet wide beginning at an east-west county road at the northwest corner of the southwest quarter of said Section 1, Twp 7N, R15E; thence along the west line of said section and parallel to said section line;

Northerly 690.4 feet, more or less; thence with the north line of the lessor's land as follows: Easterly 1342.73 feet to a corner; thence continuing with said property line S 55° 15' E 1792.4 feet, more or less, to a point 450 feet, more or less, S 55° 15' W from the most northerly corner of the lessor's land; the above 40-foot right-of-way contains 3.52 acres, more or less.

Another tract situated in Sections 1 and 6, Twp 7N, R15E, more particularly described as follows: A strip of land 450 feet wide west of and parallel to the low water line of Lake Erie from the most northerly corner of lessor's land in Section 1 in a southeasterly direction along said lakofront for a distance of 6370 feet, more or less, to the south line of Section 6, Twp 7N, R15E, and containing 65.00 acres, more or less.

The above parcels contain a total of 69.32 acres, more or less, to be used for the following purposes: Site for construction of roadway, control tower, firepoint positions and for the training of troops in anti-aircraft artillery firing and other purposes incidental thereto.

END PAGE 156

1

3. TO HAVE AND TO HOLD the said premises for the term beginning **1 February 1953** through June 30, 1953, provided that unless and until the Government shall give notice of termination in accordance with provision 6 hereof, this lease shall remain in force thereafter from year to year without further notice; provided further that adequate appropriations are available from year to year for the payment of rentals; and provided further that this lease shall in no event extend beyond **31 August 1963**.

4. The Government shall pay the Lessor rent at the following rate: **Four Hundred Fifty Dollars (\$450.00) per quarter year or proportionate payment for any portion of a quarter of a year.**

per

Payment shall be made at the end of each **quarter of a year** by the Finance Officer, United States Army, Jeffersonville, Indiana. Certified rental invoices, in triplicate, shall be mailed to The Adjutant General, State of Ohio, Fort Hayes, Columbus 18, Ohio for certification of occupancy and transmittal to the District Engineer, Louisville District, Corps of Engineers, P. O. Box 59, Louisville 1, Kentucky.

5. The Government shall have the right, during the existence of this lease to attach fixtures, and erect structures or signs, in or upon the premises hereby leased, which fixtures and structures, or signs, so placed in, upon or attached to the said premises shall be and remain the property of the Government and may be removed or otherwise disposed of by the Government.

6. The Government may terminate this lease at any time by giving thirty (30) days notice in writing to the Lessor, and no rental shall accrue after the effective date of termination.

7. Any notice under the terms of this lease shall be in writing signed by a duly authorized representative of the party giving such notice, and if given by the Government shall be addressed to the Lessor at **Bowling Green, Ohio,**

and if given by the Lessor shall be addressed to **the District Engineer, Louisville District, Corps of Engineers, Post Office Box 59, Louisville 1, Kentucky.**

8. The Lessor warrants that no person or selling agency has been employed or retained to solicit or secure this lease upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Lessor for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this lease without liability or in its discretion to deduct from the lease price or consideration the full amount of such commission, percentage, brokerage, or contingent fee.

9. No Member of or Delegate to Congress or Resident Commissioner shall be admitted to any share or part of this lease or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this lease if made with a corporation for its general benefit.

10. It is understood and agreed that any construction undertaken by the Government shall not damage the shore line in any manner that will impair the value of the property.

11. It is agreed that firing of anti-aircraft artillery on the premises shall not be restricted, except during Sundays and Holidays and between the hours of 5:00 PM and 8:00 AM Mondays through Saturdays during the term of the lease, it being further understood and agreed that the Government shall not at any time fire anti-aircraft artillery during the periods between 1 September and 31 December of each year for the duration of the lease; and provided further that all activity by the using service shall cease between the period beginning 15 October and ending 15 December.

12. The Lessor shall be permitted the use of the road constructed over his property herein described from the Lessor's Lodge to Lake Erie and the beach area except during the period when the premises are in use by the Government for shooting.

13. The Lessor, in performing the work required by this contract, shall not discriminate against any employee or applicant for employment because of race, creed, color, or national origin; provided that the Lessor shall otherwise be the sole judge of the qualifications of any worker for any particular job.

14. This transaction is not affected by Section 601 of the Act of Congress approved September 23, 1951 (P. L. 155, 82d Congress).

15. It is mutually understood and agreed that this lease supersedes Lease No. W-15-029. ENI-2194, as amended, and that said Lease No. W-15-029 ENI-2194, as amended, automatically terminates 31 January 1953.

Prior to the execution of this lease by either party, paragraphs 10, 11, 12, 13, 14 and 15 were added hereto and made a part hereof.

SURVEY OF PRIZES

Lease No. DA-15-029 EMD-1320

Date of Occupancy: 1 February 1953

Date of Survey: 1 February 1953

Premises: Two (2) parcels of land: Parcel No. 1, containing 3.52 acres, more or less, and Parcel No. 2, containing 65.80 acres, more or less, making a total of 69.32 acres, located in Sections 1 and 6, Range 15E, Township 7 North, situated in the State of Ohio, County of Ottawa, more particularly described in Lease No. DA-15-029 EMD-1320.

Lessor: Fred W. Hankoy

Address: Bowling Green, Ohio

Installed property of Lessor: None.

The character of this land covered by this lease, is sandy beach along the lakefront, sparsely populated with timber, over which the Government has constructed a roadway, guard house, two mess halls, two control towers and stabilized certain areas for firing points. Along the west portion of the land a dike has been built by the Lessor, with a view of training a portion thereof. For the most part the land owned by the Lessor is marsh land, unimproved and uncleared. No other structures are on the land under lease.

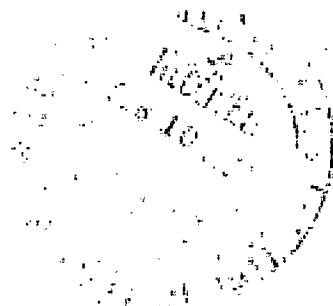
E. M. DAVIS
E. M. DAVIS
Negotiator

IN WITNESS WHEREOF, the parties hereto have hereunto subscribed their names as of the date first above written.
In presence of:

Mary Ann Roe
Witness

Fred M. Harbey (SEAL)
Lessor
FRED M. HARBEY

Westerly Ohio
Address of Witness



THE UNITED STATES OF AMERICA,

By *C. D. Raylen*
Contracting Officer
C. D. RAYLEN
Chief, Real Estate Division

~~As a corporation, the following certificate shall be executed by the secretary or assistant secretary.)~~

I, _____
certify that I am the _____
named as Lessor in the attached lease; that _____
lease on behalf of the Lessor, was then _____
said lease was duly signed for and in behalf of said corporation by authority of its governing _____
body, and is within the scope of its corporate powers.

August 28 1953
2:35
September 1 1953
Volume 19 of Lease Page 58
Grace M. Winter
Due \$3.00
THE STATE OF OHIO
OTTAWA COUNTY, S.S.
RECEIVED FOR RECORD
1953
10-10-1953
C. D. RAYLEN
Chief, Real Estate Division
(Corporate Seal)

82139

4. AAA Camp Perry Firing Notice

SPECIAL FIRING NOTICE

HEADQUARTERS
ERIE ORDNANCE DEPOT
Port Clinton, Ohio

In Reply Refer To:
OSD - M

6 March 1959

NOTICE TO MARINERS AND OTHERS

LAKE ERIE, WENT LEO, ARTILLERY AND AIRCRAFT FIRING RANGES

PURSUANT TO THE PROVISIONS OF ARMY APPROPRIATIONS ACT OF JULY 9, 1949, THE RIVER AND HARBOR ACT OF AUGUST 8, 1917, AND THE FEDERAL CODE OF LAWS, SPECIAL FIRING NOTICE ISSUED BY THIS HEADQUARTERS 16 MARCH 1959 IS HEREBY SUPERSEDED BY THE FOLLOWING:

This Special Firing Notice consists of three (3) parts (schedules), and all mariners and others are cautioned that Area I, shown on U. S. Lake Survey Chart No. 39, will be closed to surface navigation during the hours set forth in these schedules.

PART I. Erie Ordnance Depot will conduct artillery firing continuously between the hours of 0730 to 1300 (7:30 a.m. - 1:00 p.m.) EST on the days of Monday through Friday (5 days per week). These hours will be in effect from 0730 hours (7:30 a.m.) on Monday, 16 March 1959, until 1300 hours (1:00 p.m.) on Monday, 15 June 1959.

PART II. The Local Notice to Navigation Interests No. 157-4, dated 1 March 1959, published by the Detroit District Corps of Engineers, establishes the hours of firing in Area II, therefore Erie Ordnance Depot firing will coincide and will be conducted in Area I between the hours of 0830 to 1130 (8:30 a.m. - 11:30 a.m.) EST and 1215 to 1630 (12:15 p.m. - 4:30 p.m.) EST on the days of Monday through Friday (5 days per week; except holidays). These hours will be in effect from 0830 hours (8:30 a.m.) on Tuesday, 16 June 1959, until 1630 hours (4:30 p.m.) on Friday, 24 July 1959.

<h1 style="text-align: center;">DISPOSITION FORM</h1>		SECURITY		CLASSIFICATION (if any)																									
FILE NO. NG-AROTA		SUBJECT Congressional Inquiry, Congressman Thomas L. Ashley, Ohio.																											
TO CNGB Attn: Info Office		FROM Chief, Army Div. NCB		DATE 30 Mar 59 Lt Col R. S. Ballagh/75879/lm <i>R/S</i>																									
COMMENT NO. 1																													
<p>1. The inclosed DF from DCSOFS contains information concerning an inquiry from Congressman Thomas L. Ashley, Ohio regarding the use of range facilities at Camp Perry, Ohio during the period June - August 1959.</p> <p>2. Records in this office indicate the following scheduled ANAGDUTRA at Camp Perry:</p> <table border="1"> <thead> <tr> <th>DATE</th> <th>UNIT</th> <th>STATE</th> </tr> </thead> <tbody> <tr> <td>13-27 June</td> <td>213th AAA Bn</td> <td>Pa</td> </tr> <tr> <td></td> <td>337th AAA Bn</td> <td>Pa</td> </tr> <tr> <td></td> <td>137th AAA Bn</td> <td>Pa</td> </tr> <tr> <td>28 June - 12 July</td> <td>177th AAA Bn</td> <td>Ohio</td> </tr> <tr> <td></td> <td>180th AAA Bn</td> <td>Ohio</td> </tr> <tr> <td>12-26 July</td> <td>182d AAA Bn</td> <td>Ohio</td> </tr> <tr> <td colspan="3">27 July - 29 August (National Rifle Matches)</td> </tr> </tbody> </table> <p>3. The Adjutant General of Ohio operates Camp Perry and is responsible for all schedules in connection with training at that station, except firings by the Erie Ordnance Depot. Inquiries concerning scheduled firings should be directed to and coordinated with these two agencies.</p> <p>4. Recommend that Congressman Ashley be furnished information according to the inclosed DF from DCSOFS and paragraphs 2 and 3, above.</p>						DATE	UNIT	STATE	13-27 June	213th AAA Bn	Pa		337th AAA Bn	Pa		137th AAA Bn	Pa	28 June - 12 July	177th AAA Bn	Ohio		180th AAA Bn	Ohio	12-26 July	182d AAA Bn	Ohio	27 July - 29 August (National Rifle Matches)		
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27 July - 29 August (National Rifle Matches)																													
<p>1 Incl File (DF from DCSOFS 25 Mar 59 w/related papers)</p>		<p><i>[Signature]</i> D. W. McGOWAN, Major General Chief, Army Division</p>																											

DD FORM 96

FEB 50

REPLACES NME FORM 96, 1 OCT 48, WHICH MAY BE USED.

U. S. GOVERNMENT PRINTING OFFICE: 1959 O - 354715

1/N

6 April 1959

6032.2

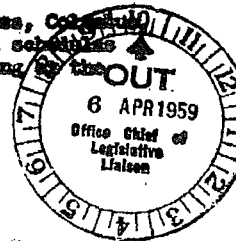
Honorable Thomas L. Ashley
House of Representatives

Dear Mr. Ashley:

This is in reply to your inquiry in behalf of Mr. Martin Brucker, Recording Secretary, Coolley Canal Sportsman Club, Curtice, Ohio, relative to the antiaircraft firing schedule for the Erie Ordnance Depot and Camp Perry.

The Erie Ordnance Depot has scheduled artillery firing during the period from March 16 to June 15, 1959, inclusive, and from July 27, 1959 until further notice, between the hours of 7:30 AM and 1:00 PM, eastern standard time, Monday through Friday. This is a continuation of a 1958 compromise between the Army and the fishermen and presumably is a satisfactory arrangement for all concerned. Range facilities at Camp Perry will be used by Army National Guard antiaircraft artillery units from Ohio and Pennsylvania during their annual active duty for training which will be in progress starting June 13 and continuing through July 26, 1959. The firing schedule for this period, Monday through Friday, will start at 9:30 AM and continue until 4:30 PM, eastern standard time. This is a change from the 1958 schedule when firing began at 8:30 AM and terminated at 2:30 PM as a concession to the fishermen. The 1958 schedule did not provide sufficient firing time for the Ohio National Guard units to accomplish their training objective. The Erie Ordnance Depot has also scheduled artillery firing during the period June 16 to July 24, 1959 during the hours coinciding with the Army National Guard training schedule. During the period from July 27 through August 29 Camp Perry will be used for firing the National Rifle Matches.

The Adjutant General, State of Ohio, Building 101, Fort Hayes, Columbus, Ohio, is responsible for the operation of Camp Perry and for all scheduling in connection with training at that station, except for the firing of the



Noted
file
mac
6 Apr 59

NATIONAL GUARD BUREAU

MA 8-353.4
6 April 59
Ohio

Honorable Thomas L. Ashley

6 April 1959

Erie Ordnance Depot. Information concerning firing areas and hours of use by the latter may be obtained by communicating with the Commanding Officer, Erie Ordnance Depot, Fort Clinton, Ohio.

As in the past, every effort has been made in scheduling to hold to a minimum the disruption in use of water areas by commercial and sports fishermen. However, this can only be carried to the point where the training objectives of the units concerned can still be met. It is hoped that through continued mutual cooperation all interests may be accommodated to the greatest possible extent.

Your interest in this matter is appreciated and I trust the foregoing will be of assistance to you.

Sincerely,

JAMES W. B. WALKER
Lt Colonel, US
Office, Chief of
Legislative Liaison

OPS OT TR 2

OCNGB

Firing Schedule for Erie Ordnance Depot and Camp
Perry During Summer Months

DCSOPS

25 MAR 1959

Lt Col Clark/798hl/vlm

1. Reference OCLL referral slip, file number 614, dated 16 March 1959, subject as above, with 4 Inclosures (Incl 1).

2. In accordance with conversation between Lt Col Clark, ODCSOPS, and Lt Col Ballagh, OCNGB, 23 March 1959, request you furnish reply to OCLL in connection with the attached correspondence, reference 1 above.

3. The following pertinent information was furnished by Lt Col Walters, OCO, Ext 54440 and Lt Col Heil, Hq Second Army, Code 150-2306.

a. Erie Ordnance Depot has scheduled artillery firing during the period 16 March 1959 to 15 June 1959 and from 27 July until further notice. (Part I and III, Incl 2). The firing is scheduled during the hours from 0730 to 1300 Monday through Friday, leaving the afternoon free for the use of the area by the fishermen. This is a continuation of a 1958 compromise between the Army and the fishermen and is presumably a satisfactory arrangement for all concerned.

b. Erie Ordnance Depot has also scheduled artillery firing during the period from 16 June to 24 July, but the hours coincide with the hours scheduled by the Ohio National Guard for antiaircraft firing.

c. The schedule referred to in the attached correspondence pertains to the antiaircraft firing schedule for units of the Ohio National Guard during their annual training period in 1959 (16 June - 24 July). Specifically, the consternation of the fishermen is caused by the Monday through Friday afternoon firing schedule which continues until 1630 each day. This is a change from the 1958 schedule which, as a concession to the fishermen, terminated firing at 1430. However, according to information from Lt Col Heil, the 1958 schedule did not provide sufficient firing time for the Ohio National Guard AA units to accomplish their training objectives and the change to 1630 in the 1959 schedule was at the specific request of the Adjutant General of the State of Ohio.

d. Subsequent to the publication of the schedule at Inclosure 2, the Adjutant General of the State of Ohio requested and received approval for a change from

X-ref 93/2.2 (Ashley Shaw)
1353.3 - Ten *6903654*
LT/ Hodr

OPS OT IR 2

SUBJECT: Firing Schedule for Erie Ordnance Depot and Camp Perry During Summer Months

0830 to 0930 in the starting time for firing during the period 16 June to 24 July (Part II, Inclosure 2). This will affect the firing schedule of both the Erie Ordnance Depot and the Antiaircraft units and presumably will compensate the fishermen partially for the extension in the afternoon's schedule.

FOR THE DEPUTY CHIEF OF STAFF FOR MILITARY OPERATIONS:

2 Incl

1. OGLL Referral Slip,
File Number 614, 16 Mar 59
w/4 Inclosures.
2. Special Firing Notice Erie
Ordnance Depot, dated 4 Mar 59

G. C. TROXEL, JR.
Major General, GS
Director of Organization
and Training, ODCSOPS

STEPHEN C. TROQUA, JR.
Major General, GS
Dep Director of Organization
and Training, ODCSOPS

Copy furnished:
OGLL (Mrs. Teale)

Dear Mr. Ashley:

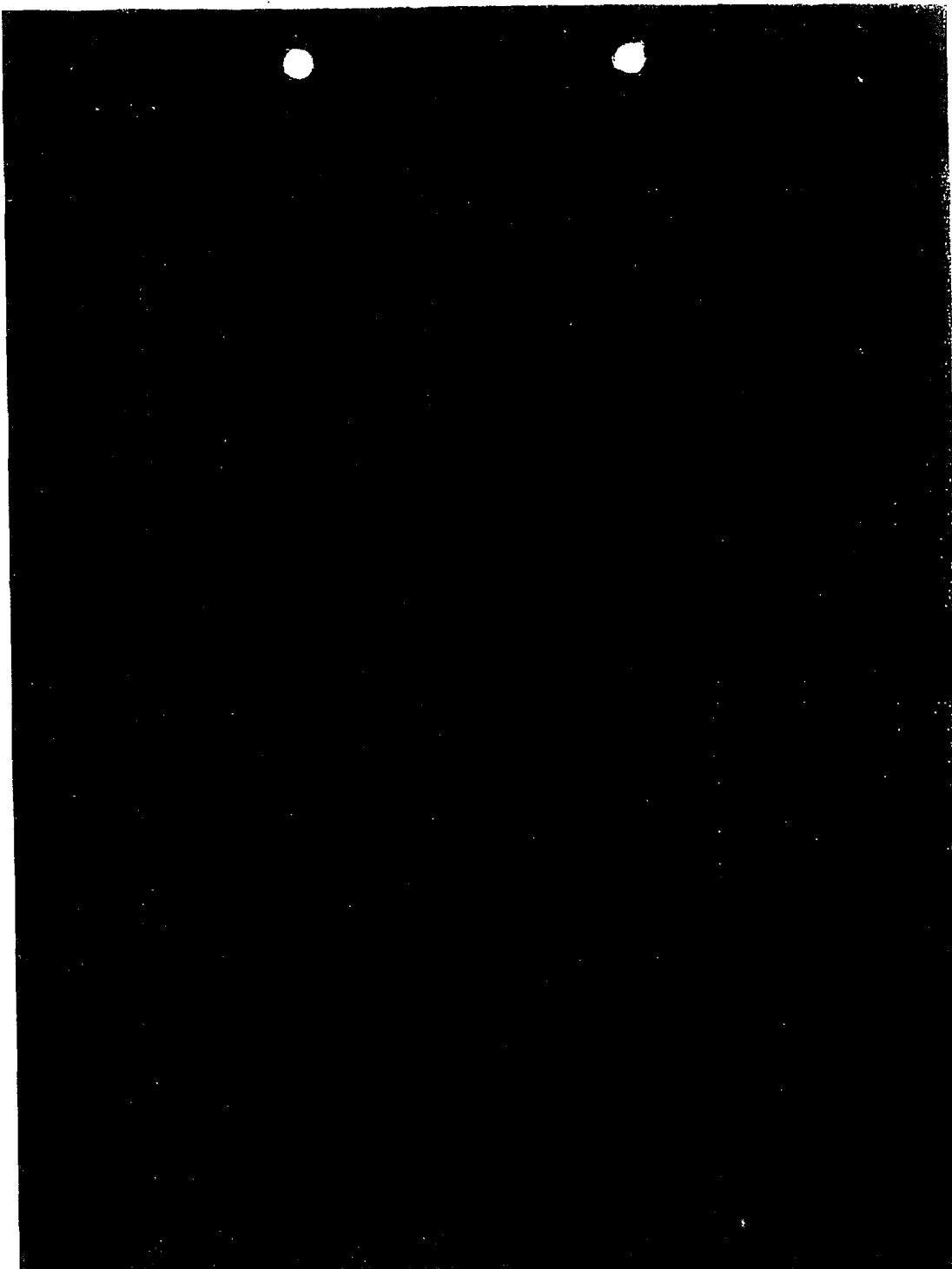
This is in reply to your inquiry in behalf of Mr. Martin Brucker, Recording Secretary, Cooley Canal Sportsman Club, Curtice, Ohio, relative to the anti-aircraft firing schedule for the Erie Ordnance Depot and Camp Perry.

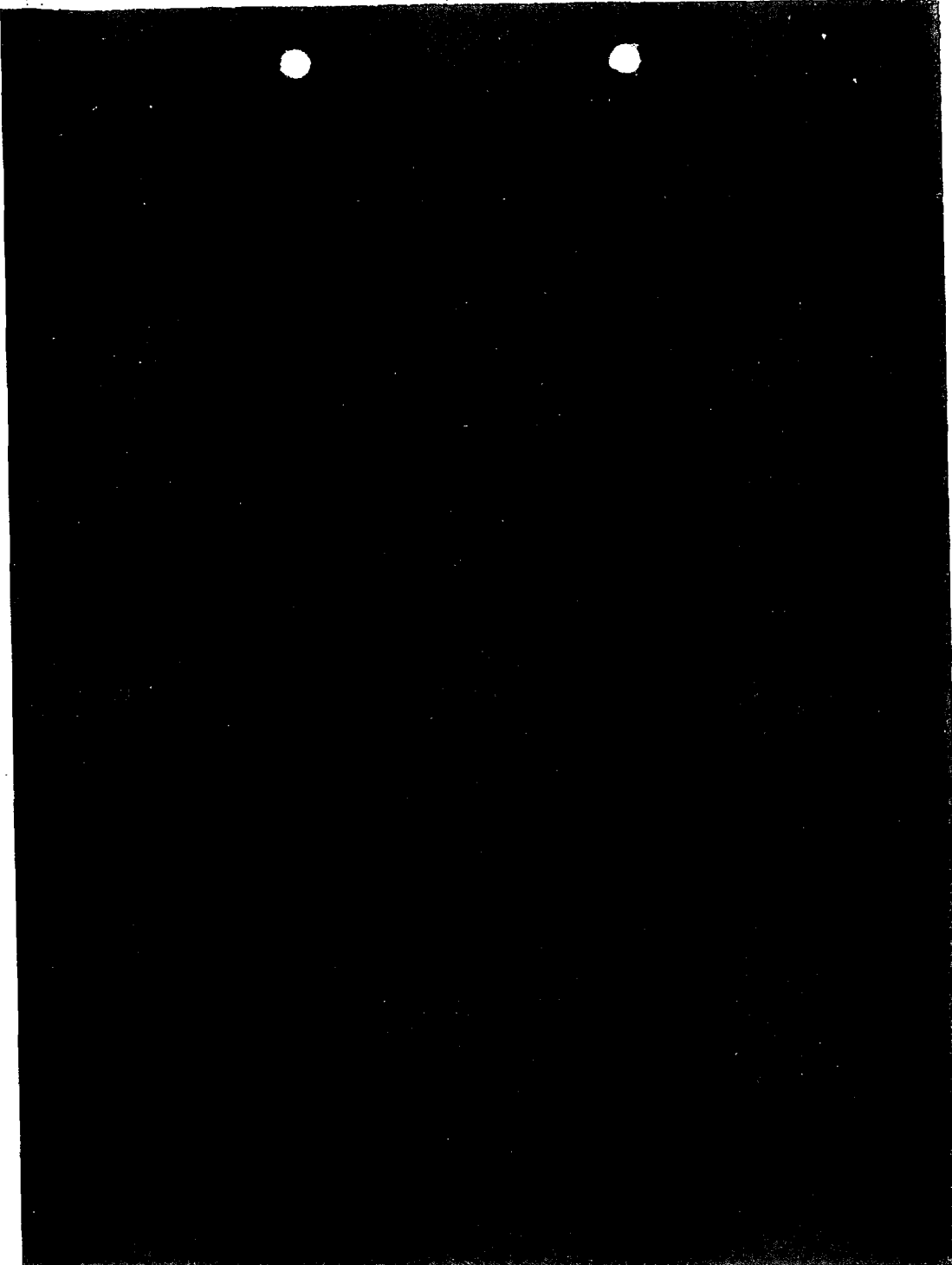
I have ascertained that the Erie Ordnance Depot has scheduled artillery firing during the period from March 16 to June 15, 1959, inclusive, and from July 27, 1959 until further notice, between the hours of 7:30 AM and 1:00 PM, eastern standard time, Monday through Friday. This is a continuation of a 1958 compromise between the Army and the fishermen and presumably is a satisfactory arrangement for all concerned. Range facilities at Camp Perry will be used by Army National Guard anti-aircraft artillery units from Ohio and Pennsylvania during their annual active duty for training which will be in progress starting June 13 and continuing through July 26, 1959. The firing schedule for this period, Monday through Friday, will start at 9:30 AM and continue until 4:30 PM, eastern standard time. This is a change from the 1958 schedule when firing began at 8:30 AM and terminated at 2:30 PM as a concession to the fishermen. The 1958 schedule did not provide sufficient firing time for the Ohio National Guard units to accomplish their training objective. The Erie Ordnance Depot has also scheduled artillery firing during the period June 16 to July 24, 1959 during the hours coinciding with the Army National Guard training schedule. During the period from July 27 through August 29 Camp Perry will be used for firing the National Rifle Matches.

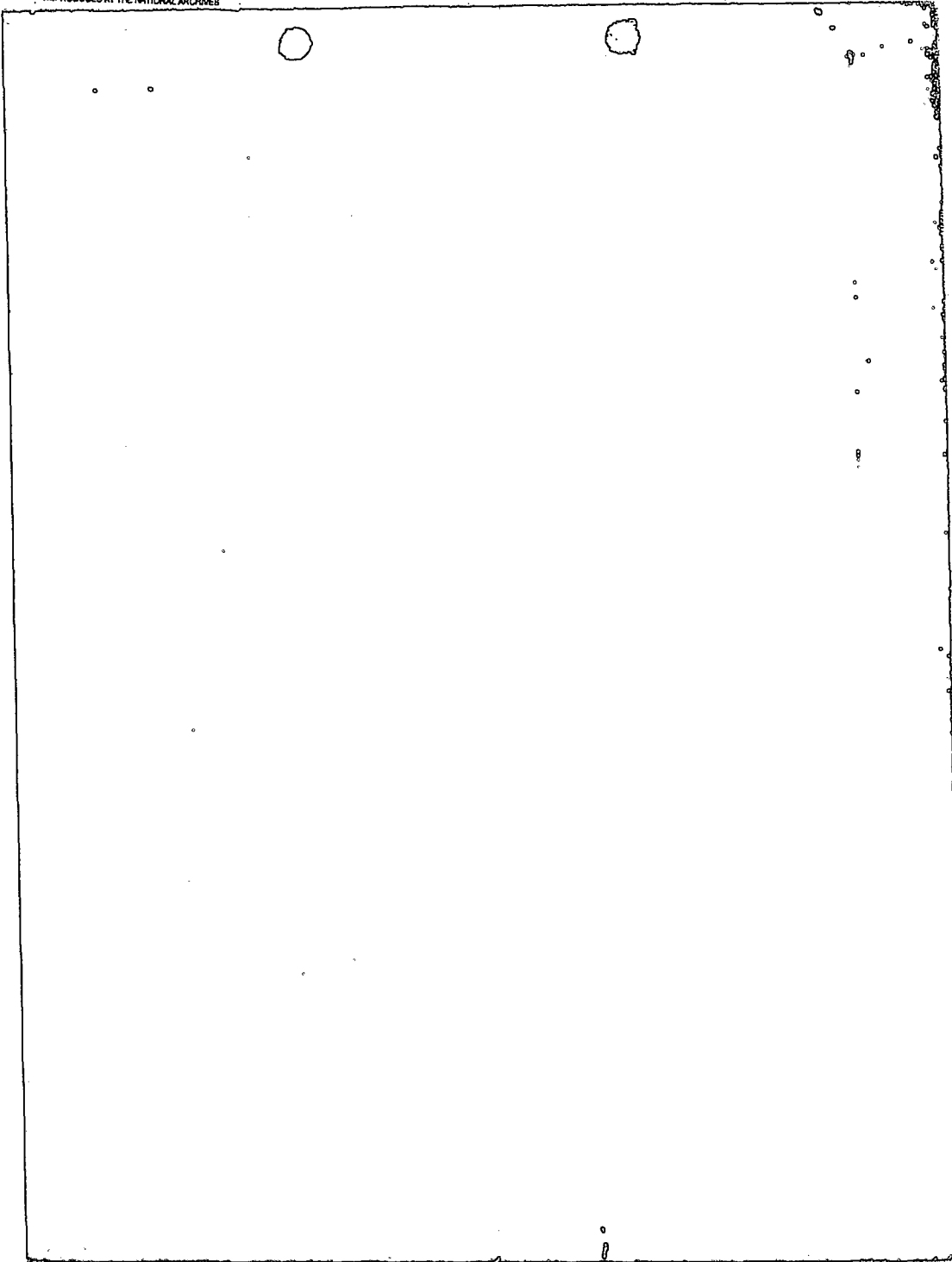
The Adjutant General, State of Ohio, Building 101, Fort Hayes, Columbus, Ohio, is responsible for the operation of Camp Perry and for all schedules in connection with training at that station, except for the firings by the Erie Ordnance Depot. Information concerning firing areas and hours of use by the latter may be obtained by communicating with the Commanding Officer, Erie Ordnance Depot, Port Clinton, Ohio.

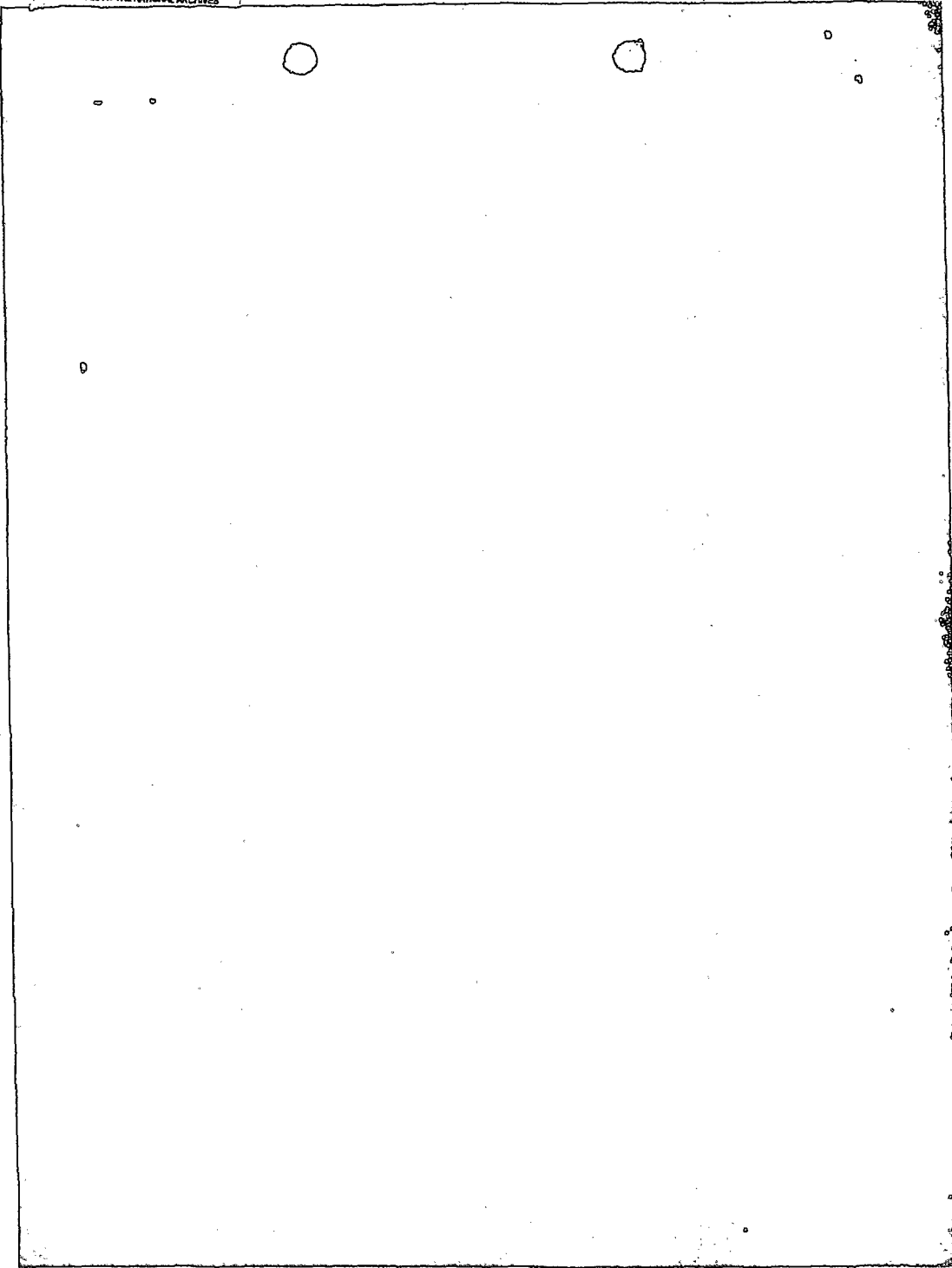
I trust this information will be helpful.

Sincerely,









680.3 CAMP PERRY OHIO 1042 THRU 1042

5. Erie Army Depot ASR (on attached CD)

6. Final Removal Report (on attached CD)

7. Camp Perry Revisited

OHIO
HISTORICAL
MARKER

CAMP PERRY

In an effort to improve the marksmanship of Ohio soldiers, Adjutant General Ammon B. Critchfield established Camp Perry, an Ohio National Guard Military Training Site on the shore of Lake Erie in 1906. Camp Perry was named after Commodore Oliver Hazard Perry, who defeated British forces in the Battle of Lake Erie during the War of 1812. This particular location was ideal for shooting ranges because varying length ranges were able to share a common firing line and shooting practice could take place on all ranges without the added risk of stray bullets.

Continued on next sign
THE BARRAGE OF CAMP PERRY
AND
THE OHIO HISTORICAL SOCIETY

1903 4-02

CAMP PERRY REVISITED 1905 - 1996

Anna L. Bovia
Anna L. Bovia

Copyright © 1997 by Anna L. Bovia

*Printed By
The Hubbard Company
P.O. Drawer 100
Defiance, Ohio 43512*

There is one office section and truck and railroad loading facilities.

Ottawa County News, February 27, 1953

Anticipate Important Announcement Soon On Camp Perry Future

With the Army announcing a nine month firing schedule for the Camp Perry anti-aircraft range, and the Senate approving expenditure of \$354,000 for construction of "training facilities" at the state-owned reservation while rejecting an appropriation for nearby Erie Ordnance Depot all indications this week point to Camp Perry's becoming a year-around training camp for AA troops. Continued rumors that Camp Perry is to become a permanent installation for training Anti-Aircraft troops gained credence Monday when Rep. Frazier Reams, Toledo Independent, announced that the Army has adopted a nine month firing season for the Locust Point-Camp Perry ranges.

Ottawa County News, July 31, 1953

Contracts Let With EOD To Supply Services For Acres Of Leased Area

After months of negotiations, announcement that Camp Perry is to become a permanent year-round military base was made late last week when Major General Albert Henderson, Ohio's Adjutant General, signed a lease, effective January 1st, which will permit permanent Anti-Aircraft troops to be attached here nine months of the year.

Governor Frank Lausche simultaneously announced that use of Camp Perry's facilities in the federal anti-air-

craft training program will not disrupt the national matches or other activities scheduled at the camp this year.

Exact date of the troops' arrival has not been disclosed but General Henderson's office stated that the troops would arrive "early this year". The federal troops will be stationed at Camp Perry customarily from September 15 until July 1.

Governor Lausche said the Army plans called for housing over 600 anti-aircraft artillery permanent soldiers at Camp Perry but that their training activities will be conducted on federal lands at Locust Point range, several miles west of the state-owned reservation.

Terms of the 10-year lease provide for reimbursement to Ohio for all expenditures made in connection with federal use of the grounds.

Ohio National Guard anti-aircraft artillery units also will use the ranges during their summer encampments.

Earlier this week, the Senate and House military appropriations committee in Washington had approved expenditure of \$354,000 for construction work at Camp Perry and Locust Point ranges. Additional AA firing points will be built and roads will be improved.

Governor Lausche emphasized the change in Camp Perry's importance will not "in any manner" impair the camp's use as a meeting place of the American Legion sponsored Boy's State, the national rifle matches and as a training site for the Ohio National Guard.

From Washington, Army headquarters said it plans to use Camp Perry for a broad program of anti-aircraft firing training.

Regular army, national guard and organized reserve anti-aircraft units not only from Ohio but probably from

other states in the Second Army Area, including Pennsylvania, Maryland, West Virginia, Delaware and Virginia, will be brought to Camp Perry for training, an army spokesman reported.

Present army policy requires that such units hold three "service practices" annually to maintain a satisfactory degree of combat efficiency. As each such practice session is of two-week duration, each unit will be at Camp Perry about six weeks a year to undergo this training.

In connection with the leasing of certain parts of Camp Perry by the Federal Government for the Army's AA training program, Erie Ordnance Depot has entered into two contracts with Ohio's Adjutant General department.

Col. E.W. Grubbs, Erie Ordnance Depot commander who was designated to act as contracting officer for the Department of The Army, has signed the two contracts with Major General Albert E. Henderson, Ohio's Adjutant General.

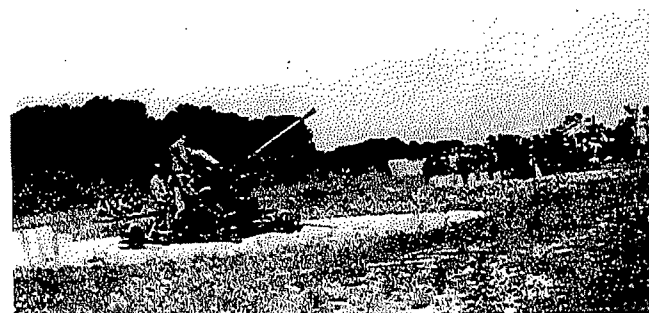
One contract covers utilities for the leased area and the other is a service contract for maintenance of certain buildings, roads, grounds and other facilities in the leased areas.

Both contracts are effective today, January 1, 1954 and are continuing contracts not to exceed 10 years. Federal funds will be allotted to EOD for payment to Ohio's Adjutant General for utilities and services covered in the contracts.

Under the terms of the first contract, the state will furnish electricity, water and sewage service to the leased area for the estimated amount of \$13,750 per year. The second contract calls for the state to maintain certain buildings, roads, grounds and other facilities in the leased area at an estimated annual cost of \$12,120.

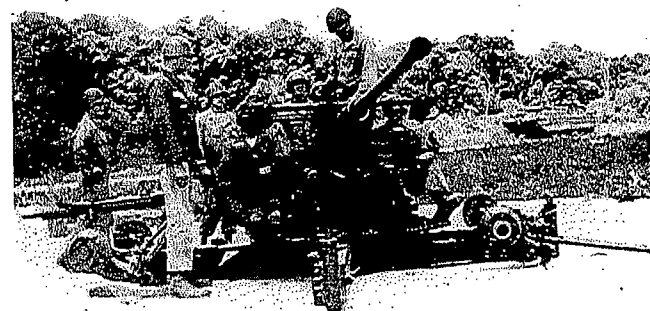
Leased area, covered by these contracts, including 2-1/2 acres of firing range adjacent to the Erie Ordnance fence, most of the old Camp Perry reception center and adjacent warehouses, and 7 1/2 acres of the hutment area.

Ottawa County News, January 1, 1954



**40mm Anti-Aircraft Firing - Locust Point
June 1955**

Albert L. Allen, Jr.



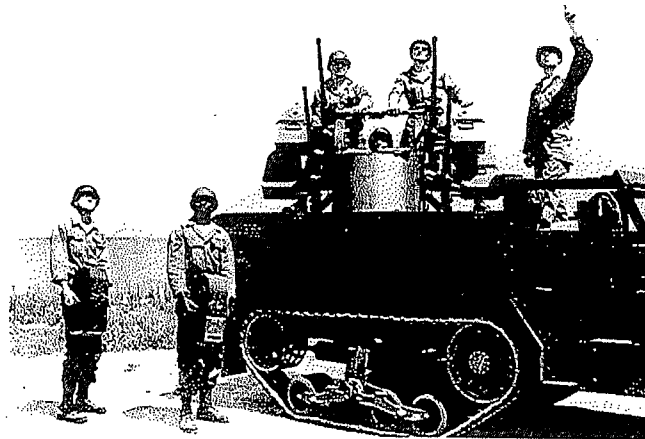
**40mm "BOUFOR" Crew Drill
Locust Point Firing Range
June 1955**

Albert L. Allen, Jr.



**"Hot Range" Quad 50 Cal (M19) Firing
Locust Point Range - June 1955**

Albert L. Allen, Jr.



**Crew Drill (Pass The Ammunition)
Locust Point Firing Range - June 1955**

Albert L. Allen, Jr.



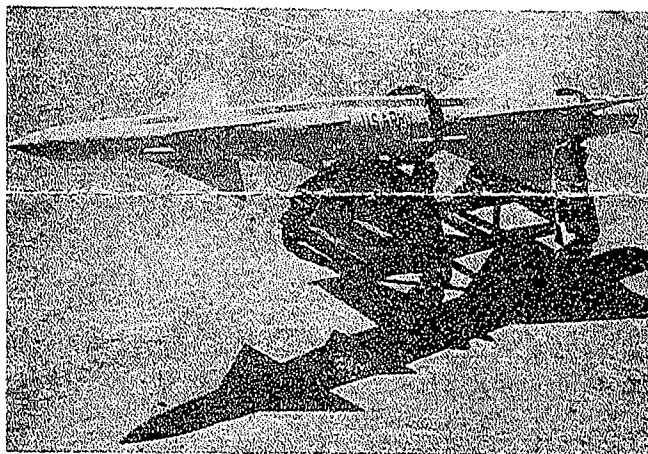
**372nd AAA BN c-1960
On Line Conducting Live Fire Exercise
90mm Anti-Aircraft
Radar Guided and Controlled**

Howard E. Guenthe

Erie gained more prestige during 1953 and 1954 with the expansion of the supply responsibility to include surface-to-air guided missiles and integrated fire control systems materials.

The development into a guided missile repair center in addition to the key mission supply given the NIKE installation in the geographical area serviced by Erie, promised a potentiality of several years of work for the maintenance, storage and stock control functions of the depot. Construction of the new guided missile rebuild shop was begun for the overhaul, rebuild and repair of guided missiles. Operations to this phase were in full force by January 1955.

Ottawa County News, January 1, 1954



NIKE-AJAX Surface-To-Air Guided Missile

Ottawa County Exponent, September 27, 1957

Reports of Closing Erie Bring Chamber Action

The federal government handed Port Clinton and the immediate area an unwanted Christmas gift Wednesday.

And on Thursday morning made it an added unwanted gift by announcing officially that approximately 1,900 employees at Erie Ordnance Depot will be out of employment within the next three years.

First official indication that the vast military ordnance depot west of Port Clinton would be closed down came Tuesday night when Congressman Delbert Latta of the fifth congressional district was told to be at a meeting in Washington at 10 a.m. Wednesday.

The meeting was called by secretary of the army Vance, who said he had orders from Robert McNamara, secretary of defense, to phase out several army depots including Erie.

Latta in a dispatch to the Herald Wednesday declared that "we were not asked what we thought about, or even advised as to whether closing of Erie should take place. We were told that it would be, and the announcement stunned us all."

Latta said that the decision already had been made, and whether "we liked it or not, we were only invited to the meeting to hear the statement."

\$11,000,000 PAYROLL

Officials at Erie Army Depot Thursday reported to the Herald that closing of the installation will mean an \$11 million dollar a year payroll loss. That is the amount paid workers at EAD at the present time. Area employment at

Erie Proving Ground.

Civilian employment at the depot has varied widely. In 1919 it totaled 839.

After World War I only 50 persons were employed there for years.

But in 1941 it rose sharply to a high of 4,000 in 1943. The military strength was increased from three officers and 12 enlisted men in 1940 to 84 officers and 319 enlisted personnel in 1944.

In addition, about 1,000 Nazi prisoners of war and Italian Service Unit members were held at the depot and Camp Perry in 1944 and 1945.

Came the end of hostilities and the establishment reverted to its peacetime designation of EOD. By 1946 about 1,000 civilians were employed.

In 1947 the depot absorbed the army ordnance department's interests in the Plum Brook Ordnance Works at Sandusky.

During the Korean emergency millions of dollars worth of artillery equipment placed in storage after World War II was reconditioned at the depot.

The mile-long proof front mushroomed into action as proof acceptance testing schedules were accelerated to keep abreast with the manufacture of new artillery units.

The depot of recent date had 1,193 acres of land on which were constructed 363 buildings, including mammoth warehouses and armament repair shops.

There were nearly 100,000 bins for storage of over 50,000 items of ordnance general supply. Items tested and repaired at the depot ranged from a small electronic

resistor to the large 240mm howitzer. Value of the ordnance stock at one time was estimated at close to \$400 million. This compared with \$1,500,000 at the height of activity during World War II.

The depot also had 90 square miles on Lake Erie which were restricted for its firing. Mortars, field artillery, anti-aircraft weapons and tank armament also were tested. Guns as large as 8-inch weapons with a 21-mile range were fired. And the range could handle the firing of 40 different weapons at once. On an average, 184 different items were tested daily.

Port Clinton Herald and Republican, December 3, 1965

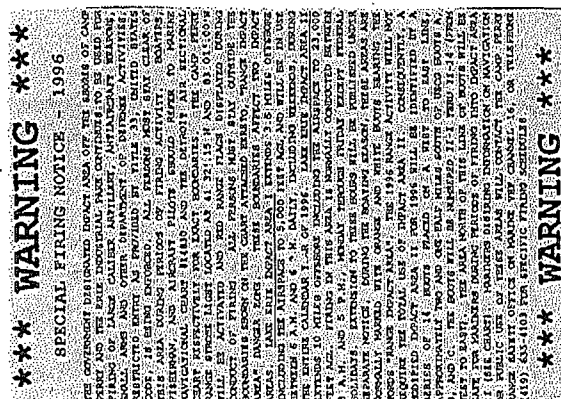
CIC Offers \$3,263,000 For Remainder Of Erie Army Depot Land, Buildings

A deposit of \$100,000 and an offer to pay \$3,263,000 for the remainder of the real estate property of Erie Army Depot has been made by the Community Improvement Corporation of Ottawa County, Mayor Gordon Cooper announced Wednesday.

The offer and deposit were made by Luther Heiserman, CIC president to the General Services Administration, and involves all of the remaining 1,300 acres of land and the buildings located thereon. On Sept. 17 the Army Department announced that it was turning over to the GSA the entire property for disposal. The CIC which was empowered to act by the county commissioners, already had begun plans to make financial arrangements.

The offer was in the making for several weeks, needing only the appraised figure at which it was to be sold.

The Daily News, December 16, 1965



FIRING RANGE CHART-1996

'Nervous' Crew Of Dredgers Halts Work At Mouth Of Toussaint

"The hopper dredge was sucking the stuff aboard, and the crew got a little nervous," John Derbyshire, a corps spokesman at the Buffalo district office, said yesterday.

At the time work ceased last week, about 50,000 cubic yards of material had been dredged of a total estimated 55,000 cubic yards, Mr. Derbyshire said.

Marine Contracting Corp. of Lorain, O., the contractor, reported the live ammunition to the corps, which contacted the 71st Explosive Ordnance Detachment, an army group stationed at Wright-Patterson Air Force Base, Dayton.

The detachment came to the work area and detonated the explosives out of harm's way, a detachment spokesman said.

Col. Stephen Schaeffer, training site manager at Camp Perry, said an investigation found the explosives were “pretty old and didn’t come from Camp Perry.”

From about 1920 until the early 1960's, the former Army Ordnance Depot and Proving Grounds west of the camp

assembled and test fired ammunition over the lake and was probably the source of the ammunition, Colonel Schaeffer said.

The ammunition consisted of from two to four rounds of varying sizes, he said. Due to the age of the ammunition, technicians were unable to determine if it had been fired or dumped in the lake, he added.

Meanwhile, Mr. Derbyshire said the corps will work with the military and coast guard to assess the situation before completing the project next spring.

"There is some danger for the crew if we continue as before, so we will look into other methods," he said.

Toledo Blade, October 2, 1991

FACT SHEET

Ordnance Removal to be Initiated at Former Erie Ordnance Depot

Ordnance Removal Action

The U.S. Army Corps of Engineers (USACE), Huntsville Division, will begin ordnance removal at the former U.S. Army Erie Ordnance Depot near Port Clinton, Ohio, on September 2, 1992. EOD Technology, Inc. of Oak Ridge, Tenn., has contracted with the Corps to locate, remove and dispose of unexploded ordnance (UXO) found along the Lake Erie shoreline/beach and at the mouth of the Toussaint River. The ordnance hazards at the mouth of the river were discovered during river channel dredging operations by the Corps' Toledo Project Office.

Background Information

The former U.S. Army Erie Ordnance Depot is located approximately five miles west of the city of Port Clinton in Ottawa County, Ohio. It borders Lake Erie north of State Route 2 southeast of the Toussaint River. During its operations, the extensive marshlands and shallow lake waters provided a suitable water impact area for military testing of projectiles.

The former U.S. Army Erie Ordnance Depot was established in 1918 as the Erie Proving Ground to provide acceptance testing of new artillery weapons for the Department of Defense. Until 1966, artillery ranging in size from 20 to 240mm was fired into the Lake Erie range impact area. In 1966 the property was sold to the Community Improvement Corporation of Ottawa County and is now owned by Toussaint Hunting Club (along the river) and Erie Industrial Park (next to Camp Perry). The Ohio National Guard extensively uses and controls the range impact area from the Camp Perry Training Site. ARES, Inc., which operates in the Industrial Park, currently tests cannon barrels by firing into the impact area.

Huntsville Division Public Affairs Office
US Army Corps of Engineers.
c-1991

Ordnance Smorgasbord Surprises Army Corps

The U.S. Army Corps of Engineers found what they expected along the Lake Erie beach at Camp Perry - a large number of unexploded artillery shells. But the variety of the find has surprised the military agency.

"This is one of the few sites we've gone in expecting to find a great deal of material," said Corps spokesman

Ken Crawford, explaining that an initial survey team found hundreds of exploded shells washed up along the Camp Perry beach.

"We weren't expecting to find such a large range of material," said Crawford. "There's almost the entire inventory of U.S. Army World War II ordnance out there."

Some of the more unlikely items included an eight-inch round, the largest in the U.S. Army arsenal of the times; tube bursters, weapons used to disperse poison gasses; barrage rockets, high power anti-personnel bombs used during the D-Day invasion of Normandy, France; and JATO (jet-assisted take off) bottle rockets.

The powder-fuel rocket units were used in World War II to help planes take off from short airstrips. The rockets boosted the planes rapidly aloft, then fell off aircraft.

Of the more than 500 pieces of ordnance found by bomb-techs (as of late October) at Camp Perry beach, about three dozen have been detonated on-site.

Crawford said not all of the rounds detonated were necessarily live. Smaller rounds are often automatically destroyed because it is difficult to ascertain whether they are unarmed slugs or unexploded artillery shells.

"A lot of them were just slugs, probably fired to test the artillery propellant (the gunpowder that fired the shells)," Crawford said.

The shells along the Camp Perry beach were discovered in October 1991 by a Corps bomb specialist sent to survey the area after workers deepening the nearby Toussaint River found unexploded ordnance turning up in their dredgings.

The shells are apparently leftovers from when the current Erie Industrial Park was the Erie Army Depot, a prov-

ing grounds for new Army artillery developed between 1918 and 1966. Over the intervening decades, wave action has pushed thousands of shells close to or onto the shore - thus making them a hazard to people who might wander onto the restricted beach.

The Corps reports that most of the shells washing ashore are burned-out husks, but a few live ones have been found that are powerful enough to blast a four-by-two-foot hole in the ground.

A private contractor began work on the site last August. Tennessee bomb-tech firm EOD Technology Inc. has a team of several workers scouring the beach with buckets, rakes, shovels and magnetometers to a depth of two feet into the lake.

The \$600,000 effort will continue until winter storms or lake freezing interfere with progress, Crawford said.

From Rockets to Rifle Grenades

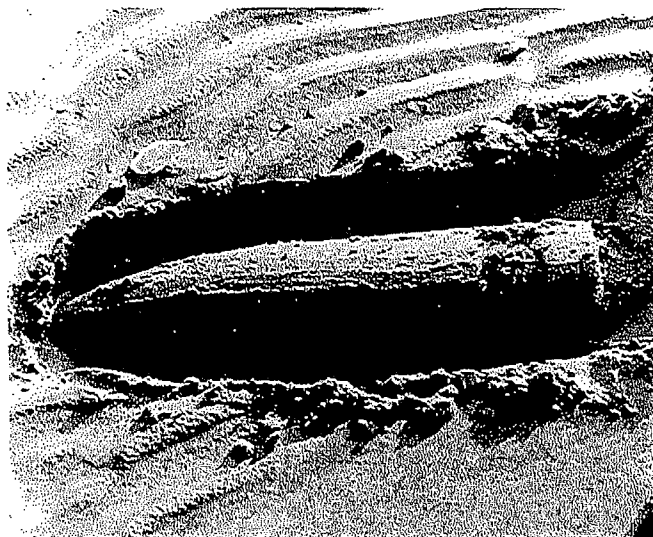
Since work began in early August, more than 500 pieces of artillery ordnance (shells) have been removed from the Lake Erie beach at Camp Perry.

The following is a listing of the kinds of ordnance discovered, the number of individual shells, and the number that were presumed to be live and detonated on the spot:

60mm (mortar rounds)= 262 found, one detonated;
75mm=22 found; 81mm = 16 found; 105mm = 62 found,
 three detonated; 155mm = 28 found; 8-inch = One found;
106mm (recoilless rifle rounds) = 27 found, 2 detonated;
90mm = six found, one detonated; 37mm (high-explosive

and anti-tank rounds)= 27 found, three detonated; 20mm (anti-aircraft rounds) = 58 found, 23 detonated; Tube-burst-ers = Three found, one detonated; 76mm (tank-fired rounds)= Eight found, one detonated; Rifle grenades = One found, one detonated; 57mm (anti-tank rounds) = 11 found; Barrage rockets = Five found; 52mm = One found; 3.5-inch bazooka rounds = Four found, one detonated; 4.2-inch mortar rounds = Two found; JATO (jet-assisted take-off) bottle rockets = Four found.

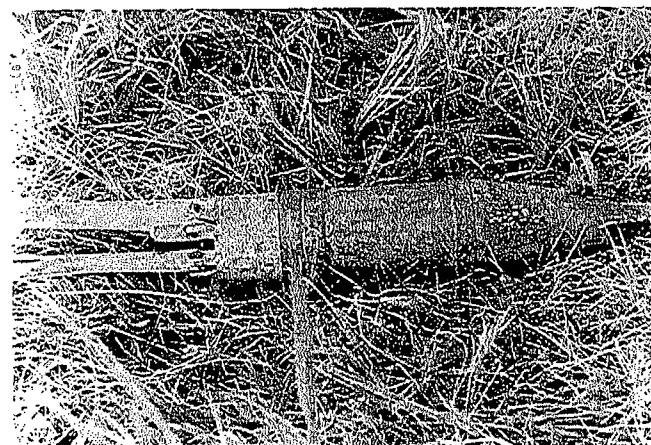
News Herald, November 14, 1992



Dave Rohrbacher



Dave Rohrbacher



Dave Rohrbacher

**EOD TECHNOLOGY REPORT
DATED 07 DECEMBER 1992**

TYPE ORDNANCE FOUND

60MM
81MM
105MM
155MM HE
8" HE
108MM
90MM HE
37MM
20MM
3.5 ROCKET
4.2 MORTAR
MK12 JATO
50CAL
40MM
BOMB FUZE
8" SAB NAVY
25MM
152MM EJECTION
90MM SHOT
M58 FUZE

TOTAL ORDNANCE FOUND = 5438

TOTAL ORDNANCE DISPOSAL = 5438

**BURIED WWII LEGACY LINGERS
MUNITIONS POSE MANY HAZARDS**

The government believes aging munitions may be buried beneath at least 259 former military sites across America. Explosives already have endangered suburban neighborhoods, public parks and even a college campus, an Associated Press review has found.

The hazards range from hand grenades to artillery rounds.

And it isn't only munitions. Hundreds more sites, many dating to World War II, are believed to hide toxic chemicals ranging from old fuel at an abandoned Air Force base in Arizona to a suspected mustard gas agent near Edison, N.J.

Even Hope, Ark., the tiny community where President Clinton was born, is on the government's cleanup list. Government officials suspect leftover explosives in a state wildlife refuge.

The AP reviewed scores of documents from the Army Corps of Engineers, detailing the government's inventory of the 7,592 military sites that have been abandoned and in most cases resold since World War II.

"People got rid of property and it was out of sight and out of mind," said Thomas Wash, director of the corps' office that is conducting the defense cleanup effort.

Officials have proposed 1,777 projects scattered among all 50 states and several U.S. territories for immediate cleanup. There are 268 projects at 259 sites with suspected explosives and the rest with various form of chemical contamination.

And the government has yet to scrutinize about 3,000 other former defense sites. Officials acknowledge they expect to find several hundred more places with explosives or hazardous waste and ultimately will spend \$4 billion on cleanup by the year 2010.

"We've got a hell of a lot more on our plate than we've got money to do," acknowledged Wash, director of the office in charge of the defense site cleanup effort that just started a few years ago.

The sites are on millions of acres of former military property that was transferred into other governmental or private hands over the past 40 years. In many cases, the government had conducted only cursory sweeps for munitions before the sale.

To date, the government has started only 40 cleanup projects for explosives and ordnance. Another 228 are on the drawing boards for the next five years.

The government did not begin a systematic search for leftover explosives and other hazardous military wastes until the mid-1980s -and only then after pressure from Congress and a tragedy in California.

In 1983, two 8-year-old boys were killed when an artillery round exploded amid hundreds of homes in the Tierra Santa subdivision in San Diego. The land once had been the impact area for an Army tank training range.

That incident-the only one to date involving deaths-represents "a total disregard by the federal government when it disposes of its property," said Jim Madaffer, a community activist in Tierra Santa.

"I can see Tierra Santa happening all over again in some other part of the country," he said.

Sandusky Register, April 20, 1993

Live artillery shells uncovered near power plant

Two live artillery shells, believed to be from nearby Camp Perry, were found this week within 500 yards of the fence surrounding the Davis-Bessie nuclear power plant, west of Sandusky.

The Nuclear Regulatory Agency said the shells posed no threat to the Oak Harbor plant.

Workers found four artillery shells and seven bazooka rounds in a Lake Erie marsh during an emergency readiness drill Wednesday.

The two live shells were exploded where they were discovered by a team from Wright Patterson Air Force Base in Dayton, said base spokeswoman Helen Kavanaugh.

Another 155mm artillery shell was found near the plant and destroyed in February by the Wright Patterson ordnance team, according to reports from the NRC. The team believed it to be a "dummy round", the report said.

Thousands of shells have fired from Camp Perry, about five miles from Davis-Besse, since World War II, said Maj. James Boling, spokesman for the Ohio National Guard. The National Guard uses Camp Perry for training exercises.

"It's not uncommon to find un-exploded ordnance on the shore," Boling said.

Some of the stray shells discovered Wednesday came from guns similar to those on Navy destroyers, he said.

The Plain Dealer, November 2, 1996

8. Summary Report for Former Erie Ordnance Depot

SUMMARY REPORT FOR

FORMER ERIE ORDNANCE DEPOT

November 1999

Prepared For

**U.S. Army Corps of Engineers
Engineering and Support Center
ATTN: CEHNC-OE
P.O. Box 1600
Huntsville, Alabama 35807-4301**

Prepared By

**U.S. Army Corps of Engineers
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Rock Island, Illinois 61204-2004**

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GLOSSARY

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ATTACHMENT NUMBER 2:	HISTORICAL REPORT, ERIE ORDNANCE DEPOT, LACARNE, OHIO
ATTACHMENT NUMBER 3:	BOUNDARIES AND IMPACT AREAS DRAWING FOR FORMER ERIE ORDNANCE DEPOT
ATTACHMENT NUMBER 4:	CONVERSATION RECORD
ATTACHMENT NUMBER 5:	A CONVERSATION RECORD
ATTACHMENT NUMBER 6:	A CONVERSATION RECORD
ATTACHMENT NUMBER 7:	PROOF FIRING ACTIVITIES, ERIE ORDNANCE DEPOT, LACARNE, OHIO
ATTACHMENT NUMBER 8:	ANTI-AIRCRAFT ARTILLERY RANGE REGULATIONS, CAMP FERRY-LOCUST POINT
ATTACHMENT NUMBER 9:	AR 385-63, SAFETY, POLICIES AND PROCEDURES FOR FIRING AMMUNITION FOR TRAINING TARGET PRACTICE AND COMBAT
ATTACHMENT NUMBER 10:	NATIONAL CAPITAL REGION ARCHIVES POSITIVE AND NEGATIVE FINDINGS REPORT
ATTACHMENT NUMBER 11:	DRAWING OF CURRENT WATER IMPACT AREA
ATTACHMENT NUMBER 12:	THESE EXPLOSIVE ORDNANCE INCIDENT REPORTS ARE FROM THE 731 ST ORDNANCE COMPANY, WPAFB, OHIO

SUMMARY REPORT
FOR FORMER
ERIE ORDNANCE DEPOT

ATTACHMENT NUMBER 8

ANTI-AIRCRAFT ARTILLERY RANGE REGULATIONS

CAMP PERRY-BOHUST POINT RANGES

FEBRUARY 1954

Attachment Number 8

HEADQUARTERS SECOND ARMY
Office of the Commanding General
Fort George G. Meade, Maryland

26 January 1954

ANTI-AIRCRAFT ARTILLERY RANGE REGULATIONS

CAMP PERRY AND LOCUST POINT RANGES

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HEADQUARTERS SECOND ARMY
Office of the Commanding General
Fort George G. Meade, Maryland

ANTIAIRCRAFT ARTILLERY RANGE REGULATIONS
CAMP PERRY AND LOCUST POINT RANGES

Section I

GENERAL

1. References. a. SR 385-310-1, as changed
b. TM 44-234
c. Regulations governing antiaircraft artillery firing from Camp Perry and Locust Point, Ohio, as published in Federal Register, Volume 18, Number 152, 5 August 1953 (Annex A)
2. Rescissions. Range Regulations, AAA Firing Range, Camp Perry, Ohio, 4 July 1950
3. Purpose. The purpose of these regulations is to supplement the above referenced regulations and prescribe local safety measures that will be used in the conduct of AAA Service practice at the Camp Perry and Locust Point, Ohio, AAA Ranges.
all C.P. for addition
4. Conduct of Firing. a. All firing conducted at Locust Point or Camp Perry AAA firing points will be under the provisions of these regulations and coordinated with the Commanding Officer, Erie Ordnance Depot.
b. All firing will be under the direct supervision of the senior unit commander present at the firing point.
c. The chief safety officer will be appointed by the commanding officer of the troops conducting the service practice.
d. All senior officers present at a service practice should consider the responsibilities borne by the commander of the organization conducting the service practice and refrain from interfering unless an emergency arises.
5. Description of Ranges. a. The antiaircraft artillery ranges consist of these firing points, numbered one, two and three, from West to East along the south shore of Lake Erie. Points one and two are located at Locust Point, approximately $8\frac{1}{2}$ miles west of Camp Perry. Point three is located between the 1000 yard target butts of the rifle range at Camp Perry, and the Lake Shore.

b. Bench marks for establishment of base lines are available at all firing points. The caretaker at Camp Perry will have available maps and other survey data to properly identify all bench marks.

c. Each firing point is equipped with a fifty foot safety tower, with siren and horn.

d. Latrine facilities are available at all firing points.

e. Mess shelters are available at points one and two.

6. Danger Areas. a. The boundaries of and restrictions of use of the surface danger area for all ranges are described in paragraph 204.187, Federal Register, dated 5 August 1953 (Annex A).

b. Buoys marking the surface danger area will be installed and maintained by the Coast Guard.

c. The boundaries of and restrictions of use of the airspace danger area is described in paragraph 608.43 Federal Register, dated 16 July 1949, as amended by paragraph 608.43, Federal Register, dated 21 November 1952 (Annexes B and C).

d. The boundaries of and restrictions of use of the controlled firing area (airspace) are described in case #6320, minutes of Washington Airspace Subcommittee meeting 347, dated 8 December 1953 (Annex D).

7. General Safety Regulations applicable to all Firing. a. When firing is being conducted, the unit firing will provide air surveillance through the use of SCR 584, ANTP-1 or ANTPS-1D type radars. When firing is being conducted at Locust Point, one radar located in the vicinity of the firing points will suffice to provide this surveillance. When firing is being conducted at the Camp Perry firing point, one radar located in the vicinity of this firing point will suffice to provide this surveillance.

b. Safety Personnel Required.

(1) Chief safety officer - appointed by the commander of the troops firing

(2) Assistant safety officers - one at each firing point and one in Erie Ordnance Depot safety tower, appointed by firing unit commander

(3) Chief line of metal officer - one experienced officer at each firing point, appointed by firing unit commander

(4) Line of metal officer - one for each artillery piece being fired, appointed by the firing unit commander

(5) Necessary enlisted personnel to properly operate wire and radio communications

(6) Such other personnel as chief safety officer may deem necessary to properly perform his job

c. Radio Communications. (See Annex E)

(1) When towed targets are being used, appropriate air-ground communications will be established between the chief safety officer and the towing aircraft. (Radio communication with the Air Force Base providing towing is considered not practical. Liaison can best be maintained by commercial phone). An additional radio for emergency communication with tow planes from Erie Ordnance Depot Control Tower will be furnished by the chief safety officer when towed targets are used.

(2) Radios for contact with Air Force and Navy aircraft, Naval Air Station, Grosse Isle, patrol boats, Coast Guard and commercial shipping are located in Erie Depot Tower and will be operated by Depot personnel.

d. Wire Communications. (See Annex F)

(1) A hot loop will connect the following:

- (a) Erie Ordnance Depot tower
- (b) Each firing point safety tower
- (c) Air surveillance radars
- (d) Air-ground radio
- (e) Chief line of metal officers
- (f) Line of metal officers at guns

(2) Normal wire circuits will be established between each of the following:

- (a) Each safety tower and the Camp Perry switchboard
- (b) Chief line of metal officer and fuse reader in M9 computer and the FCS 33 van at each firing point
- (c) Erie Depot safety tower and Camp Perry switchboard
- (d) Communications will be backed up by T/O&E radio, operating on a frequency mutually agreeable to the commander of troops

and the Commanding Officer, ERIE ORDNANCE DEPOT, so as to insure contact between Locust Point and Camp Perry firing points and the Erie Ordnance Depot safety tower at all times.

(3) All scheduled missions of aircraft towing a target sleeve for firing will be coordinated with the Safety Officer, Erie Ordnance Depot, to insure a minimum of interference with proof firing at Erie Depot.

(4) Missions used solely for tracking purposes will be flown so as not to interfere with firing at Erie Ordnance Depot.

g. Firing Restrictions.

(1) Firing will be conducted only on days and during hours prescribed in Surface Danger Area Regulations, (see Annex A) with the exception that antiaircraft firing will be suspended between the hours of 1130 - 1300.

(2) No firing at aerial targets will be conducted:

(a) Unless clearance to fire is received from Erie Depot safety tower.

(b) If surface vessels are in field of fire.

(c) If aircraft other than the towing aircraft are in the field of fire.

(d) If any portion of the surveillance or safety communication systems become inoperative.

h. Misfires and damaged rounds will be handled in accordance with instructions contained in appropriate technical and field manuals. Disposal of such rounds will be the responsibility of the Chief, Ohio Military District. ~~Using units will obtain assistance for disposal of unexploded ordnance by direct contact with the Chief, Ohio Military District.~~ *N. total & substituted by C 2*

Section II

DUTIES OF THE CHIEF SAFETY OFFICER

Duties of the chief safety officer are:

a. Upon Arrival at Camp.

(1) Secure and distribute to safety officers and commanding officers, sufficient copies of these regulations to insure complete dissemination of the information contained herein. He will further insure that all pertinent range and safety regulations are available.

(2) Secure, from the caretaker Camp Perry, maps showing danger areas, firing positions, airline routes, bench marks, etc, and distribute them as follows:

- (a) Each control tower
- (b) Air ground liaison officer
- (c) Brigade, group and battalion commanders

Upon completion of firing period he will recover these maps and return them to the caretaker, Camp Perry.

(3) Direct and supervise the installation and operation of the wire and radio sets as outlined in Section I and in Annex D and E.

(4) Direct and supervise the activities of safety officers at each firing point as outlined in Section III.

(5) Ascertain from the Commanding Officer, Erie Ordnance Depot, whether proper notice of firing has been published as required by regulations (Annex A).

(6) Direct and supervise the activities of the air ground liaison officer as outlined in Section IV.

(7) Furnish schedules of tracking and firing missions to the Commanding Officer, Erie Ordnance Depot. The commanding officer of troops will provide these schedules.

(8) Secure from the commanding officer of troops adequate medical personnel and ambulances for stand by duty at all points.

b. Prior to 0700 each day on which towing or tracking missions are scheduled specify any changes in missions scheduled for that day necessitated by weather or other causes. See that all concerned are notified.

c. Prior to the arrival of the first towing aircraft in the area:

(1) Announce to all points the type of mission being flown and assignments of units to fire or track.

(2) Require a report from all safety agencies as to the proper functioning of their equipment.

(3) Assure himself of the safety of the area.

(4) Check all firing points for readiness to operate and report to the commanding officer of troops any units not ready.

(5) Before authorizing firing from any point assure himself that firm radio contact is established with the plane or planes aloft. Make certain that the pilot knows whether he is flying a tracking or firing mission.

(6) Check on the presence of medical personnel.

(7) Check to assure himself that a red flag, indicating antiaircraft firing is flown from both Camp Perry and Locust Point.

d. During tracking and firing courses:

(1) Specify the type, altitude, direction and course of each tracking or firing course.

(2) Specify the type target desired: color, sleeve, flag, etc.

(3) Designate the area in which used targets are to be dropped, and be responsible for the recovery intact of each target so dropped.

(4) Inform the pilot when he is on course and when it is safe to turn and come back on course.

(5) Assure himself that the cable and plane are functioning to the satisfaction of the air crew before authorizing firing.

(6) Obtain and record from unit commanders requests for firing or tracking authority. Maintain priorities among units to ensure equitable access to firing courses and to complete firing schedules in the most expeditious manner.

(7) When notified that any unit is ready for record practice:

(a) Be responsible that courses as prescribed by regulations governing the conduct of record service practices are flown.

(b) Notify record section of the beginning of the record practice and be certain that this section is "on target" in ample time to get good data. See that record section knows the unit firing, the location, date, time, etc., of the firing necessary for their records.

e. Issue cease firing orders promptly whenever safety consideration makes it necessary to do so.

f. Maintain visual and radar surveillance of the entire danger area at all times.

g. Report infractions of regulations to commanding officer of troops for disciplinary action.

h. Be responsible that medical personnel are promptly informed of any accident requiring their presence at any point on the range.

Section III

DUTIES OF SAFETY OFFICER AT EACH FIRING POINT

The duties of the safety officer at each firing point are:

a. Immediately upon being designated as safety officer, report to the chief safety officer.

b. Prior to Firing.

(1) Check the installation and functioning of the siren and horn on his safety tower. This equipment is obtained from the Caretaker, Camp Perry and will be returned to him by the using agency upon the completion of firing. When one unit relieves another on the firing range the safety officers concerned will transfer all property obtained from the Caretaker, Camp Perry. The safety officer of the last unit using the range will be responsible for turning in same.

(2) Procure and issue red flags to chief line of metal officers and line of metal officers.

c. Control firing at his point in accordance with all safety and range regulations and in accordance with instructions received from the range officer, Erie Ordnance Depot.

d. Report any malfunctioning of pieces which occur at his point or any other factor which may result in changes of scheduled firings to the chief safety officer.

e. Order cease firing whenever safety considerations make it necessary to do so - report his action to the chief safety officer.

f. Maintain visual surveillance of the danger area at all times.

g. Display a large red streamer from his tower at all times when firing is permitted at his point

Section IV

DUTIES OF AIR-GROUND LIAISON OFFICER

The duties of the air-ground liaison officer, appointed by the commanding officer of troops, are to:

- a. Report to chief safety officer for duty.
- b. Secure schedules of towing and tracking missions from chief safety officer and provide copies for:
 - (1) Air Base Section of Tow Target Flight flying towing missions.
 - (2) Each pilot and crew assigned to fly towing or tracking missions.
- c. Secure, from the air project officer, copies of the schedule of plans assigned to towing and tracking duty during the camp period. Contact personnel assigned, upon their arrival, brief them in the expected operation of their mission.
- d. Familiarize himself with the directives under which towing aircraft are operating.
- e. Act as the agent of the firing unit commanding officer in informing air personnel of changes in schedules, types of course desired, activities of ground personnel, etc.
- f. Coordinate all matters affecting air-ground cooperation so as to ensure uninterrupted firing and towing missions whenever weather permits with safety to air personnel.
- g. Insure prompt and effective action to remove hinderances to smooth functioning of plans for towing missions.

Section V

DUTIES OF CHIEF LINE OF METAL OFFICER

The duties of the chief line of metal Officers are to:

- a. Be provided by chief safety officer with appropriate safe lead tables for both crossing and incoming courses.
- b. Be connected by a telephone loop to all line of metal officers and to a member of the range section at the fuze dial in the computer.
- c. Receive from the member of the range section, whole fuze numbers as they appear on the dial.
- d. Select appropriate safe lead table, knowing the towline length, altitude and speed of the aircraft.
- e. For the given data, select the maximum safe lead on the tow plane and keep line of metal officers informed of maximum safe lead of tow plane continuously.
- f. Supervise the performance of the individual line of metal officers.

Section VI

DUTIES OF LINE OF METAL OFFICERS

The duties of line of metal officers are to:

a. Insure compliance on the part of the gun crews to which they are assigned with all normal safety precautions in preparation for and conduct of firing as prescribed in the appropriate manuals of the subject.

b. Report to the safety officer the readiness of their piece to fire by telephone.

c. Check the lead taken by gunners on the target and order their piece to cease firing when the lead is excessive or endangers the plane.

d. See that the safe field of fire for their particular weapon is delimited on the ground in such a manner as to be plainly visible and not to be confused with markings of limits for other pieces.

e. Allow their piece to fire only within the limits of the safe field of fire.

f. Take action to ensure prompt and positive compliance with cease fire orders.

g. Ensure that proper action is taken by gun commanders in the event of a misfire or other malfunctioning of ammunition and equipment.

h. Be sure that their piece fires only on those courses assigned to it.

i. Habitually take and keep a position behind the piece moving so that their line of vision is always parallel with the tube of the piece.

Section VII


DUTIES OF UNIT COMMANDERS

1. Unit commanders are responsible for the conduct of firing of their units. The functioning of safety officers, line of metal officers and others appointed to assist unit commanders does not operate to relieve the commanding officer of any unit of the responsibility for the training, direction, control, and safety of the members of his unit.
2. Unit commanders are responsible for the police of the firing point (and of the buildings including latrines) to which they are assigned.
3. Ammunition storage and handling, messing, training activities, and all other activities carried on at firing points on the range are under the immediate command of unit commanders.
4. Local security of equipment left on ranges over night is a command function.
5. Unit commanders are responsible that the chief safety officer is kept informed as to the status of their units on the firing line to include readiness for tracking or firing missions, readiness for service practice, pieces "out of order" etc. The chief safety officer must have this information far enough in advance of any mission so as to enable him efficiently to assign missions to firing units.

BY COMMAND OF LIEUTENANT GENERAL PARKS:

OFFICIAL:

HUGH P. HARRIS
Brigadier General, General Staff
Chief of Staff


W. G. CALDWELL
Colonel, AGC
Adjutant General

7 Incl
Annex A thru G

Title 33 - Navigation and Navigable Waters
Chapter II - Corps of Engineers, Department of the Army

Part 204--Danger Zone Regulations

LAKE ERIE, WEST END

Pursuant to the provisions of Chapter XIX of the Army Appropriation Act of July 9, 1918 (40 Stat. 892; 33 U.S.C. 3), 204.187 (b) governing the use and navigation of the waters of Lake Erie north of Erie Ordnance Depot, heretofore prescribed as a danger zone for antiaircraft artillery firing from Camp Perry and Locust Point, Ohio, by units under the jurisdiction of Headquarters Second Army, Fort George G. Meade, Maryland, is hereby amended extending the period for antiaircraft artillery firing from June 15 through March 15 of the succeeding year, effective on and after publication of this amendment in the FEDERAL REGISTER due to the urgent necessity for continuing operations after August 10, 1953, as follows:

NOTE: Paragraph (b) of this section shall be subject to review by the Department of the Army with a view to further limiting the period of use prior to the commencement of operations in 1954 and each year thereafter.

204.187 Lake Erie, west end, north of Erie Ordnance Depot, Lacarne, Ohio ***

(b) Areas for antiaircraft artillery firing from Camp Perry and Locust Point, Ohio--(1) The areas--(1) Antiaircraft artillery firing area. That part of Lake Erie within an area extending north from Erie Ordnance Depot, Lacarne, Ohio, bounded as follows: Beginning at a point on the south shore of Lake Erie at longitude $83^{\circ} 05' 19''$ in the vicinity of Locust Point; thence to latitude $41^{\circ} 45' 14''$, longitude $83^{\circ} 12' 18''$; thence to latitude $41^{\circ} 46' 45''$, longitude $83^{\circ} 11' 23''$; thence to latitude $41^{\circ} 48' 58''$, longitude $83^{\circ} 05' 54''$; thence to latitude $41^{\circ} 42' 52''$, longitude $82^{\circ} 52' 47''$; thence to latitude $41^{\circ} 38' 36''$, longitude $82^{\circ} 56' 49''$; thence approximately $215^{\circ} 04'$ true to a point on the south shore of Lake Erie where the water intake pipe line intersects the shore line; thence northwesterly along the shore to the point of beginning. *See sketch C 2*

(11) Automatic weapons area. That part of Lake Erie bounded as follows: Beginning at a point on the south shore of Lake Erie at Camp Perry where the water intake pipe line intersects the shore line; thence to latitude $41^{\circ} 38' 36''$, longitude $82^{\circ} 56' 49''$; thence to latitude $41^{\circ} 35' 31''$, longitude $82^{\circ} 54' 47''$; thence approximately $241^{\circ} 15'$ true to a point on the shore of Lake Erie at the Camp Perry pier; thence northwesterly along the shore to the point of beginning.

(2) The regulations--(1) Antiaircraft artillery firing. Antiaircraft artillery firing will be conducted from 8:30 a.m. to noon and from 1:00 to 4:30 p.m., on all days other than Saturdays, Sundays, and holidays between June 16 and November 30, inclusive; firing between December 1 and March 15, inclusive, will be unrestricted as to the days of the week and hour of the day.

ANNEX A

(ii) Automatic weapons firing. The automatic weapons area will be a surface danger zone and closed to navigation only during the firing of such weapons. Special notices of such firing and the dates and hours thereof will be published by the enforcing agency in sufficient time to permit circularization to interested parties and posting on the bulletin boards of post offices in surrounding localities. No firing will be scheduled on Saturdays, Sundays, and holidays between June 16 and November 30, both dates inclusive.

(iii) Navigation prohibited. No vessel shall enter or remain in a danger zone during a firing period unless specific permission is granted in each case by one of the representatives of the enforcing agency policing the area in patrol boats. These boats will be in constant radio communication with the Safety Controls Station, Erie Ordnance Depot, and danger zone will be under radar and visual surveillance when in use.

(iv) Suspension of firing. The Commanding Officer, Erie Ordnance Depot, shall have the authority to suspend all or any firing for reasonable periods during regattas and immediately after nets are destroyed or dislocated by severe storms.

(v) Warning flag. On days when antiaircraft artillery firing is to be conducted a large red flag will be displayed from the range observation tower at the Erie Ordnance Depot from 7:00 a.m. until firing ceases for the day.

(vi) Enforcing agency. The danger zones and the patrolling thereof shall be under the control of the Commanding Officer, Erie Ordnance Depot, and such agencies as he may designate. Equipment used in clearing the areas will fly or expose a square red flag.

(vii) Restrictions on navigation. The restrictions imposed on navigation by this paragraph are in addition to those imposed by paragraph (a) of this section. (Regs., July 23, 1953, 800.2121 (Erie Lake)--ENGWO) (40 Stat. 892; 33 U.S.C. 3)

* * * * *

§60.13 Airspace restricted areas. The administrator may designate as a danger area an area within which he has determined that an invisible hazard to aircraft in flight exists. No person shall operate an aircraft within an airspace reservation or danger area unless permission for such operation has been issued by appropriate authority.

NOTE: Airspace restricted areas are established in order to conduct certain essential activities which might endanger air traffic passing over or near the location thereof. Airspace restricted areas are shown on aeronautical charts and in publications of aids to air navigation. Avoidance of such areas is imperative to the safety of flight unless prior permission for flight through the area has been secured from the agency having jurisdiction over the airspace reservation or danger area.

§60.13-1 Danger areas (CAA rules which apply to §60.13). The following areas are hereby designated as danger areas:

* * * * *

Ohio

Name and location (Chart)	Description by geographical coordinates	Designated altitudes	Time of Designation	Using Agency
***	***	***	***	***
Lacarne (Lake Erie)(Cleveland Chart).	Beginning at lat. 41° 49' 00" N, Long. 83° 05' 50" W; southeast to lat. 41° 41' 20" N, long. 82° 58' 30" W; southwest to lat. 41° 33' 40" N, long. 83° 01' 30" W; northwest to lat. 41° 33' 50" N, long. 83° 03' 00" W; northwest to lat. 41° 46' 45" N, long. 83° 11' 20" W; southeast to lat. 41° 49' 00" N, long. 83° 05' 50" W, point of beginning.	Surface to 65000	Daylight hours only	Eric Ordnance Depot, Lacarne Ohio
*	* * *	*	*	*

Title 14 - Civil Aviation

Chapter II - Civil Aeronautics Administration, Department of Commerce

(Amdt. 41)

Part 608 - Danger Areas

ALTERATIONS

The danger area alterations appearing hereinafter have been coordinated with the civil operators involved, the Army, the Navy, and the Air Force, through the Air Coordinating Committee, Airspace Subcommittee, and are adopted to become effective when indicated in order to promote safety of the flying public. Since a military function of the United States is involved, compliance with the notice, procedures, and effective date provisions of section 4 of the Administrative Procedure Act is not required.

Part 608 is amended as follows:

* * * * *

3. In §608.43, the Lacarne (Lake Erie), Ohio, area (D-149), published on July 16, 1949, in 14 F.R. 4295, is amended by changing the "Description by Geographical Coordinates" column to read:

"Beginning at lat. 41° 50' 39" N., long. 83° 08' 47" W., SE. to lat. 41° 35' 41" N., long 82° 54' 24" W.; SW. to lat. 41° 31' 39" N., long. 83° 01' 30" W.; W. to lat. 41° 31' 40" N., long 83° 03' 00" W.; NW. to lat. 41° 37' 38" N., long. 83° 11' 12" W.; WNW. to lat. 41° 39' 30" N., long. 83° 15' 15" W.; NNW. to lat. 41° 45' 30" N., long. 83° 19' 45" W.; NE. to lat. 41° 50' 39" N., long . 83° 08' 47" W., point of beginning."

* * * * *

ANNEX C

AIR COORDINATING COMMITTEE
SUBCOMMITTEE ON AIRSPACE, RULES OF THE AIR AND AIR TRAFFIC CONTROL
ROOM 2019, T-5 BUILDING
WASHINGTON 25, D. C.

MEETING NO. 347

Place: Room 2011, T-5 Building
Sterling 3-9200, Ext. 3971

Date: December 8, 1953
Time: 9:30 a.m. - 4:00 p.m.

E X T R A C T

*** **

VII

WARNING AREAS

VII-A CASE #6320

Presented by:
NY MTG 83, Case 1453
(Dept. of Army)

PROBLEM

LACARNE, OHIO - ESTABLISHMENT OF CONTROLLED FIRING AREA

*** **

RECOMMENDATION

5. That the Camp Perry, Ohio, Controlled Firing Area, as described in ASP Meeting No. 147, Case #2639, paragraph 6, be rescinded and notice of its rescission published in NOTAMS and publications of ATANS.

6. That the Controlled Firing Area, described below, be established for use by the Department of Army, published in NOTAMS and publications of ATANS.

a. Name: Lacarne, Ohio, Controlled Firing Area

b. Description:

	Latitude	Longitude
Beginning	41° 51' 04"	83° 07' 50"
thence to	41° 42' 52"	82° 52' 47"
thence to	41° 36' 15"	82° 52' 30"
thence to	41° 35' 41"	82° 54' 24"
thence to	41° 50' 39"	83° 08' 47"
thence to	41° 51' 04"	83° 07' 50"

point of beginning.

c. Time of Use: 8:30 to 4:30 on all days except Saturdays, Sundays and holidays, between June 16 and November 30. Between December 1 and March 15, firing will be unrestricted as to the days of the week. All firing will be conducted during daylight hours only.

ANNEX D

- d. Activities Conducted: Anti-aircraft artillery firing, using radio-controlled aircraft targets and towed targets.
- e. Altitude: Surface to unlimited.
- f. Controlling Agency: Erie Ordnance Dept, Lacarne, Ohio

7. That firing on the proposed Lacarne Controlled Firing Area be conducted in strict accordance with the following stipulations:

a. Safety officers shall be on duty during all periods when firing is being conducted to order cessation of firing when aircraft are within dangerous proximity.

b. 360° radar and visual surveillance throughout the entire area shall be maintained continuously during all periods when firing is being conducted.

c. Firing shall not be conducted unless the ceiling is at least 2000 ft. above trajectory of the projectile and in no case will firing be conducted unless the ceiling is 6000 feet and the visibility is at least 5 miles. No projectile shall at any time pass through or enter an overcast.

d. Firing shall not be conducted until 2-way radio communications have been established with the tow-target aircraft whenever towed targets are in use.

e. The Toledo, Ohio, Interstate Airways Communications Station (Telephone MOline 8291) is to be advised each day on which firing is to be conducted, with as much advance notice as possible, so that appropriate Notices to Airmen (NOTAMS) and broadcasts may be issued. The Subcommittee desires to emphasize the fact that the issuance of NOTAMS and broadcasts does not in any way relieve the using agency of the complete responsibility for the safety of all operations which are conducted.

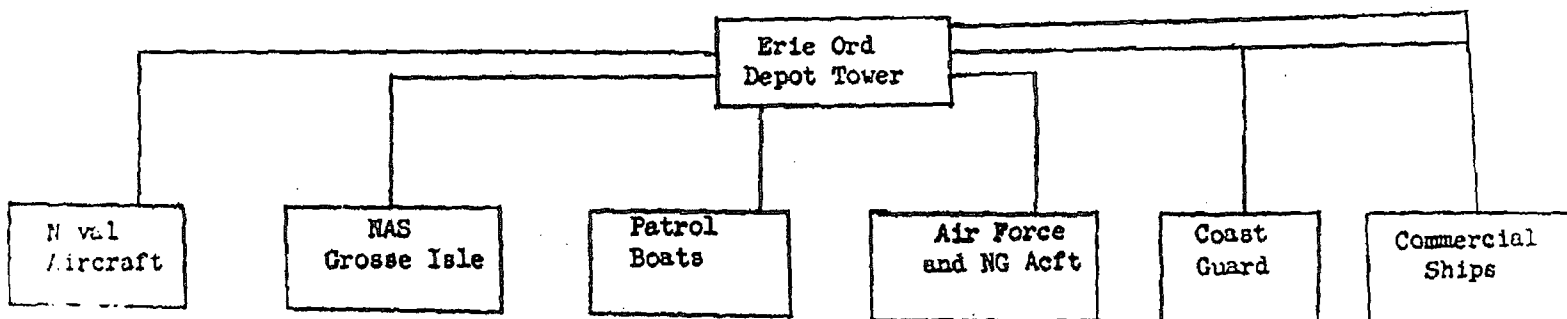
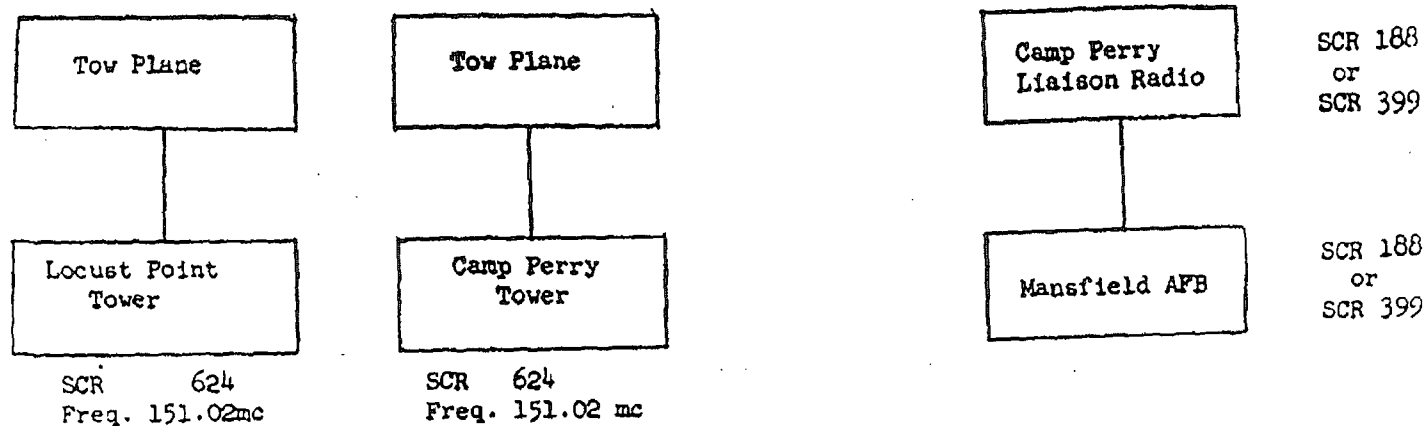
(Cleveland)

*** **

The above recommendations are within the policies established by the Air Coordinating Committee and are approved.

FOR THE AIRSPACE SUBCOMMITTEE:

s/t W. A. SIMPSON
Secretary



Radio Nets

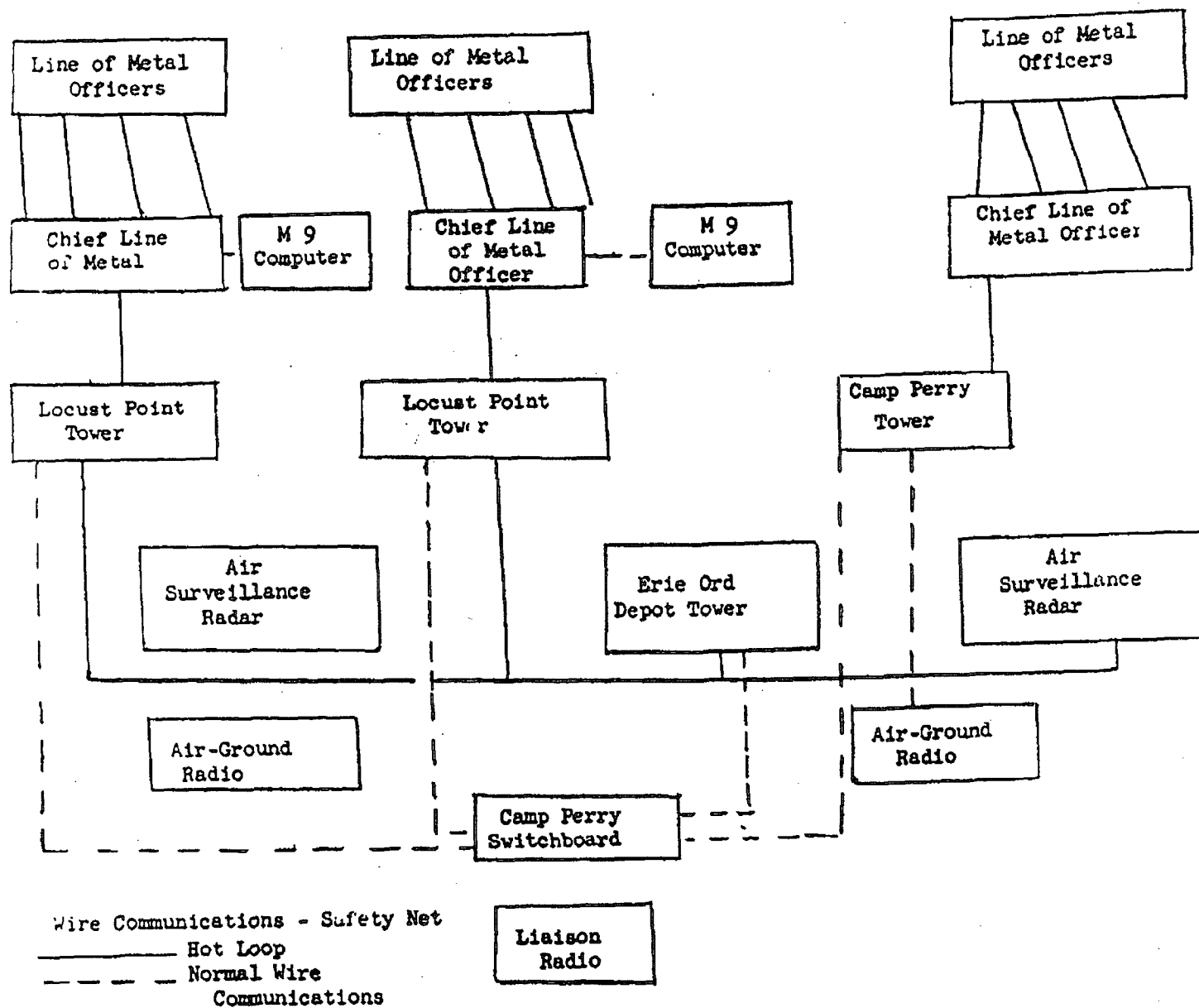
Camp Perry

All radios at Erie Ordnance Tower operated by Erie Ordnance personnel.

SCR 624 radios for air-ground communication and liaison radios between Camp Perry and Mansfield Air Base furnished and operated by using units.

19

ANNEX E



20

ANNEX F

SAFE LEAD TABLE FOR
CROSSING COURSES
(ALL AAA GUNS)

FUZE - TIME OF FLIGHT

	4	6	8	10	12	14	16	18	20	22	24	26	28	30	
20											0.1	0.1	0.2	0.2	
19		GUN ALWAYS BEHIND TOW										0.1	0.1	0.2	0.3
18		PLANE IN THIS ZONE								0.1	0.1	0.2	0.2	0.3	
17									0.1	0.1	0.2	0.2	0.2	0.3	
16									0.1	0.2	0.2	0.3	0.3	0.4	
15								0.1	0.2	0.2	0.3	0.4	0.4	0.5	
14								0.1	0.2	0.3	0.3	0.4	0.5	0.6	
13							0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.7	
12						0.1	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.8	
11						0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
10					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
9					0.1	0.3	0.4	0.5	0.6	0.7	0.8	0.9			
8				0.1	0.2	0.4	0.5	0.6	0.7	0.9	1.0				
7			0.1	0.2	0.3	0.5	0.6	0.8	0.9		UNSAFE TO				
6			0.2	0.3	0.5	0.7	0.8	1.0			FIRE				
5		0.1	0.3	0.5	0.7	0.9	1.0								

FIGURES REPRESENT SAFE LEAD ON TOW PLANE
IN TOWLINE LENGTHS

NOTE: TOWLINE - TARGET SPEED RATIO - $\frac{\text{TOWLINE (YDS)}}{\text{TARGET SPEED (MPH)}}$

9. Erie Army Depot ASR Supplement (on attached CD)

10. *Final Report*

**Environmental Security Technology Certification Program
(ESTCP)**

Final Report

**Assessment of Munitions Contamination at the Former Erie
Army Depot Lake Erie Impact Area and Toussaint River**



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List of Acronyms

ASR	Archive Search Report
CSM	Conceptual Site Model
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DQO	Data Quality Objective
EE/CA	Engineering Evaluation/Cost Analysis
ESTCP	Environmental Security Technology Certification Program
FUDS	Formerly Used Defense Sites
GIS	Geographic Information System
GPS	Global Positioning System
MRA	Munitions Response Area
MTA	Marine Towed Array
MRS	Munitions Response Site
Pd	Probability of Detection
PNNL	Pacific Northwest National Laboratory
TCRA	Time Critical Response Action
USACE	US Army Corps of Engineers
UXO	Unexploded Ordnance
VSP	Visual Sample Plan
WAA	Wide Area Assessment

Acknowledgements

Several individuals and organizations contributed to the success of this project. The underwater geophysics work was performed by the former AETC, Inc. (now SAIC) led by Dr. Jim McDonald. The transect planning and analysis were performed by a team from Pacific Northwest National Lab and Sandia National Lab, led by Mr. Brent Pulsipher and Dr. Sean McKenna. The helicopter magnetometry work was performed by a team from Sky Research, led by Dr. John Foley. The validation of targets was performed by a team from EOTI, led by Mr. Wayne Lewellyn.

In addition, we would like to acknowledge the assistance and support of the US Army Corps of Engineers, Louisville and Buffalo Districts, the Ares Corporation, and the Ohio EPA. We are particularly grateful to the Ohio National Guard at Camp Perry for invaluable assistance and coordination that made the data collection possible.

Executive Summary

The former Erie Army Depot, Ottawa County, OH, is located along the southern shore of Lake Erie. This site and the associated impact areas are classified by the United States Government as a Formerly Used Defense Site (FUDS) under the Defense Environmental Restoration Program (DERP). This property was formerly used for artillery testing, resulting in impact areas on land and in Lake Erie. Unexploded ordnance (UXO) has been found on the lake bottom, in the Federal navigation channel in the Toussaint River, in the marshland adjacent to the firing ranges, and along beaches fronting the former Depot. The impact areas were located in and near Lake Erie, extending offshore from the beaches for several miles. Ordnance found on or near the shore of Lake Erie appears to be mobile and may have originated from offshore or near shore impact areas.

The Department of Defense Environmental Security Technology Certification Program (ESTCP) is charged with promoting innovative, cost-effective environmental technologies through demonstration and validation. In FY06, ESTCP was directed by Congress to conduct a demonstration to comprehensively characterize UXO contamination impacting the Toussaint River area. The project objectives were:

- Identification of areas of concentrated munitions
- Characterization of site conditions that will support future investigation, prioritization and cost estimation, including:
 - Bounding the munitions-contaminated areas in Lake Erie
 - Estimating density and distribution of munitions types and sizes
 - Locating areas where munitions are likely to migrate to the river channel
 - Determining the extent of munitions contamination in the Toussaint River.

The overall investigation area encompassed approximately 50,000 acres, and included the current impact area in Lake Erie, the adjacent beach, and areas of the Toussaint River where munitions have been reported.

All geophysics investigations were performed with magnetometer systems, which detect surface and buried munitions, as well as other ferrous objects.

- A helicopter-based magnetometer array system, shown in Figure E-1, surveyed 3,300 acres along the beach, shallow water and river areas.
- A marine magnetometer array towed behind a pontoon boat, shown in Figure E-2, surveyed 46,000 acres of the lake impact area and deeper portions of the river. This platform operates in water depths from 3 feet to about 25 feet, so nearly the entire area of interest was accessible to it.
- The marine survey was conducted as a series of statistically-planned transects sampling the impact area in the lake and 100% surveys of the accessible parts of the river up to the Route 2 bridge.



Figure E-1. Helicopter magnetometer system

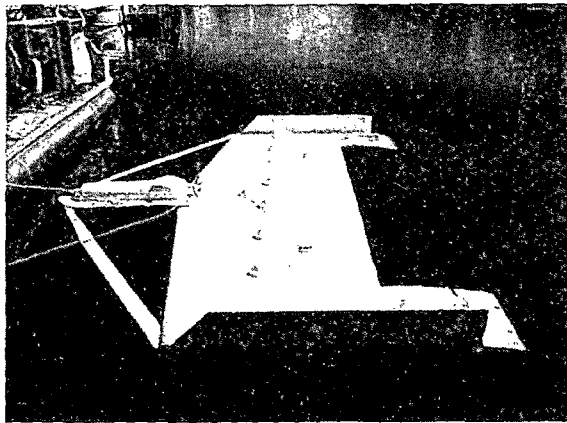


Figure E-2. Marine towed array

The primary result of this work is a comprehensive and detailed characterization of the munitions present in the vicinity of the Toussaint River. Figure E-3 shows the extent of the munitions detected and an estimate of the density of items per acre. From this analysis, we estimate approximately 300,000 anomalies will require investigation in an area encompassing approximately 8000 acres, if the impact area were to be cleaned up. Validation of a sampling of more than 200 targets yielded munitions in the impact area ranging in size from 37 mm to 155 mm, with one general purpose bomb discovered near West Sister Island. All anomalies in the river that were investigated proved to be nonmunitions clutter.

This document provides a summary of the data collection, analysis and results. Technology specific reports prepared by the vendors provide additional details.

1. Introduction

1.1 Background

The former Erie Army Depot, Ottawa County, OH, is located along the southern shore of Lake Erie (Figure 1). This site and the associated impact areas are classified by the United States Government as a Formerly Used Defense Site (FUDS) under the Defense Environmental Restoration Program (DERP). This property was formerly used for munitions testing, resulting in impact areas on land and in Lake Erie. Unexploded Ordnance (UXO) has been found on the lake bottom, in the Federal navigation channel at the Toussaint River, in the marshland adjacent to the firing ranges, and along beaches fronting the former Depot. The impact areas were located in, near, or offshore of the beaches adjacent to Lake Erie. Ordnance found on or near the shore of Lake Erie appears to be mobile and may have originated from offshore or near shore impact areas. (Refs. 1-4)

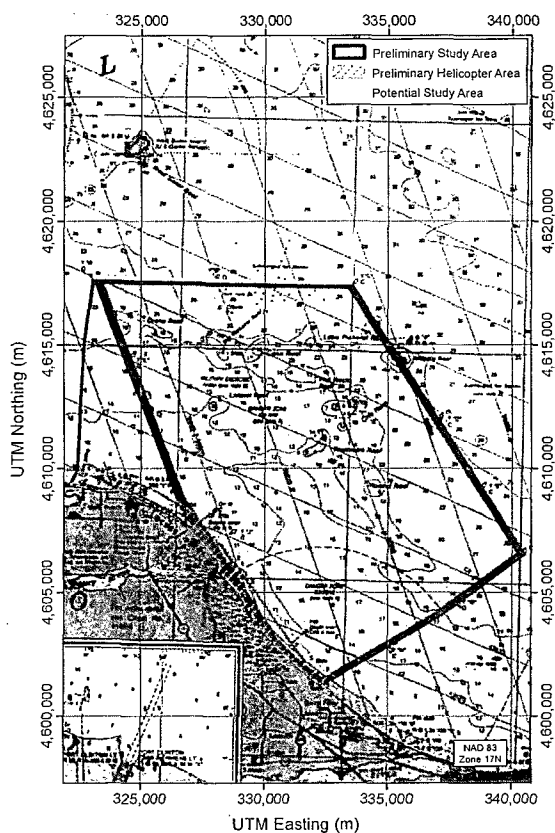


Figure 1. Study area in Lake Erie near the Toussaint River

In FY06, ESTCP was directed by Congress to conduct a demonstration to characterize UXO contamination impacting the Toussaint River area. This document provides a summary of the data

collection, analysis and results. Technology specific reports prepared by the vendors provide additional details. (Refs 3-7)

1.2 Objective of the Demonstration

The purpose of this demonstration was to use technologies suitable for wide area assessment (WAA) of suspected munitions contaminated sites to characterize the areas in and around the Toussaint River that are contaminated with munitions from historical activities at the Erie Army Depot and Camp Perry. The technical objectives were:

- Identification of areas of concentrated munitions.
- Characterization of site conditions to support future investigation, prioritization, remediation, and cost estimation:
 - Bound the munitions-contaminated areas in Lake Erie and on the adjacent beaches,
 - Estimate density and distribution of munitions types and sizes,
 - Locate areas where munitions are likely to migrate to the river channel, and
 - Determine the extent of munitions contamination in the Toussaint River.

The information will be provided to the US Army Corps of Engineers (USACE) and local stakeholders to assist them in developing a site management or remediation strategy.

1.3 Regulatory Drivers

The Toussaint River is situated immediately north of the former Erie Army Depot. The river includes several small craft and commercial fishing marinas. The USACE - Buffalo District is responsible for maintaining a navigable waterway. The area is periodically dredged, either by the USACE or local private interests. These dredging activities are often affected by munitions encounters. Figure 2 shows the mouth of the Toussaint River, the maintained navigation channel, and the areas where previous dredge spoils have been disposed.

1.4 Stakeholder/End-User Issues

UXO is present on thousands of sites covering millions of acres. The characterization technologies demonstrated in this project can provide data that will improve prioritization, planning, and cost estimation, providing decision-makers with information on which to base decisions regarding future site management or cleanup efforts. Widespread implementation of these technologies will require broad acceptance by government, contractors, and regulators, as well as availability of funds in the programs that execute munitions response activities. Their application would be integral to a comprehensive approach to the munitions response problem.

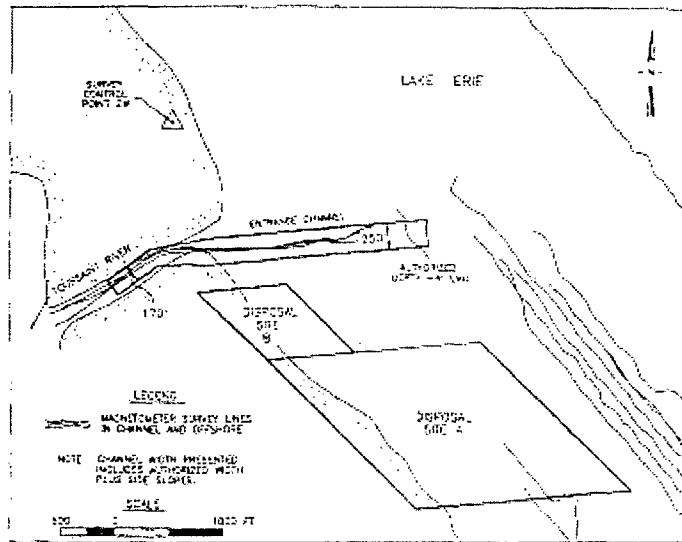


Figure 2. Authorized Toussaint River Federal Navigation channel and disposal areas

2. Technology Description

This demonstration employed a number of technologies, each of which contributed to the overall goals of the demonstration. These technologies include

- a **marine-towed magnetometer** array to survey the impact area in Lake Erie and the deeper parts of the river
- a **helicopter-mounted magnetometer** array to survey the beach, shallow water, and marshy areas
- a **statistical tool** to aid in planning transects for the marine array and interpreting the data gathered.

The main detection sensor used in this study was the magnetometer, which detects all ferrous metal.

2.1 Marine Towed Array

The marine array houses both magnetometers and electromagnetic induction sensors. For this demonstration, the magnetometers were used. Figure 3 shows a schematic of the system design and Figure 4 shows a photograph of the system. Eight Cesium vapor full-field magnetometers are deployed across a platform that measures nearly 5 m in width. The platform is towed behind a pontoon boat, supported by a cable. The location of the boat is precisely known from a cm-level accuracy Global Positioning System (GPS). The location of the platform is determined by careful measure of the length and angles of the tow cable. The platform is controlled using the control fins shown on either end. The control system maintains the platform at a fixed distance off the water bottom. A detailed description of the technology is found in the demonstration report of the marine array demonstrator. (Ref. 5)

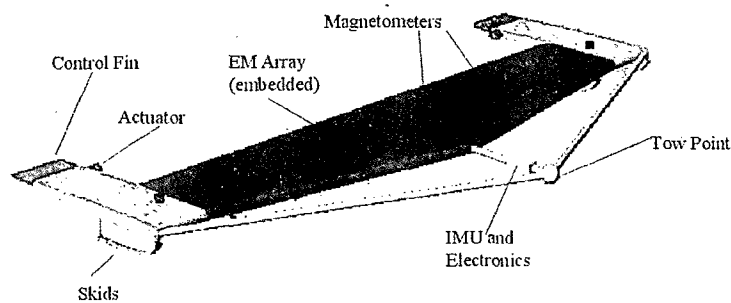
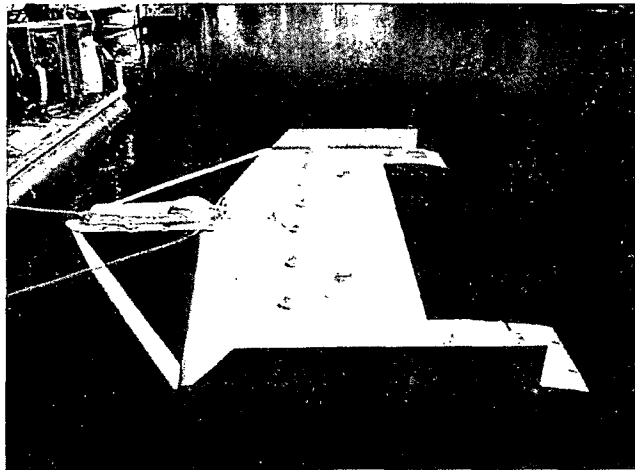


Figure 3. Schematic of the Marine Towed Array System. The platform is nearly 5 m wide.



1 This system was deployed to collect data following planned transects in the lake area and to survey as much of the river as was accessible, providing characterization of the areas where munitions are present.

2.2 Helicopter Magnetometer Array

The helicopter-borne magnetometer array consists of seven Cs-vapor full-field magnetometers mounted in a boom that is carried on the front of a helicopter. Figure 5 shows a photograph of this system. Like the marine array, the location of the helicopter is determined using a cm-level GPS. Because the magnetic signal falls off quickly with distance, the helicopter must fly one 1 to 3 m above the ground surface to detect objects the size of the munitions of interest. A detailed description is found in the demonstration report for this system. (Ref. 6).

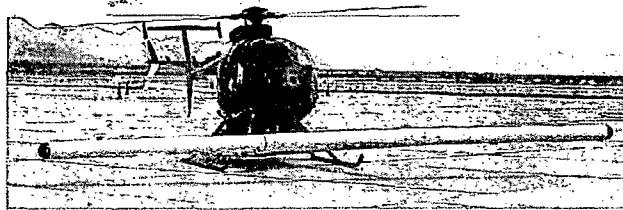


Figure 5. Photograph of the Helicopter-borne Magnetometer Array

This system was used to survey the beach, shallow water and river areas. Since the size of these areas is moderate, 100% of each area was surveyed, except where access was limited by trees and other obstructions.

2.3 VSP Statistical Planning Tool

Visual Sample Plan (VSP) is a statistical sampling software package designed by Pacific Northwest National Lab (PNNL) with the support of multiple government agencies to provide site investigators a simple to use, defensible method of gathering and analyzing site characterization data. VSP contains a module to aid in transect sampling to identify areas where the likelihood of UXO presence is elevated. For a given set of experimental design parameters (transect width, anomaly detection efficiency, false alarm rate), VSP will compute the required spacing of widely separated sample paths, referred to as transects, to achieve a specified probability of traversing a target area. It also calculates the probability of detecting a target area of specified size and density if it exists. (Ref. 7)

After the data have been collected, VSP's target identification algorithm calculates the density of anomalies and marks areas of high density. Geostatistical estimation using a kriging algorithm is used to interpolate information in the unsurveyed areas between transect locations. From these analyses, both the probability that an area is within a target and the anomaly density can be estimated. The MTA transect data were used for this statistical analysis.

2.4 Magnetometer Data

The magnetometer data from both platforms were analyzed to estimate distributions of magnetic anomalies which can be used to locate and bound targets, aim points, and other areas of concentrated munitions. In addition, physical characteristics of objects giving rise to individual anomalies were estimated using physics-based analysis. Estimates of location, depth, and rough size were used in conjunction with validation of more than 200 targets by divers to confirm the results of the magnetometer survey.

3. Demonstration Design

3.1 Selecting the Test Site

ESTCP received Congressional direction to study the Toussaint River area. From historic activities at Camp Perry and the former Erie Army Depot, it is known that there is a large impact area in Lake Erie and there are other impact areas in the swampy land adjacent to the large impact area and Lake Erie. The primary interest of the community is in the UXO that affects dredging the navigation channel to the river. A study area consisting of ~50,000 acres was selected based on these factors, as illustrated in Figure 6.

3.2 Test Site History/Characteristics

The subject study area consists of the beach and area of Lake Erie fronting the former Erie Army Depot (now called Erie Industrial Park), between Camp Perry Ohio National Guard Training Center and the mouth of the Toussaint River in northwest Ohio (Figure 7). This FUDS site is located in rural Carrol Township, Ottawa County, OH, on Lake Erie, approximately 37 miles east of Toledo, Ohio, and 6 miles west of Port Clinton, Ohio. The Erie Army Depot was initially established in 1918 as the Camp Perry Proving Grounds, then redesignated as Erie Proving Grounds. For almost a half century (1918-1966) this site was used by the Department of the Army for testing and proof-firing of artillery and as an ordnance storage and issue center (Ref. 2). Proof testing of projectiles and the gun barrels that were designed to fire them took place from a series of 15 fixed gun emplacements located adjacent to one another in a line about 2000 meters inland from the beach.

Camp Perry was established in 1907 by the state of Ohio for the training of the state National Guard. Part of the camp was used to establish the Erie Army Depot in the spring of 1918. During the next 2 years, the site was used to proof fire (verify the cannon will withstand the pressure of firing) thousands of pieces of artillery. Between World Wars I and II, the site was less active and was used primarily to warehouse and issue various items of ordnance. In 1941, the artillery test firing mission of the site was reactivated in support of World War II and the name of the facility was changed to the Erie Proving Ground. During the next 5 years, 70 percent of the mobile artillery used by the U.S. Army or provided to Allied armies was tested and proof-accepted at Erie Proving Ground. Between 1946 and 1951, the site reverted to a peace-time role and was renamed the Erie Army Depot. Late in 1951, the depot assumed the additional roles of anti-aircraft support testing and the overhauling of surface-to-air guided missiles in support of the Korean Conflict. Additional activities included logistical support to Regular Army and National Guard anti-aircraft units training at Camp Perry. Test firings of Vietnam-era munitions continued into the early and mid-1970s.

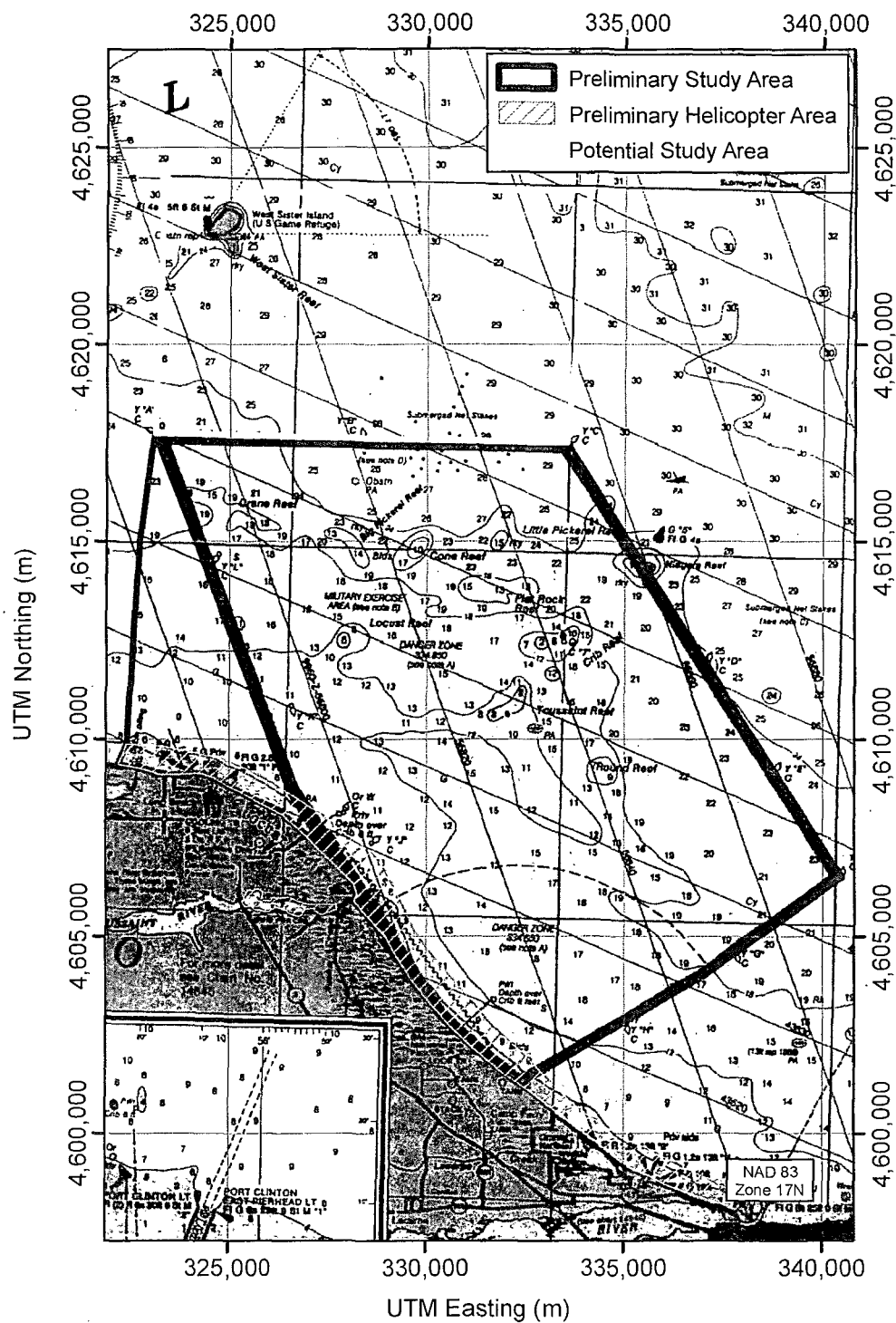


Figure 6. Study area for the Toussaint River Demonstration

Figure 7 illustrates 1965 period firing fans and target zones related to the present Erie Industrial Park. Discussions with previous employees of the Erie Army Depot and present officials of Camp Perry indicate that the firing source and range patterns have been similar for other periods. The Erie Army Depot was excessed by the General Services Administration in 1966 and closed in 1967. However, ARES, Inc., under contract to the Federal Government, has continued to manufacture and test fire artillery and other large-caliber barrels on this property as a commercially owned and operated enterprise. ARES reportedly fires inert rounds into the land targets and collects the rounds. The majority of acreage encompassing the former Erie Army Depot site is no longer Federal property and is now classified as a FUDS. Approximately 5.7 km² (1,400 acres) of property at the former Erie Army Depot is leased from the State of Ohio to private land owners.

Several impact areas in Lake Erie were established by the Erie Army Depot in order to test artillery by proof firing. The boundaries of these areas are generally known for the World War II era and well known from the 1960's to present (Figure 7). The heavy caliber lake impact areas, which are currently used by Camp Perry, are significantly smaller in size than those documented as being active by Erie Army Depot in the earlier years (Figure 7). Approximately 388 km² (96,000 acres) of Lake Erie and 5.78 km² (1,427.75 acres) of land are classified as formerly used target areas. The currently maintained impact/safety zone used by Camp Perry includes 145.8 km² (36,033 acres) of the FUDS Lake impact zone (USACE District, Rock Island 1993a, 1993b). In addition to the test firing conducted by the Erie Army Depot, these impact areas were extensively used in training missions by the Navy, Air Force, National Guard, and Army Reserves. These multiple uses and 75-year history of ordnance firings is reflected by the wide range in type and caliber of ordnance recovered on or near the former impact areas. Ordnance recovered or identified on the FUDS site beaches include a broad variety of direct fire and indirect fire munitions currently or formerly maintained in the arsenals of U.S. military forces. Shells range in size from the largest World War I 240-mm and more recent 155-mm artillery rounds to smaller World War II 45-mm armor-piercing projectiles and 1960's 60-mm mortars.

Several previous activities have uncovered a variety of munitions types. These activities have included dredging, a TCRA and a beach removal action. The munitions types are listed in Table 1. (Refs. 1-4) In addition to those items known to have been fired over the life of the range, it has been anecdotally reported, but not confirmed, that munitions were dumped from barges in the vicinity of the impact area during the 1960s. If this fact occurred, types of munitions and quantities were not documented.

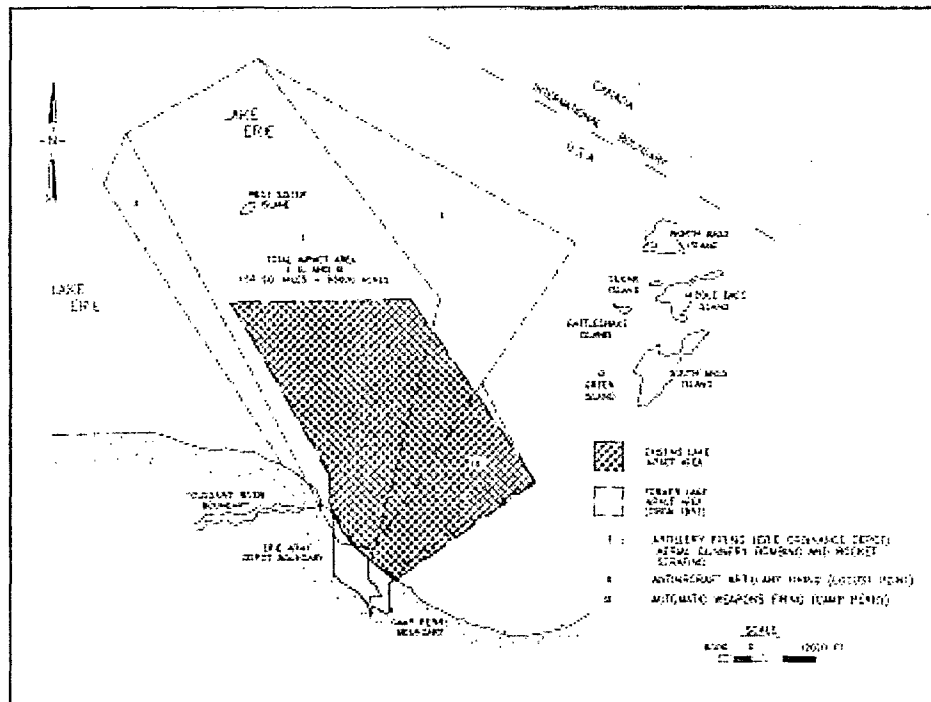
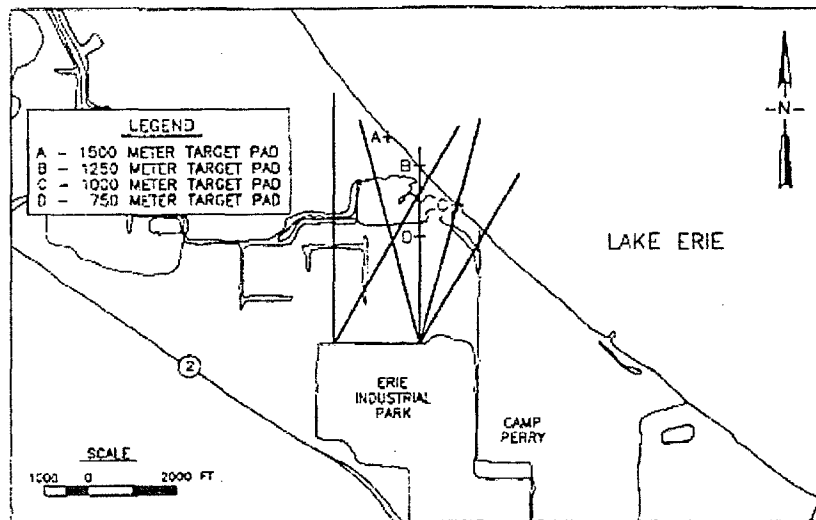


Figure 7. Firing fans and historic target locations for Erie Army Depot in 1965

Table 1. Compilation of Munitions found in previous activities.

Munition Type	Comments
3.5 inch rocket	Found during dredging
60 mm mortar	Found during dredging, beach removal action and TCRA
106 mm projectile	Found during dredging, beach removal action and TCRA
M52 fuze	Found during dredging
M15 Smoke Grenade	Found during dredging
105-mm projectile	Found during dredging, beach removal action and TCRA
90-mm projectile	Found during dredging and TCRA
20 mm projectile	Found during Beach Removal Action
165 mm	Pieces found during Beach Removal Action
40 mm	Found during TCRA
75 mm	Found during TCRA
81 mm	Found during TCRA
155 mm	Found during TCRA

3.3 Present Operations

At present, the site is still used for limited firing from Camp Perry and the ARES facility in the former Erie Army Depot. The immediate area near the Toussaint River is used for recreational and commercial boating. The land area north of the former Depot is owned by the Toussaint Shooting Club and maintained for recreational hunting. There are no restrictions on public access to the water and beaches.

3.4 Sensor Calibration Targets

The operation of the two sensor platforms on site was verified using common calibration targets. The calibration targets for the two magnetometer systems are listed in Table 2. The helicopter calibration targets were placed on the ground surface at a spacing of 50 m. Each day, the system was flown over the targets and the resulting signatures compared to calculated responses to confirm that the system was operating at its expected sensitivity. (Ref. 6).

The marine calibration targets were emplaced in a line in the river channel near the base marina at a spacing of 20 m. The targets were tethered to a long rope, which was anchored by rebar driven into the sediment at either end. Locations of the rebar and the target were surveyed. The marine system surveyed the calibration line several times during the deployment and recorded signal strengths were compared to archived data for common items to confirm the system was operating properly. (Ref. 5).

Table 2. Calibration Targets Emplaced for Toussaint River Demonstration

Helicopter-borne Magnetometer			Marine Array		
Item	Depth	Orientation	Item	Depth	Orientation
8" steel cube	ground level		16-lb shotput	proud	
100-lb bomb simulant	ground level	1 N-S 1 E-W	105 surrogate	proud	N-S 45°
155mm projectile	ground level	1 N-S 1 E-W	155 surrogate	proud	E-W 45°
2.7" warhead	ground level	1 N-S 1 E-W	Re-bar	Flush with sediment	N-S E-W
			81 mm surrogate	proud	E-W 45°

3.5 Period of Operation

The schedule for the demonstration at Toussaint River is given in Table 3. Details of the individual technology demonstrator's schedules can be found in their respective reports (Refs. 5 and 6).

Table 3. Schedule for the Demonstration at Toussaint River

Date	Action
23 May 2006	Initial site visit by ESTCP
19 July 2006	Overall demonstration plan
1 August 2006	Draft demonstration plans from contractors
12 August 2006	Demonstration plans final
17 August 2006	Marine survey begins
9 September 2006	Helicopter magnetometry survey begins
16 September 2006	Helicopter magnetometry survey ends
21 September 2006	Marine survey ends
1 October 2006	Marine targets selected for validation
10 October 2006	Helicopter mag data targets selected for validation
October 2006	Validation on site in Lake Erie
January 2007	Draft reports from contractors
April 2007	Final reports from contractors