APPENDIX A

Standardized Literature Review and Sampling Review Checklists

Appendix A
Munitions Response Activity Evaluation Checklists
Part 1: Literature Review

	Yes	No	Inconclusive

TYPE OF TRAINING AND MILITARY MUNITIONS EXPECTED

1. Is there evidence that the site was used as an impact area (i.e., fired military munitions such as mortars, projectiles, rifle grenades, or other launched ordnance)?		X	

Sources reviewed and comments:

Archives Search Report (ASR) Supplement No.1 and Revised ASR (USACE 1994 and 1997) do not indicate fired military munitions such as mortars, projectiles, rifle grenades, or other launched ordnance. Training and Facilities Maps (Army 1950s-1992) do not indicate an impact area in the MRA

2. Is there historical evidence that training involved use of High Explosive (HE) or Low Explosive (LE) items?	X		

Sources reviewed and comments:

Revised ASR (USACE 1997) have no HE or LE information on MRS 27E, 27F, or 57 however LE is indicated for MRS 45 (dud Mark II practice grenade, inert Mark I practice grenade found during a site walk) . HE may or may not be indicated at MRS 59 as 2 pieces of 60 mm mortar fragments were found during a site visit in 1996. The fragments were not identified as to whether or not they were practice or training mortars, in which case they may not contain explosive sections at all. Training and Facility maps only indicate activities such as troop training, bivouac, tank driving , and support services. No impact ranges are noted.

3. Is there historical evidence that training involved use of pyrotechnic and/or smoke-producing items (e.g., simulators, flares, smoke grenades) but not explosives?	X		

Sources reviewed and comments:

Facilities and Training maps indicate troop training and booby-trap training - so LE (black powder) is indicated. Troop training would also include the use of pyrotechnics and smoke-producing items.

DEVELOPMENT AND USE OF SURROUNDING AREA

4. Does subsequent development or use of the area indicate that military munitions would have been used at the site?			inconclusive

Sources reviewed and comments:

Use of the area was Division Support Services indicating food services, administration, etc. and NCOA (Noncommissioned officer Academy). The area remains undeveloped.

5. Does use of area surrounding the site indicate that military munitions would have been used at the site?	X		

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	Yes	No	Inconclusive

Sources reviewed and comments:

Revised ASR (USACE1997) indicates that, based on an interview, shoulder launched projectiles may have been fired to the south east at the intersection of Henneckens Ranch Road and Watkins Gate Road (just south of County North MRA). Otherwise, the area surrounding the MRA was also used for bivouac, tactical training and maneuvers. These areas would most likely have included the use of pyrotechnics and practice military munitions.

ESTABLISHMENT OF SITE BOUNDARIES

6. Is there evidence of training areas on aerial photographs that could be used to establish site boundaries?		X	

Sources reviewed and comments:

Bare areas, roads, and trails are present. No clearly defined training areas with features that would permit the establishment of boundaries (e.g., ranges or targets) (Army 1941, 1949, 1986, 2000).

7. Is there evidence of training on historical training maps that could be used to establish boundaries?	X		

Sources reviewed and comments:

A boundary for MRS-27E (TS-5) is the only one shown on the training facilities map (1984). Labels on other maps indicate general areas of training such as NCOA (non-commissioned officers academy) and DSS (division support services, i.e., food services).

8. Should current boundaries be revised?		X	

Sources reviewed and comments:

No indication based on the literature review that the boundaries should be revised.

RESULTS OF LITERATURE EVALUATION

9. Does the literature review provide sufficient evidence to warrant further investigation?		X	

Sources reviewed and comments:

Review of literature including Archives Search Report (USACE 1997) does not indicate that further investigation is necessary.

Appendix A
Munitions Response Activity Evaluation Checklists
Part 2: Reconnaissance Evaluation

	Yes	No	Inconclusive

HISTORICAL INFORMATION

1. Is there evidence that the site was used as an impact area (i.e., fired military munitions such as mortars, projectiles, rifle grenades, or other launched ordnance)?		X	

Sources reviewed and comments:

The results of the Preliminary Assessment/Site Inspection (PA/SI), Time Critical Removal Actions (TCRAs) consisting of a limited surface removal in accessible areas, and the Basewide Range Assessment (BRA) do not indicate the County North MRA was used as an impact area.

References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009)

2. Is there evidence that training involved use of high explosive (HE) or low explosive (LE) items?		X	

Sources reviewed and comments:

• The PA/SI recovered the following items within the County North MRA: Four expended smoke grenades were found on a dirt road adjacent to MRS-57 (there was insufficient data to classify these items as MEC or MD); During an initial site walk of the eastern portion of MRS-45, a grenade fuze was found southwest of the water tank located on Parcel L35.4. It was not noted if the grenade fuze was MEC or MD. A follow-up site walk performed by a USACE UXO Safety Specialist identified a "dud Mark II practice grenade and an inert Mark I practice grenade."
• During the BRA, no HE or LE items were recovered within the boundaries of the County North MRA.
• During the TCRA, no HE or LE items were recovered within the boundaries of the County North MRA.

References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009; Army 2006b)

3. Is there evidence that training involved use of pyrotechnic and/or smoke-producing items (e.g., simulators, flares, smoke grenades) but not explosives?	X		

Appendix A
Munitions Response Activity Evaluation Checklists
Part 2: Reconnaissance Evaluation

	Yes	No	Inconclusive

Sources reviewed and comments:

• The PA/SI recovered the following smoke-producing items within the County North MRA: MD consisting of expended flares and illumination signals were found in MRS-27E; In MRS-57 the military munitions found included a smoke grenade, and illumination signals (the data was insufficient to determine if the smoke grenade and the illumination signals were MEC or MD, and four expended smoke grenades found on a dirt road adjacent to MRS-57 (there was insufficient data to classify these items as MEC or MD); In MRS-59, expended pyrotechnics (MD) were found, however, the location appears to be southwest of the portion of MRS-59 that is located within the County North MRA.

• The TCRA recovered two pyrotechnic items (illumination signals classified as UXO) from within the southwestern portion of the County North MRA. Individual MD items were not reported. Instead, MD was reported as total weight by grid in the final reports. The reports indicated a total of 122 lbs of MD were collected during the TCRA of which approximately 46 lbs appear to have been recovered from grids that are within the County North MRA boundaries. According to the reports, the MD was primarily comprised of expended smoke grenades and slap flares.
• No smoke-producing items were recovered during the site visits conducted during the BRA within the County North MRA boundaries.
References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009; Army 2006b)

4. Does subsequent development or use of the area indicate that military munitions would have been used at the site?			X

Sources reviewed and comments:

This area remains undeveloped

5. Does use of area surrounding the site indicate that military munitions would have been used at the site?	X		

Sources reviewed and comments:

Use of surrounding areas is essentially the same as the majority of the County North MRA: troop training, maneuvers, and bivouac (Army 1934 - 1992). Evidence that munitions items were used in the surrounding areas has been found during previous removal actions, therefore it is expected that military munitions would also have been used at the County North MRA.

6. Is there evidence of training areas on aerial photographs that could be used to establish site boundaries?		X	

Sources reviewed and comments:

There is no evidence of training areas on aerial photographs that could be used to establish site boundaries (1941, 1949, 1951, 1956, 1966, 1978, 1986, 2000).

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Munitions Response Activity Evaluation Checklists
Part 2: Reconnaissance Evaluation

	Yes	No	Inconclusive
7. Is there evidence of training on historical training maps that could be used to establish boundaries?	X		

Sources reviewed and comments:
The training depicted on historical training maps shows consistent troop training, maneuvers, and bivouac over time (1945, 1953, 1956, 1957, 19961, 1964, 1968, 1971, 1972, 1984, 1987, 1992). If boundaries were not already established along property transfer lines, the boundary between County North and CSUMB could be deleted.

8. Was sampling and/or reconnaissance performed within the appropriate area?	X		

Sources reviewed and comments:

In January 1996, a USACE UXO Safety Specialist conducted a preliminary site assessment/site inspection (PA/SI) that included MRS-27E, MRS-57 and MRS-59. The December 2001-February 2002 TCRAs were conducted in MRS-45 and MRS-57 covering the southern and northeastern portions of the County North MRA. The BRA included several areas across the entire County North MRA which included portions of MRS-27E, MRS-45, MRS-57, and MRS-59.
References:

(USACE 1997a; Shaw/MACTEC 2006; Army 2006b)

9. Does reconnaissance indicate military munitions and/or ordnance-related scrap are present at the site.	X		

Sources reviewed and comments:

• The PA/SI recovered the following items within the County North MRA: MD consisting of expended flares and illumination signals were found in MRS-27E; During an initial site walk of the eastern portion of MRS-45, a grenade fuze was found southwest of the water tank located on Parcel L35.4 (it was not noted if the grenade fuze was MEC or MD); A follow-up site walk performed in MRS-45 identified a “dud Mark II practice grenade and an inert Mark I practice grenade;” In MRS-57 the military munitions found included an expended 75mm shrapnel projectile, a smoke grenade, and illumination signals (the data was insufficient to determine if the smoke grenade and the illumination signals were MEC or MD); Four expended smoke grenades were found on a dirt road adjacent to MRS-57 (there was insufficient data to classify these items as MEC or MD); In MRS-59, MD (expended pyrotechnics) and two fragments from the incomplete detonation of a 60mm mortar were found, however, the location appears to be southwest of the portion of MRS-59 that is located within the County North MRA.

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Munitions Response Activity Evaluation Checklists
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	Yes	No	Inconclusive

• The TCRA recovered two pyrotechnic items (illumination signals classified as UXO) from within the southwestern portion of the County North MRA. Individual MD items were not reported during the TCRA. Instead, MD was reported as total weight by grid in the final reports. The reports indicated a total of 122 lbs of MD were collected during the TCRA of which approximately 46 lbs appear to have been recovered from grids that are within the County North MRA boundaries. According to the reports, MD consisted primarily of expended smoke grenades and slap flares.
• The BRA recovered blank casings within the MRS-57 inside the County North MRA boundaries. No other military munitions-related items, fighting positions, or targets were discovered during the site visits within the other MRSs.

References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009; Army 2006b)

10. Were the type(s) of items found consistent with the type of training identified for the site?	X		

Sources reviewed and comments:
Training and Facilities maps indicate this area was used for tactical training from the 1950s to the early 1990s. The model numbers for items found were not recorded, however, the type of items found could have been used during this timeframe.
References:

(Army 1953, 1956, 1957, 1961, 1964, 1968, 1971, 1972, 1984, 1987, 1992).

11. Were the type(s) of items found consistent with the era(s) in which training was identified?	X		

Sources reviewed and comments:

Training and Facilities maps indicate this area was used for tactical training from the 1950s to the early 1990s. The model numbers for items found were not recorded, however, the type of items found could have been used during this timeframe. Pyrotechnics and practice items (e.g., practice hand grenades) are consistent with the troop training from the 1950 - 1990s.
References:

(Army 1977a; Army 1977b; training facility maps; USACE 1997a; Shaw/MACTEC 2009)

12. Was HE fragmentation found?		X	

Sources reviewed and comments:

HE fragmentation was not found during reconnaissance activities.
References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009; Army 2006b)

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Munitions Response Activity Evaluation Checklists
Part 2: Reconnaissance Evaluation

	Yes	No	Inconclusive
13. Was HE found?		X	

Sources reviewed and comments:
HE was not found during reconnaissance activities. MMRP data base indicates that an Unknown Dud was removed from the area prior to base closure. The model of the item is unknown, however there is no pattern of use in this area for HE items.
References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009; Army 2006b)

14. Was LE found?	X		

Sources reviewed and comments:

Although the model numbers of the items found during PA/SI and BRA site walks are not known, it is possible that LE related to pyrotechnics was found during reconnaissance activities.
References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009; Army 2006b)

15. Were pyrotechnics found?	X		

Sources reviewed and comments:

The TCRA recovered two pyrotechnic items (illumination signals classified as UXO) from within the western portion of the County North MRA.
References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009; Army 2006b)

16. Were smoke-producing items found?		X	

Sources reviewed and comments:

No smoke-producing items were found during reconnaissance activities.
References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009; Army 2006b)

17. Were explosive items found (e.g., rocket motors with explosive components, fuzes with explosive components)?		X	

Sources reviewed and comments:

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	Yes	No	Inconclusive
No rocket motors with explosive components, or fuzes with explosive components were found during reconnaissance activities.			

References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009; Army 2006b)

18. Do items found in the area indicate training would have included use of training items with energetic components?		X	

Sources reviewed and comments:

MEC and MD items removed do not indicate that training with items with energetic components occurred.
References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009; Army 2006b)

19. Were items found in a localized area (possibly the remnants of a cleanup action)?		X	

Sources reviewed and comments:

Items were found throughout the MRA. No evidence of an inconclusive cleanup action were found.
References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009; Army 2006b)

20. Was the site divided into subareas to focus on areas of common usage, similar topography and vegetation, and/or other unique site features?	X		

Sources reviewed and comments:

Reconnaissance was based on locations of MRSs, however some reconnaissance activities crossed MRS boundaries.
References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009; Army 2006b)

21. Should site boundaries be revised?		X	

Sources reviewed and comments:

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	Yes	No	Inconclusive

The County North MRA boundary is based on property transfer documents. During the PA/SI, smoke grenades (classified as MD) and grenade fuzes (classified as MD) were recovered outside of the MRS boundaries. No evidence of an artillery range or rocket range was found within the County North MRA. Since the Track 1 Plug-In approach is being recommended for the entire County North MRA, there is no need to revise the MRS boundaries.

References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009; Army 2006b)

22. Has the field data been collected and managed in accordance with quality control standards established for the project?	X		

Sources reviewed and comments:

The PA/SI was conducted in accordance with USACE guidance. The TCRA was conducted in accordance with the procedures that were described in the "Technical Memorandum, Parker Flats and Parker Flats to East Garrison BLM Area OE Surface Removal."

References:

(USACE 1995; Parsons 2001b)

RESULTS OF RECONNAISSANCE EVALUATION

23. Does the reconnaissance evaluation provide sufficient evidence to warrant further investigation?		X	

Comments:

The reconnaissance evaluation indicates that troop training with practice items and pyrotechnics did occur. It is possible that MEC and MD items related to troop training may remain within the boundaries of the County North MRA. However, no further investigation appears warranted because the historical use of the MRA was for troop training and the items recovered during the site reconnaissance (and other site activities) were consistent with this documented historical use.

References:

(USACE 1997a; Parsons 2002a; Parsons 2002b; Shaw/MACTEC 2009; Army 2006b)

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Munitions Response Activity Evaluation Checklists
Part 3: Sampling Evaluation

	Yes	No	Inconclusive

HISTORICAL INFORMATION

1. Is there evidence that the site was used as an impact area (i.e., fired military munitions such as mortars, projectiles, rifle grenades, or other launched ordnance)?		X	

Sources reviewed and comments:

A review of the MMRP database indicates that no launched ordnance was found during sampling in the County North MRA

References:

(MMRP database; USA 2001a)

2. Is there evidence that training involved use of explosive items?		X	

Sources reviewed and comments:

Although one piece of a MK2 fragmentation hand grenade (MD found in central area of MRA), and unknown fragments (MD found in two separate grids - western portion and central portion of MRA) were found, there is no evidence on historical training and facility maps indicating the use of explosive items in the County North MRA.

References:

(MMRP database; USA 2001a)

3. Is there evidence that training involved use of pyrotechnic and/or smoke-producing items (e.g., simulators, flares, smoke grenades) but not explosives?	X		

Sources reviewed and comments:

Two smoke-producing MEC items were found during SS/GS sampling. One 10-lb smoke pot and one M18 smoke hand grenade were found in different grids within the central portion of the MRA.

The smoke-producing MD items found were: smoke hand grenades, smoke rife grenades, illumination signals, surface trip flares, and 40mm pyrotechnic-type projectiles. The number of smoke-producing MD items are enumerated in question 5 below. MD from smoke-producing items were found throughout the MRA. Models and quantities are provided in the answer to Question 5 below.

References:

(MMRP database; USA 2001a)

SAMPLING RESULTS

4. Was sampling performed within the appropriate area?	X		

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	Yes	No	Inconclusive

Sources reviewed and comments:

Sample grids were placed throughout the area identified as MRS-45. One sample grid and a portion of a second sample grid were within the boundaries of the adjacent MRS-45A (outside of the County North MRA boundary).

References:

(MMRP database; USA 2001a)

5. Does sampling indicate that MEC or munitions debris are present at the site?	X		

Sources reviewed and comments:

The following list of MEC items were removed during the SS/GS sampling in MRS-45:
10 lb smoke pot (quantity 1; near the southeast portion of the CSUMB MRA)
M-18 smoke grenade (quantity 1; in the central portion of the County North MRA)
M10 antitank practice mines (quantity 3; in a single grid in the NE portion of the County North MRA)

The following list of MD items removed during the SS/GS sampling were found throughout MRS-45:
Booby Trap, M-1 (quantity 2)
Flare, Surface, Trip, M48 (quantity 1)
Flare, Surface, Trip, M49 (quantity 2)
Flare, Surface, Trip, M49A1 (quantity 4)
Fragments, Unknown (quantity is 4 lb)
Fuze, Grenade, Hand (Model Unknown) (quantity 1)
Fuze, Grenade, Hand, M205, M205A1 & M205A2 (quantity 10)
Fuze, Grenade, Hand, Practice, M228 (quantity 25)
Grenade, Hand, Fragmentation, MK 2 (quantity 1)
Grenade, Hand, Illumination, MK1 (quantity 2)
Grenade, Hand, Practice, M69 (quantity 1)
Grenade, Hand, Practice, MK 2 (quantity 42)
Grenade, Hand, Smoke, M18 (quantity 36)
Grenade, Rifle, Smoke (Model Unknown) (quantity 2)
Grenade, Rifle, Smoke, Green, Red, Violet or Yellow, M22 (quantity 1)
Grenade, Rifle, Smoke, Green, Red, Violet or Yellow, M22 & M22A2 (quantity 17)
Land Mine, Practice, M1 (quantity 1)
Land Mine, with Spotting Charge M1 (quantity 1)
Landmine, Practice, M-8 (quantity 1)
Mine, Antitank, Practice, Heavy, M10 (quantity 3)
Pot, Smoke, 10 lbs (quantity 1)
Projectile, 40mm, Cluster, White Star, M585 (quantity 1)
Projectile, 40mm, Illumination (quantity 1)
Signal, Flare, M51A1 (quantity 6)
Signal, Illumination, M127 (quantity 8)
Signals, Illumination, Ground, Parachute, Red Star, M126A1, White Star, M127A1 (quantity 5)
Signals, Illumination, Ground, Clusters, Green Star, M125A1 (quantity 12)
Signals, Illumination, Ground, Parachute, Red Star, M126A1 (quantity 18)
Signals, Illumination, Ground, Parachute, White Star, M127A1 (quantity 14)

References:

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Part 3: Sampling Evaluation

	Yes	No	Inconclusive

(MMRP database; USA 2001a)

6. Were the type(s) of items found consistent with the type of training identified for the site?	X		

Sources reviewed and comments:

MRS-45 was used for tactical and general troop training. The types of MEC and MD (including practice hand grenades, smoke grenades, flares, and signals) that were removed from within the County North MRA were consistent with the indicated training.
References:

(MMRP database; USA 2001a; training facility maps)

7. Were the type(s) of items found consistent with the era(s) in which training was identified?	X		

Sources reviewed and comments:

Training in the area covered several decades (from the 1940s to the 1970s). The types of MEC and MD (including practice hand grenades, smoke grenades, flares, and signals) removed from within the County North MRA were consistent with training that occurred in those decades
References:

(MMRP database; USA 2001a; training facility maps)

8. Was High Explosive (HE) fragmentation found?	X		

Sources reviewed and comments:

One high explosive (HE) hand grenade fragment (classified as MD) and unknown fragments (MD) were found in two grids. No HE MEC items were found during sampling.
References:

(MMRP database; USA 2001a)

9. Was HE found?		X	

Sources reviewed and comments:

With the exception of a HE hand grenade fragment and two grids where unknown fragments were found, no evidence of HE munitions were encountered. No HE MEC items were found during sampling.
References:

(MMRP database; USA 2001a)

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Munitions Response Activity Evaluation Checklists
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	Yes	No	Inconclusive
10. Were Low Explosives (LEs) found?	X		

Sources reviewed and comments:

Three antitank practice mines (classified as UXO) were removed in a single sampling grid located in the northeastern portion of MRS-45 during SS/GS sampling.MD items recovered throughout MRS-45 included two M-1 booby traps and an M1 antitank practice mine with spotting charge.
References:

(MMRP database; USA 2001a)

11. Were pyrotechnics found?	X		

Sources reviewed and comments:

MD from pyrotechnic items were found during SS/GS sampling throughout MRS-45. Models and quantities are provided in the answer to Question 5 above.
References:

(MMRP database; USA 2001a)

12. Were smoke-producing items found?	X		

Sources reviewed and comments:

One M18 smoke grenade (classified as UXO), one 10 lb smoke pot, and MD from smoke-producing items were found during SS/GS sampling. Models and quantities are provided in the answer to Question 5 above.
References:

(MMRP database; USA 2001a)

13. Were explosive items found (e.g., rocket motors with explosive components, fuzes with explosive components)?	X		

Sources reviewed and comments:

Three antitank practice mines (classified as UXO) were found in the northeastern portion of MRS-45 during SS/GS sampling. Models and quantities are provided in the answer to Question 5 above.
References:

(MMRP database; USA 2001a)

14. Do items found in the area indicate training would have included use of training items with energetic components?	X		

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	Yes	No	Inconclusive

Sources reviewed and comments:

There was indication of the use of energetic components found during SS/GS sampling in MRS-45. The answer to Question 5 above provides models and quantities of MEC and MD found.
References:

(MMRP database; USA 2001a)

15. Were items found in a localized area (possibly the remnants of a cleanup action)?		X	

Sources reviewed and comments:

There were no stockpiles of debris or high densities of fragments found during SS/GS sampling in MRS-45.
References:

(MMRP database; USA 2001a)

SITE INVESTIGATION DESIGN

16. Was the site divided into subareas to focus on areas of common usage, similar topography and vegetation, and/or other unique site features?	X		

Sources reviewed and comments:

The SS/GS sampling was conducted in MRS-45, which was divided into sectors prior to sampling and sampling occurred within operating grids.
References:

(USACE 1997; USA 2001a)

17. Should current site boundaries be revised based on sampling results?		X	

Sources reviewed and comments:

No change of site boundaries based on the results of the sampling data. The items found are consistent with the documented historical use.
References:

(USA 2001a)

EQUIPMENT REVIEW

18. Was equipment used capable of detecting items suspected at the site at the maximum expected depth?	X		

Appendix A
Munitions Response Activity Evaluation Checklists
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	Yes	No	Inconclusive

Sources reviewed and comments:

Site was not suspected to have been used as an impact area. MEC items suspected at this site were non-penetrating.
References:

(MMRP database; USA 2001a; Army 2006)

19. Was equipment used capable of detecting the types of items (e.g., non-ferrous) suspected at the site?	X		

Sources reviewed and comments:

The majority of the items suspected to have been used and found within MRS-45 contain ferrous metal. The Schonstedt Model GA-52/Cx used for sampling at MRS-45 only detects ferrous metals. The items that would be more difficult to detect using the Schonstedt GA-52/Cx include grenade fuzes (containing little ferrous metal) and inert non-metallic practice mines that may be present.
References:

(MMRP database; USA 2001a; Parsons 2001a; USA 2006)

20. Do the results of the Ordnance Detection and Discrimination Study (ODDS) indicate that items suspected at the site would have been detected by the instrument used at the time of investigation?	X		

Sources reviewed and comments:

The majority of the items suspected at the site were ferrous with the exception of a few pyrotechnic items which are non-penetrating items. The Schonstedt Model GA-52/Cx magnetometer was used during the geophysical surveys conducted during sampling. This instrument was evaluated as part of the ODDS and, with the exception of non-metallic mines and small arms ammunition, the instrument is capable of detecting the type of MEC items expected at this site.
References:

(MMRP database; USA 2001a; Parsons 2001a)

21. Do results of the investigation indicate that suspected items could be detected with a high level of confidence at observed and expected depth ranges?	X		

Sources reviewed and comments:

The suspected items are non-penetrating and would be expected to be found at or near the ground surface.
References:

(MMRP database; Parsons 2001a)

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Munitions Response Activity Evaluation Checklists
Part 3: Sampling Evaluation

	Yes	No	Inconclusive
22. Were all the instruments used to evaluate the site maintained and calibrated in accordance with associated work plan and manufacturers' specifications?	X		

Sources reviewed and comments:

Throughout sampling operations at MRS-45, USA performed daily operational checks and quality control inspections of its work.
References:

(USA 2001a)

23. Based on the anticipated target density (MEC items per acre) has the minimal amount of sampling acreage been completed in accordance with the scope of work or contractor plan?			X

Sources reviewed and comments:

Eighty six SiteStats/GridStats (SS/GS) grids were sampled totaling approximately 39.48 acres using the Site Stats/Grids stats methodology. Originally, 92 SS/GS sample grids distributed among 6 sectors within Site OE-45 were scheduled to be sampled by USA UXO technicians using Schonstedt GA-52/Cx magnetometers and the QuantiTech SiteStats/GridStats (SS/GS) 3.1 computer program. SS/GS sampling was completed on 86 sample grids in Site OE-45. Samples gathered over these 86 grids were determined by GridStats/SiteStats Program Version 3.1 to be sufficient for statistical evaluation of the sectors within the site.

SS/GS and some 100% sampling were used to sample this site. Subsequent to this work, the use of this SS/GS program has been questioned. It appears that the data are of good quality; however, it is not possible to statistically evaluate the adequacy of sampling of this site.
References:

(CMS 1995; USA 2001a)

24. Based on the sampling procedure (e.g., grids, transects, and/or random walks) was a percentage of the site completed to provide 95% confidence in a MEC density estimate, and if so provide total area investigated and the MEC density estimates?			X

Sources reviewed and comments:

The requirements were only to sample with 90% confidence (USA 2001a). 39.48 acres were sampled and the MEC density estimate is less than 1 MEC item per acre with 90% confidence.
References:

(USA 2001a)

25. What percentage of the anomalies were intrusively investigated?			

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	Yes	No	Inconclusive

Sources reviewed and comments:

As part of SS/GS sampling methodology, not all of the anomalies are intrusively investigated. The following is a summary of the percent of anomalies investigated in each sector in MRS-45: Sector 1 - 22.84%; Sector 2 - 20.35%; Sector 3 - 18.04%; Sector 4 - 14.87%; Sector 5 - 19.76%; Sector 6 - 23.69%
References:

(USA 2001a)

DATA PROCESSING AND DATA MANAGEMENT

26. Was the appropriate data processing scheme used for the site, and how were the data processed?			Not Applicable

Sources reviewed and comments:

No digital geophysical data were collected.
References:

27. Have the field data been collected and managed in accordance with quality control standards established for the project?	X		

Sources reviewed and comments:

Throughout operations at Site OE-45 CMS performed daily operational checks and Quality Control (QC) inspections of its work. Procedures for quality control are specified in the CMS Work Plan. Because of the nature of SiteStats/GridStats sampling, Quality Assurance and Quality Control tests of SiteStats/GridStats operations were limited to inspections of (1) operational activities and (2) documentation. No deficiency reports were written during inspections of the work done in Site OE-45.
References:

(CMS 1995; USA 2001a)

RESULTS OF SAMPLING EVALUATION

28. Does the sampling evaluation provide sufficient evidence to warrant further investigation?		X	

Comments:

Results of the sampling evaluation do not indicate that this was an impact area and no further MEC-related investigation is warranted. No evidence of the use of high explosives was found. With the exception of small arms ammunition, the instruments used at this site were capable of detecting the type of MEC expected at this site.
References:

(USA 2001a)

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	Yes	No	Inconclusive

HISTORICAL INFORMATION

1. Is there evidence that the site was used as an impact area (i.e., fired military munitions such as mortars, projectiles, rifle grenades, or other launched ordnance)?		X	

Sources reviewed and comments:

There is no evidence of use as an impact area for launched projectiles.
References:

(MMRP database; USACE 1993; USACE 1994; USACE 1997a; Training and Facilities maps (1941 - 1992); UXB 1995a; UXB 1995b)

2. Is there evidence that training involved use of explosive items?	X		

Sources reviewed and comments:

MMRP database for County North indicates the following items were found on the western boundary of County North adjacent to CSUMB, but there was insufficient data to classify these items as MEC or MD, so it is assumed, as a worst case scenario, that these items are MEC:

electric blasting cap (quantity 1)
grenade fuze, model unknown (quantity 1)
grenade, hand, prac, MK II (quantity 2)
mine, AT, prac, M2, model unknown (quantity 1)
simul, projectile, airburst, M74 series (quantity 2)

The MMRP database for County North indicates the following MD items were found on the western boundary of County North adjacent to CSUMB:

37MM AIRBURST SIM, Model Unknown (quantity 2)
37MM AIRBURST SIMULATOR M74 (quantity 1)
A/T MINE, Model Unknown (quantity 1)
GRENADE FUZE, Model Unknown (quantity 31)
M2 GRENADE BODY (OE Scrap) (quantity 1)
M74 PROJO, SIMULATOR, AIRBURST (quantity 7)
M97A1 SIMULATOR, PROJO, Model Unknown (quantity 1)
MK II GRENADE, Model Unknown (quantity 3)

References:

(MMRP database; UXB 1995a; UXB 1995b)

3. Is there evidence that training involved use of pyrotechnic and/or smoke-producing items (e.g., simulators, flares, smoke grenades) but not explosives?	X		

Sources reviewed and comments:

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	Yes	No	Inconclusive

During the removal actions, only two pyrotechnic items (found during visual surface removal) classified as MEC were recovered. Other pyrotechnic and smoke-producing items found in the UXB removal area (western boundary adjacent to CSUMB MRA) included:
• One (1) Pyrotechnic illumination mixture (insufficient data to classify as MEC or MD, assumed to be MEC);
• One (1) Flare, parachute, trip, M48 (insufficient data to classify as MEC or MD, assumed to be MEC);
• One (1) Flare, surface, trip M49 series (insufficient data to classify as MEC or MD, assumed to be MEC);
• MD items recovered include eleven (11) smoke grenades (model unknown), one (1) smoke rifle grenade, four (4) M18 smoke grenades, twenty-six (26) illumination (model unknown), one (1) 37mm airburst ill (model unknown), one (1) M125A1 flare parachute, one (1) parachute flare scrap, twenty-eight (28) M127 flare, star cluster; seven (7) M74 Projectile, simulator, airburst; six (6) 40 mm signal carts (model unknown), three (3) slap flares; and one (1) trip flare.

References:

(MMRP database; UXB 1995a; UXB 1995b)

REMOVAL RESULTS

4. Was removal performed within the appropriate area?	X		

Sources reviewed and comments:

Three removal actions were conducted in portions of County North MRA. Two were visual surface removals and one was a 4-ft removal.

The surface removal included the majority of MRS-45 and all of MRS-57. Only data from surface removals that fell within the boundaries of the County North were evaluated.

The 4-ft removal action was conducted within the boundaries of the CSUMB MRA. A portion of the removal action extended beyond the eastern CSUMB MRA boundary into the County North MRA. Only the data from the CSUMB MRA geophysical investigation (by Army contractor UXB) that fell within the boundaries of County North were evaluated.

References:

(MMRP database; UXB 1995a; UXB 1995b)

5. Were the type(s) of items found consistent with the type of training identified for the site?	X		

Sources reviewed and comments:

The items listed in the MMRP database for County North indicates removal of items consistent with troop training.

References:

(MMRP database; UXB 1995a; UXB 1995b)

6. Were the type(s) of items found consistent with the era(s) in which training was identified?	X		

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	Yes	No	Inconclusive

Sources reviewed and comments:

Training and Facilities maps indicate this area was used for tactical training from the 1950s to the early 1990s. The items found were consistent with this timeframe.

References:

(MMRP Database, Training facility maps [1950s - 1990s])

7. Was High Explosive (HE) fragmentation found?

	X	

Sources reviewed and comments:

No HE fragmentation was recorded during the removal actions.

References:

(MMRP database; UXB 1995a; UXB 1995b)

8. Were HEs found?

X		

Sources reviewed and comments:

The MMRP database for County North indicates one electric blasting cap and one grenade fuze (model unknown) were recovered during the removal action in the County North MRA along the border with the CSUMB MRA. There was insufficient data to classify these items as MEC or MD, but it is assumed that these items are MEC as a worst case scenario.

References:

(MMRP database; UXB 1995a; UXB 1995b)

9. Were Low Explosives (LEs) found?

X		

Sources reviewed and comments:

One practice M2 antipersonnel mine and two M74 airburst projectile simulators were found in the County North MRA along the border with the CSUMB MRA. There was insufficient data to classify these items as MEC or MD, but it is assumed that these items are MEC as a worst case scenario.

References:

(MMRP database; UXB 1995a; UXB 1995b)

10. Were pyrotechnics found?

X		

Sources reviewed and comments:

MEC and MD were found during the removal actions at County North MRA. Models and quantities are provided in the answer to Question 3 above.

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	Yes	No	Inconclusive
11. Were smoke-producing items found?		X	

Sources reviewed and comments:
During the removal action, no smoke items classified as MEC were recovered. MD items recovered include eleven (11) smoke grenades (model unknown), one (1) smoke rifle grenade, and four (4) M18 smoke grenades.
References:

(MMRP database; UXB 1995a; UXB 1995b)

12. Were explosive items found (e.g., rocket motors with explosive components, fuzes with explosive components)?	X		

Sources reviewed and comments:

MMRP database indicates that a grenade fuze (model unknown) and a blasting cap were found along the border of CSUMB in the UXB removal action area. With no other information to describe it, it is assumed that the grenade fuze had explosive components as a worst case scenario.
References:

(MMRP database; UXB 1995a; UXB 1995b)

13. Do items found in the area indicate training would have included use of training items with other energetic components?	X		

Sources reviewed and comments:

The electric blasting cap found along the border of CSUMB in the UXB removal action area is the only additional evidence of use of energetic components.
References:

(MMRP database; UXB 1995a; UXB 1995b)

14. Were items found in a localized area (possibly the remnants of a cleanup action)?		X	Inconclusive

Sources reviewed and comments:

There were no stockpiles of debris or high densities of fragments specifically reported in the removal action areas.

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	Yes	No	Inconclusive

References:

(MMRP database; UXB 1995a; UXB 1995b)

SITE INVESTIGATION DESIGN

15. Was the site divided into subareas to focus on areas of common usage, similar topography and vegetation, and/or other unique site features?	X		

Sources reviewed and comments:

Ste investigation was based on MRSs and property transfer boundaries.
References:

(UXB 1995a; UXB 1995b)

16. Should the site be divided into subareas based on the above features?		X	

Sources reviewed and comments:

Site is based on MRSs and property transfer boundaries. Based upon the data obtained during the removal action, no additional subdivisions of the MRA appear warranted.
References:

(UXB 1995a; UXB 1995b)

17. Should current site boundaries be revised based on sampling results?		X	

Sources reviewed and comments:

Boundary is based on property transfer boundaries. Based upon the results of the removal action, no revision of site boundaries appears warranted.
References:

(UXB 1995a; UXB 1995b)

EQUIPMENT REVIEW

18. Was equipment used capable of detecting items suspected at the site at the maximum expected depth?	X		

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	Yes	No	Inconclusive

Sources reviewed and comments:
The items suspected at the site were non-penetrating items and the equipment used for detection during the UXB removal action was capable of detection. Time critical visual surface removal action was conducted without detection instruments.
References:

(MMRP database, Army 2006; UXB 1995a; UXB 1995b)

19. Was equipment used capable of detecting the types of items (e.g., non-ferrous) suspected at the site?	X		

Sources reviewed and comments:

The majority of the items suspected at the site were ferrous with the exception of a few pyrotechnic items which are non-penetrating items. The equipment used for detection during the UXB removal action was capable of detection. This pertains to UXB 1995 for the western portion by CSUMB only; time critical visual surface removal action was conducted without detection instruments in the majority of County North MRA.
References:

(MMRP database, Army 2006; UXB 1995a; UXB 1995b)

20. Do the results of the Ordnance Detection and Discrimination Study (ODDS) indicate that items suspected at the site would have been detected by the instrument used at the time of investigation?	X		

Sources reviewed and comments:
The majority of the items suspected at the site were ferrous with the exception of a few pyrotechnic items which are non-penetrating items. The Schonstedt Model GA-52/Cx magnetometer was used during the geophysical surveys conducted during the UXB removal action. This instrument was evaluated as part of the ODDS and with the exception of non-metallic mines and small arms ammunition, the instrument is capable of detecting the type of MEC items expected at this site. This pertains to UXB 1995 for the western portion by CSUMB only; time critical visual surface removal action was conducted without detection instruments in the majority of County North MRA.
References:

(MMRP database, Army 2006; UXB 1995a; UXB 1995b; Parsons 2001a)

21. Do results of the investigation indicate that suspected items could be detected with a high level of confidence at observed and expected depth ranges?	X		

Sources reviewed and comments:

The Schonstedt is effective at detecting shallow ferrous items. The majority of the items expected at the MRA are non-penetrating items and would be expected to be located in the surface soil.
References:

(UXB 1995a; UXB 1995b; Parsons 2001a)

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Part 4: Removal Evaluation

	Yes	No	Inconclusive
22. Were all the instruments used to evaluate the site maintained and calibrated in accordance with associated work plan and manufacturers' specifications?	X		

Sources reviewed and comments:

Magnetometers were tested to ensure reliability daily. The project began using a test area that had a solid steel 81mm mortar buried to 4 ft. On December 14, 1994 the three ft depth requirement changed to four ft. On December 20, 1994 a 2.36 inch inert rocket and a 105mm projectile were added to the test area at a depth of 4 ft. On July 10, 1995 another test area included two five by forty ft lanes. These lanes were salted with various munitions items at varying depths. This area was used by teams to check their magnetometer and by the QC officer to randomly QC teams on their procedures. There were no UXB QC failures in the resurveyed grids. Failure was apparently triggered by the discovery of a MEC item in the previously swept grid. No QA failures were documented This pertains to UXB 1995 for the western portion by CSUMB only; time critical visual surface removal action was conducted without detection instruments in the majority of County North MRA.

References:

(UXB 1995 a; UXB 1995b)

DATA PROCESSING AND DATA MANAGEMENT

23. Was the appropriate data processing scheme used for the site, and how were the data processed?			Not Applicable

Sources reviewed and comments:

Instruments used for the site do not collect digital geophysical data. UXB was not required to record depths of items found. Time critical visual surface removal action was conducted without detection instruments in the majority of County North MRA.

References:

(UXB 1995 a; UXB 1995b; Parsons 2002a; and Parsons 2002b)

24. Have the field data been collected and managed in accordance with quality control standards established for the project?	X		

Sources reviewed and comments:

Removals conducted by UXB were conducted according to the work plan and field QA/QC resulted in no failures. Review of available documentation indicates that all anomalies detected were investigated and all military munitions identified, both MEC and MD and cultural debris, were removed as required by the contractor work plan. The TCRAs that included visual surface sweeps and removal of MEC were conducted in accordance with the procedures that were described in the Technical Memorandum, Parker Flats and Parker Flats to East Garrison BLM Area OE Surface Removal (Parsons 2001b).

References:

(UXB 1995 a; UXB 1995b; Parsons 2002a; and Parsons 2002b)

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	Yes	No	Inconclusive
RESULTS OF REMOVAL EVALUATION			
A. Can the data be used to perform a risk assessment?		X	

Comments:

Very few items were found during the three removal actions. The data can be used to support the evaluation of the site with respect to the Track 1 RI/FS Plug-in (in which a risk assessment is not conducted).
References:

(MMRP database, training and facility maps [1940s to 1990s])

B. Can the data be used to perform a feasibility study?		X	

Comments:

Very few items were found during the three removal actions. The data can be used to support the evaluation of the site with respect to the Track 1 RI/FS Plug-in (in which a feasibility study is not conducted).
References:

(ESCA RP Team 2008)