SITE OE-59A

UNNAMED

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3.59 Site OE-59A (Unnamed)

A summary report for Site OE-59A is provided below. This report consists of two parts. The first part, contained in Sections 3.59.1 through 3.59.5, includes a presentation and assessment of archival data. Specific elements include a review of site history and development, evaluation of potential ordnance at the site, a summary of previous ordnance and explosives (OE) investigations, and a conceptual site model. The above-mentioned information was used to support the second part of this report, which is the Site Evaluation (Section 3.59.6). The Site Evaluation was conducted in accordance with the procedures described in the *Final Plan for Evaluation of Previous Work* (*Harding Lawson Associates [HLA], 2000*) and may restate some information presented previously. The Site Evaluation discusses the evaluation of the literature review process (Section 3.59.6.1) and evaluation of the reconnaissance process(es) (Section 3.59.6.2). These discussions are based upon information from standardized literature review and reconnaissance review checklists (Attachment 59A-A). Section 3.59.7 provides conclusions and recommendations for the site. References are provided in Section 3.59.8.

3.59.1 Site Description

Site OE-59A is approximately 41 acres and is located in the eastern portion of the former Fort Ord (Fort Ord) adjacent to the East Garrison and immediately to the east of Site OE-59 and south of Site OE-5 (Plates 59A-1 and 59A-2). Site OE-59A was originally part of Site OE-59, but for the purpose of property transfer Site OE-59 was subdivided. Site OE-59 was transferred to the Bureau of Land Management (BLM) in 1996. Site OE-59A was retained by the U.S. Army (Army). Site OE-59 was identified during interviews conducted during the Preliminary Assessment/Site Investigation (PA/SI) phase of the Fort Ord Archives Search Report (ASR; *U.S. Army Engineer Division, Huntsville* [*USAEDH], 1997*). The area (identified as K10 during the interview) reportedly included a 2.36-inch rocket range in the early 1940s, the majority of which was identified as being located within Site OE-59. A small portion of area K10 lies within Site OE-59A. Only Site OE-59A is evaluated in this report.

3.59.2 Site History and Development

The following presents a summary of the site history and development that is based on archival research and review of historical training maps and aerial photographs. Plates have been prepared that present pertinent features digitized from historical training maps and scanned aerial photographs reviewed by Harding ESE. It should be noted that minor discrepancies between source maps, combined with the natural degradation of older source maps and photographs, has resulted in misalignment of some map features. In addition, camera angle and lens distortion introduced into older aerial photographs, combined with changes in vegetation and site features over time may contribute to the misalignment of some map features with respect to the aerial photographs.

Pre-1940s Era

This site lies within a tract of land purchased from private landowners by the government in 1917 (*Arthur D. Little, Inc. [ADL, 1994*). Documentation of the pre-1940s era use of this area by the Army for training is limited to 1918, 1933, and 1938 topographic maps of the area and a late 1930s aerial photograph. The 1918 map did not indicate training in this area (*Department of the Interior [DOI], 1918*); however, the 1933 (*Army, 1933*) and 1938 (*Army, 1938*) topographic maps show Camp

Ord was developed just north of the site. Camp Ord was used as an encampment and a training and maneuver area, primarily for 11th Cavalry and the 76th Field Artillery stationed at the Presidio of Monterey, prior to the establishment of Fort Ord. Small arms ranges associated with Camp Ord were located to the north and east of Site OE-59A with firing directed toward the south. None of the targets associated with these ranges were located within Site OE-59A.

1940s Era

Review of 1940s era documentation including historical maps and aerial photographs indicates that Site OE-59A is located downrange from a series of small arms ammunition firing ranges (e.g., the Known Distance Range, rifle ranges, pistol ranges, and machine gun ranges). None of the targets associated with the small arms ammunition ranges were located within Site OE-59A. The results of the review of 1940s era documentation are as follows:

A small portion of Site OE-59A (northwest corner) is included within an area (K10) identified during an interview conducted as part of the archives search, as an early 1940s 2.36-inch rocket range (Plate 59A-2). The interviewee had no first hand knowledge of these activities. A 2.36-inch rocket range is not identified in this area on any available training maps from the 1940s and no specific training site is identified in the vicinity of Site OE-59A (*Army, 1945 and 1946*).

An antitank range and a practice bazooka area are identified to the south of Site OE-59A on the 1945 and 1946 training facilities maps (*Army, 1945 and 1946*). These ranges were not in the vicinity of Site OE-59 or OE-59A.

No specific training areas are apparent on the 1945 aerial photographs (*Army, 1945*).

1950s Era

Review of 1950s era documentation indicates that the known distance ranges were no longer in use in the 1950s, but that pistol ranges and small bore rifle ranges were active. The location of Site OE-59A was within larger training areas as depicted on 1950s maps as follows:

- From 1954 through 1956 the area was assigned to the 759th Tank Battalion. Specific training activities included bayonet training and a tank driving area (*Army, 1954 and 1956*).

- In 1957 the area that included Site OE-59A was assigned to the 3rd Brigade (*Army, 1957*). No specific training activities are delineated within the Site OE-59A boundary. The mission of the 3rd Brigade was to conduct basic combat training (*Army, 1968*). In 1958 the area that included the site was assigned to the 4th Brigade. The mission of the 4th Brigade was one of combat support training (e.g., basic Army administration, food service, basic unit supply, field communications, and light wheel vehicle driving).

1960s Era

Review of 1960s training maps indicates that this area was assigned to the 4th Brigade throughout the 1960s. The small arms ranges are still present to the north of the site. Specific training areas identified included a Non-Commissioned Officers Academy (NCOA) and Division Support Services (DSS) training areas.

- The 1961 and 1964 training maps identify a NCOA training area (*Army, 1961 and 1964*).

- The 1967 and 1968 training maps identify a DSS training area partially within the Site OE-59A boundary (*Army, 1967; U.S. Army Corps of Engineers [USACE, 1968]*).

- An aerial photograph from March 13, 1969, shows no clear indication of a defined training area. No structures or permanent features are apparent on the aerial photographs.

1970s Era

Review of 1970s training maps indicates that this area was assigned to the 4th Brigade throughout the 1970s. The results of the review of 1970s era documentation are as follows:

- Small arms ranges located to the north were active throughout the 1970s. The DSS training area is identified to the northwest, just outside of the Site OE-59A boundary (*USACE, 1971*). Other 4th Brigade training areas in the vicinity included a light vehicle driving course (LVDC) to the southeast, and a food service area, wheel vehicle mechanic course, and fording area to the east of Site OE-59A. These training areas were identified on training maps throughout the 1970s.

- In 1972 this area was identified as the 4th Brigade Training and Maneuver Area. The DSS training area is identified to the northwest, just outside of the Site OE-59A boundary (*Army, 1972*).

- No specific training areas are identified within the footprint of Site OE-59A on the 1976 facilities training map. Training Site 6 (Site OE-27F) is located to the west of Site OE-59A. Site OE-27F was an overnight bivouac training area.

1980s Era to Present

No specific training areas are identified within Site OE-59A throughout the 1980s and 1990s. Site OE-27F was present to the west of Site OE-59A throughout the 1980s and 1990s. The small arms ranges were present to the north of the site from the 1980s until base closure.

Future Land Use

Site OE-59A lies on property that is slated for development. The property borders BLM land that is open to the public for hiking, biking, and horseback riding with use restricted to marked trails.

3.59.3 Potential Ordnance based on Historical Use of the Area

No evidence has been found to suggest that this site was used for anything other than a troop training and maneuver area. Information gathered during site investigation activities indicates that blank small arms ammunition and pyrotechnics were used at this site.

3.59.4 History of OE Investigations

The following describes the OE investigations that have been conducted at Site OE-59A.

HFA Investigation

Human Factors Applications (HFA), Inc., conducted an OE sampling investigation of adjacent Site OE-5 in 1994. The HFA sampling methodology is discussed in Section 3.59.6.3. Seventeen 100- by 100-foot sample grids were 100% sampled to a depth of 3 feet (all anomalies detected were investigated to a depth

of 3 feet and deeper anomalies were investigated as directed by the USACE Unexploded Ordnance (UXO) Safety Specialist). The grids were geophysically investigated using the Schonstedt Model GA-52/C or the GA-72/Cv magnetometers with a maximum search lane width of 5 feet (*HFA, 1994*). Eight of the seventeen grids sampled at Site OE-5 were located within the boundary of Site OE-59A (Plate 59-3). Sampling was conducted at Site OE-5 prior to the establishment of the Site OE-59A boundary. The grid locations shown on Plate 59A-3 are approximate and were digitized from hard copy maps generated for the HFA After Action Report. Harding ESE and USACE personnel conducted a site visit in April 2002 to locate the grid stakes used by HFA to mark the grid locations. Stakes were identified both inside and outside the Site OE-5 boundary presented in the ASR. The metal grid stakes used to mark the southeast corner of each grid were located in the vicinity of the digitized grid locations but do not overlie the digitized locations (Plate 59A-3). No OE or OE scrap was discovered during the HFA sampling of Site OE-5. Two unfired 40mm cartridges were found and removed from a road near the site, but outside of the Site OE-5 and Site OE-59A boundary. A summary of sampling operations conducted within the eight Site OE-5 sample grids located within Site OE-59A is provided in Table 59A-1.

The scope of work for HFA indicated that a detailed accounting of all OE items/components/scrap encountered would be performed. However, grid records providing this information are no longer available. Existing information regarding items found is summarized in the text of the HFA OE Sampling and OE Removal Report (*HFA, 1994*). The report itemized inert OE scrap found and removed. Some non-OE scrap was also removed and turned in at the end of the project. Contract requirements for the scope of work performed by HFA are described in more detail in Section 2.0 of this report.

1997 Revised Archives Search Report (ASR)

The purpose of the archives search conducted at Fort Ord was to gather and review historical information to determine the types of munitions used at the site, identify possible disposal areas, identify unknown training areas and recommend follow-up actions. The archives search was conducted in accordance with U.S. Army Corps of Engineers guidance (*USAESCH, 1995*). The archives search included a Preliminary Assessment/Site Investigation (PA/SI) consisting of interviews with individuals familiar with the sites, visits to previously established sites, reconnaissance of newly identified training areas, and the review of data collected during sampling or removal actions. Requirements for preparation of an archives search are described in Section 2.0 of this report.

Site OE-59A was identified during interviews conducted during the PA/SI phase of the Fort Ord Archives Search (*USAEDH, 1997*). The area (K10) was reported to have included a 2.36-inch rocket range in the early 1940s (Plate 59A-2). The site was reportedly not active after this time and the interviewee had no first-hand knowledge of the range. Area K10 was identified as being located immediately to the west of Site OE-59A. Ordnance that may have been used at area K10 would have been 2.36-inch rockets. A site walk was conducted in 1996 by the USACE UXO Safety Specialist. The reconnaissance of Site OE-59 involved walking a portion of the site and sweeping the path walked using a Schonstedt Model GA-52/Cx magnetometer. The walk of Site OE-59 included walking within Site OE-59A (Plate 59A-4). No evidence was found to support the use of Site OE-59A as an impact area (e.g., fragmentation, fuzes, or projectiles). Only expended pyrotechnic items were found (*USAEDH, 1997*). The specific location of the expended pyrotechnics was not identified. Two pieces of mortar fragments from the incomplete detonation of a 60mm mortar were found on the far west side of Site OE-59. On the basis of the reconnaissance performed, the ASR recommended further site investigation and random sampling at Site OE-59 (*USAEDH, 1997*). No site-specific sampling of Site OE-59A has occurred. However, as discussed earlier, 8 of the 17 grids sampled at Site OE-5 were located within the northern portion of Site OE-59A.

2001 Basewide Range Assessment

Portions of Site OE-59A were investigated as part of a basewide range assessment (BRA) for small arms and multi-use ranges currently being conducted at Fort Ord. The assessment of Site OE-59A for potential hazardous and toxic waste-related contamination included a data review, site reconnaissance, and mapping of portions of the site. For the BRA, the areas of investigation were identified as Historical Areas (HA). Portions of Site OE-59A were included within four historical areas, identified as HA-77, -78, -88, and -189 (Plate 59A-4). Only walks associated with two of the historical areas (HA-77 and HA-189) occurred within Site OE-59A. Prior to conducting the site reconnaissance a review of historical maps and aerial photographs was conducted. Areas of interest (e.g., training area boundaries, disturbed vegetation areas, and roads) were identified from maps and photos and their locations (way points) loaded into a Global Positioning System (GPS) unit. The site reconnaissance was conducted by a two-person team that included an OE specialist and a second team member trained in OE recognition. The site reconnaissance included walking portions of the historical areas and navigating to the way points using the GPS unit. No OE items were found and no evidence of military training was observed during the site reconnaissance conducted at HA-77 and HA-189 (Site OE-59A).

2003 Site Walk

A site walk was conducted at Site OE-59A on November 13, 2003. The site walk location was selected to fill data gaps in reconnaissance efforts conducted previously at this site. The site walk was conducted by a three-person team, which included a UXO Safety Specialist. The team swept the path walked using a Schonstedt Model GA-52/Cx magnetometer. The path was also recorded using a GPS unit. The position of any anomaly detected by the Schonstedt GA-52/Cx was recorded with the GPS. The items found during the site walk included two expended pyrotechnic signals (OE scrap), small arms ammunition, and small arms ammunition clips. A description of the site walk is included as an attachment to Appendix C of this report.

3.59.5 Conceptual Site Model

Conceptual site models (CSMs) are generally developed during the preliminary site characterization phase of work to provide a basis for the sampling design and identification of potential release (functioning of the OE item; e.g., detonation) and exposure routes. CSMs usually incorporate information regarding the physical features and limits of the area of concern (the site), nature and source of the contamination (in this case OE), and exposure routes (potential scenarios that may result in contact with OE).

The CSM for Site OE-59A is based on currently available site-specific and general information including literature reviews, aerial photographs, maps, technical manuals, field observations, and the information shown on Plates 59A-5 and 59A-6. It is provided to help evaluate the adequacy of the investigation completed to date and to identify potential release and exposure pathways.

3.59.5.1 Training Practices

Training practices are discussed below to provide information on the types of OE that may have been used at the site and the possible location of OE potentially remaining at the site.

Tank Driving Area

This area was assigned to the 759th Tank Battalion in the early and mid-1950s. Tank training activities included use of the area for tank driving. No range safety fans associated with the tank driving area or the area assigned to the 759th Tank Battalion are delineated on training facilities maps and it is not expected that this area was used for the firing of tank weaponry.

Small Arms Ammunition Firing

Site OE-59A is located downrange of several small arms ammunition firing ranges. These ranges have been active since at least the late 1930s. The safety fans associated with the ranges extend from the firing points located to the north of Site OE-5, southward through and beyond Site OE-59A. Although none of the targets associated with the small arms ammunition ranges were located within Site OE-59A, it is possible that small arms ammunition associated with the ranges could be found within Site OE-59A.

Because this site and the surrounding areas, including Sites OE-27F and OE-5, were used for training purposes it is possible that OE items such as expended pyrotechnics and small arms ammunition may be present within Site OE-59A.

3.59.5.2 Site Features

Site OE-59A is downrange of the former East Garrison small arms ranges. These ranges were active from at least the 1930s until base closure. The small arms range safety fans presented on training facilities maps extend through and beyond Site OE-59A. The site is relatively flat and dominated by open grassland with some oak woodland. The site is triangular in shape and is bounded on the southeast side by Barloy Canyon Road, on the north by a dirt road, and on the west by open space BLM-controlled land. With the exception of a few trails, no site-specific features are visible on aerial photographs or identified on training maps.

3.59.5.3 Potential Sources and Location of OE

Two expended M125 Series pyrotechnic signals were found during the 2003 site walk at Site OE-59A. The pyrotechnic signal is used for communication or illuminating small areas for short periods. Based on review of site data, the types of OE that may be expected at this site include pyrotechnic items (signals). Because signals by design are non-penetrating they would be expected to be present at or near the ground surface. No evidence of the use of 2.36-inch rockets or an impact area at Site OE-59A was found during the historical review, reconnaissance or limited sampling of the site. Additional information on the M125 Series pyrotechnic signal is provided in Attachment 27Y-A2.

3.59.5.4 Potential Exposure Routes

Access to this area is currently unrestricted (no fences are present around the area). Site OE-59A is adjacent to land transferred to the BLM, which is open to the public for recreational use. Expended pyrotechnic signals (OE scrap) were found during the site reconnaissance conducted within area K10 (Site OE-59); (however, the specific location of the OE scrap was not reported) and during the 2003 site walk. No OE items were found within the Site OE-5 sample grids located within Site OE-59A. No evidence was found during site sampling and reconnaissance to indicate that direct fire or high trajectory weapons (e.g., shoulder fired or mortars) was used at Site OE-59A. For these reasons it is unlikely that a receptor would come in contact with an OE item at Site OE-59A. However, because OE scrap was found

during the site walk, the possibility exists (although unlikely) that a recreational user could come into contact with surface OE items such as pyrotechnic signals.

Although no OE items were found at Site OE-59A a brief discussion of the potential injuries that could result from contact with live illumination signals is provided below. This item was selected for discussion, because a scrap illumination signal (M125 Series) was found during site reconnaissance.

For each of the OE items potentially remaining at the site, the following discussions provide information on: (1) how the item was designed to function, (2) the likelihood the item would function if found onsite and handled, and (3) the type of injury the item could cause if it functions. Additional information on these items is provided in Attachment 27Y-A2.

Signals, Illumination, Ground, Clusters: Green Star, M125A1; Red Star, M158; White Star, M159. These signals are designed for daytime and nighttime signaling. Star cluster signals consist of 5-star illuminant assemblies and a rocket motor propulsion assembly combined in a hand-held aluminum launching tube. The base of the launching tube contains a primer and an initiating charge. As shipped, the firing pin cap is assembled to the forward end and must be reversed for firing. Stabilizing fins on the tail assembly of the rocket are folded parallel to the axis of the signal. A bolt, which also transfers the initiating charge flash to the propellant, extends into the center of the solid propellant, which fills the propulsion assembly. The illuminant assembly is mounted on top of the propulsion assembly with a delay assembly and an expelling charge between. It is functioned by striking the primer with the firing pin, which ignites the initiating charge to ignite the rocket propellant. As the rocket emerges from the tube, the fins unfold for flight stability. Before rocket motor burnout, at 200 feet, the black powder expelling charge is ignited performing a two-fold purpose of expelling and igniting the 5-star illuminant assemblies. Burn time is 6 to 10 seconds with burnout occurring at 250 to 300 feet above the ground (*Army, 1977*). It is unlikely that incidental contact could cause a signal to function as the cap must be removed, placed over the base, and struck sharply. If caused to function, the type of injury that could be sustained would be burns from the initiating charge and possibly the rocket motor.

Summary: It is unlikely that a person could cause a signal to function through casual contact if one were found at the site and be burned, because it: (1) would require precise placement of components and a hard blow to function, and (2) would have been exposed to moisture, degradation, and weathering for 14 or more years, which could decrease the effectiveness of the components that cause it to function.

3.59.6 Site Evaluation

The available data (e.g., archival and reconnaissance data) regarding Site OE-59A were reviewed and evaluated according to procedures described in the *Final Plan for Evaluation of Previous Work* (*HLA, 2000*). The evaluation process is documented through the completion of a series of checklists. Copies of the checklist are provided as Attachment 59A-A. This section presents a summary of the results of the checklist evaluation. It is divided into two sections, an assessment of the literature review and an assessment of the reconnaissance performed at the site.

3.59.6.1 Literature Review

Type of Training and OE Expected

As part of the archives search, an interview was conducted with Mr. Fred Stephani. Mr. Stephani served as a Fort Ord fire fighter from 1942 until 1944 at which time he left the Fort Ord fire department and joined the Army. Mr. Stephani returned to the Fort Ord fire department in 1947 where he worked until he

retired as Fire Chief in 1978. Mr. Stephani stated that this area (identified during the interview as K10) was reported to have included a 2.36-inch rocket range in the early 1940s (Plate 59A-2). The site was reportedly not active after this time and the interviewee had no first hand knowledge of the range. Area K10 was identified as being located immediately to the west of Site OE-59A (*USAEDH, 1997*). The review of 1940s era training maps did not identify a 2.36-inch rocket range in the vicinity.

The 1954 and 1956 training maps indicate that Site OE-59A is assigned to the 759th Tank Battalion. Two specific training areas, a Bayonet Range and a Tank Driving Area, are shown in the Site OE-59 vicinity. Beginning in 1957 the area that includes Site OE-59A is assigned to the 3rd Brigade. The 3rd Brigade conducted basic combat training. In 1958 the area that included Site OE-59A was reassigned to the 4th Brigade. The mission of the 4th Brigade was one of combat support training. Combat support activities conducted by the 4th Brigade included administration, food service, supply, field communications, and light wheel vehicle driving (*Army, 1968*). The 4th Brigade utilized this area during the 1960s through the early 1970s. Specific training areas in the vicinity of Site OE-59A were the division support services training area and the non-commissioned officer's academy training area located northwest of the site. No specific training areas were identified in the Site OE-59A vicinity after the 1970s. One training site OE-27F is identified to the west of the site beginning in 1976. This training area remained at this location until base closure.

Subsequent Use of the Area

Site OE-59A and the surrounding land remains undeveloped. Land to the west was transferred to the BLM and is open to the public for recreational use including hiking, biking, and horseback riding. Because the site remains undeveloped, no evidence as to potential OE use can be ascertained on the basis of the subsequent use of the area.

Establishment of Site Boundaries

The general area of use (area K10) was created from an interview conducted by the USACE with Mr. Stephani. The location identified by Mr. Stephani was a general area of potential activities and was not surveyed or based on specific knowledge of the site or training procedures. Following the interview USACE personnel, including the UXO Safety Specialist, evaluated the area boundary using the interview notes, site walk information, Fort Ord training maps, and aerial photographs. Based on the follow-up evaluation, the Site OE-59 boundary was established as part of the archives search (Plate 59A-2). Site OE-59A was originally a part of Site OE-59, but for the purpose of property transfer Site OE-59 was subdivided. The majority of area K10 lies within the boundary of Site OE-59. No additional information was found as the result of the literature review to warrant changes to the current boundary of Site OE-59A.

Summary of Literature Review Analysis

A review of Fort Ord specific documentation including training facilities maps and plans, aerial photographs, and the ASR indicates that this area has been used for various training activities including a tank driving area, bayonet training, and division support services training. Interviews conducted as part of the ASR indicated that the area included a "2.36-inch rocket range." A site walk conducted as part of the archives search found no evidence to support the use of Site OE-59A or adjacent Site OE-59 as impact areas. Only expended blank small arms ammunition and expended pyrotechnic items were found. On the basis of the literature review no further OE-related investigation is warranted. Small arms blank ammunition and expended pyrotechnic items were found during site reconnaissance.

3.59.6.2 Preliminary Assessment/Reconnaissance Review

This section describes the items that were found during reconnaissance and the types of fillers that would be used in the items and the implications for the site history. Three site reconnaissances have been conducted at Site OE-59A. The first site walk was conducted in 1996 by the USACE UXO Safety Specialist. The object of the reconnaissance was to determine whether sites identified during the PA/SI required further OE-related investigation. The second reconnaissance was conducted in 2001 as part of the Fort Ord BRA. Site OE-59A was identified as an area that was downrange from several small arms ammunition firing ranges. The site reconnaissance was conducted to determine whether sampling for residual lead associated with small arms use was warranted. The third reconnaissance, conducted in November 2003, involved a three-person team, which included a UXO Safety Specialist. The reconnaissance location was selected to fill data gaps in reconnaissance efforts conducted previously at this site.

Reconnaissance Methods Discussion

The site reconnaissance conducted in 1996 was completed as part of the PA/SI phase of the Archives Search for known and suspected OE sites at the former Fort Ord. Several areas of potential ordnance use were identified based on information gathered during interviews conducted as part of the PA/SI. A portion of Site OE-59A was identified in those interviews as an area used in the early 1940s. A 2.36-inch rocket range was reportedly present here. The USACE UXO Safety Specialist walked a portion of the site visually searching the path walked while simultaneously searching for subsurface OE using a magnetometer. The area walked included Site OE-59A and adjacent Site OE-59 (Plate 59A-4). Fragments from a partially detonated 60mm mortar were found on the western side of Site OE-59, but no evidence of fragmentation, fuzes, or projectile cases were observed within Site OE-59A. Expended pyrotechnics were also found, however, their specific location was not identified. No evidence of other types of training or use as an impact area was identified as a result of reconnaissance. The model numbers of the expended pyrotechnics found by the USACE UXO Safety Specialist are not identified. Due to the potential hazard associated with the presence of the 60mm mortar fragments found on the western side of Site OE-59, the USACE UXO Safety Specialist assigned a Risk Assessment Code (RAC) score of 4 to area K10, which includes Site OE-59 and a portion of Site OE-59A. A RAC score of 4 includes a recommendation of further OE-related action by the Ordnance and Explosives Mandatory Center of Expertise (MCX) and Design Center (Army Corps of Engineers Huntsville Division [CEHND]). The recommendation of further OE-related action was then forwarded to the CEHND for review. The CEHND reviewed the RAC worksheet and recommended further site investigation and random sampling (*USAEDH, 1997*).

The Fort Ord BRA reconnaissance of HA-189 was conducted in 2001. Only a very small portion of Site OE-59A was included in the reconnaissance of HA-77 (Plate 59A-4). However, the HA-77 reconnaissance involved an extensive walk of Site OE-59. A reconnaissance of HA-78 was also conducted. The reconnaissance of HA-78 also did not include Site OE-59A, but was conducted at the former location of a machine gun range that was present on the east side of Site OE-59A in the 1930s. The site reconnaissances were conducted by a two-person team that included an OE specialist and a second team member trained in OE recognition. Prior to conducting the site reconnaissance, historical features were identified from training maps and aerial photographs and their locations entered into a GPS unit (way points). The team then conducted the site visit navigating to the way-points. The path of the site walk was recorded digitally with a GPS unit. The following features or items were required to be mapped if present based on a visual search of the site as part of the BRA reconnaissance: 1) targets; 2) firing lines; 3) range fan markers; 4) survey bench marks; 5) areas of stained soil that could indicate petroleum hydrocarbon or bulk explosives contamination; 6) OE or OE scrap; 7) potential sample

locations based on, a) the presence of spent ammunition (lead) (accumulations of 1 to 10 percent and areas exceeding 10 percent), or b) accumulations of OE or OE scrap; 8) other training related features (e.g., fighting positions, fox holes, etc.); and 9) areas of thick vegetation that could limit access to the investigation area. No evidence of OE was found within the portions of HA-77 and HA-189 that are included within Site OE-59A. Additionally, no OE items were found during the reconnaissance performed at HA-78. Based on the absence of features including targets, range markers, fighting positions, spent small arms rounds and OE scrap, no further action was recommended for Site OE-59A under the Fort Ord BRA. The most recent site reconnaissance involved the team walking a portion of the site, surveying the path walked using a Schonstedt Model GA-52/Cx. The Schonstedt was used in an attempt to detect subsurface anomalies to determine if further investigation was warranted. The team also carried a GPS to record the path of the reconnaissance and the locations of any anomalies identified with the Schonstedt. The items found during this reconnaissance activity included two expended pyrotechnic signals (OE scrap), small arms ammunition, and small arms ammunition clips.

The path walked during the first two reconnaissances is shown on Plate 59A-4. A summary of the results of the most recent reconnaissance effort is included as an attachment to Appendix C of this report.

Site Boundaries Review

The site boundary was provided in the U.S. Army Corps of Engineers, Huntsville Division and documented in the ASR (*USAEDH, 1997*). The site was reportedly used as a 2.36-inch rocket range in the early 1940s. No UXO was found and no evidence of specific training locations was identified, during either the ASR or BRA site reconnaissance conducted within Site OE-59A. No modification to the Site OE-59A boundary is necessary based on the review of the ASR or BRA site reconnaissance data.

Quality Assurance/Quality Control

The site reconnaissance conducted as part of the PA/SI was performed in accordance with USACE guidance (*USACE, 1995*). The site reconnaissance is conducted to look for evidence of past ordnance use. Visible evidence found during the site reconnaissance provides information on the type, extent, and magnitude of ordnance present. Physical features that may be present at a former site include impact craters caused by penetrating ordnance, the presence of OE and/or OE scrap on the ground surface, and soil staining associated with the use of bulk explosives. Upon completion of the reconnaissance at each site a Risk Assessment Code (RAC) worksheet was completed and submitted to the Mandatory Center of Expertise (MCX) and Design Center (CEHND) as required (USACE, 1995).

Although the Fort Ord BRA is not a part of the OE program, many of the Data Quality Objectives (DQOs) identified for the Site Assessment Phase of the BRA investigation are the same DQOs established for the site reconnaissance phase of the current OE site investigation program being implemented at the former Fort Ord (*Parsons, 2001*). The DQOs for the BRA and the OE investigation program identify similar inputs to the decisions used to help answer questions regarding historical site use and to define the boundaries of the area of use. The DQOs for the OE investigation program site reconnaissance identify various inputs to the decision such as compilation of historical information regarding potential OE at the site (e.g., the review of interview records, field notes, aerial photographs, and historic maps). The DQOs for the BRA historical review identified similar sources of information including the review of interview records, historical maps, and aerial photographs. As part of the DQOs for a site inspection conducted for the OE investigation program, documentation of the type and location of OE and OE scrap if found is recorded. As part of the DQOs for the BRA site reconnaissance the quantity, type and location of OE and OE scrap found is also recorded. Both programs include using the results of the site inspections to determine if additional work (i.e., sampling for OE and chemicals

associated with OE) is necessary. The Fort Ord BRA was conducted in accordance with the *Basewide Range Assessment Work Plan* (*IT Corporation [IT], 2001*).

3.59.6.3 Sampling Review

This section describes the results of the sampling associated with Site OE-5 that was conducted within Site OE-59A. The review includes a comparison of sampling locations relative to site boundaries, a review of the equipment used during sampling, a discussion of the sampling methods used, and the quality control measures used during the investigation.

Sampling Results (Items Found)

Sampling at Site OE-5 was conducted in 1994 by HFA. One hundred percent grid sampling (all anomalies detected were excavated) was conducted on seventeen 100- by 100-foot grids. Eight of the seventeen grids sampled were located within the boundary of Site OE-59A. No OE items were found during grid sampling within either Site OE-59A or adjacent Site OE-5. Two unfired 40mm cartridges were found on a road adjacent to, but outside of the site boundaries. On the basis of the sampling results, it does not appear that Site OE-59A was used as a training or impact area for 2.36-inch rockets or other projectiles.

Site Boundaries Review

No evidence of the firing of 2.36-inch rockets was found at Site OE-59A or adjacent Site OE-5. All grids were completed within the Site OE-59A and adjacent Site OE-5 boundaries established by the U.S. Army Corps of Engineers, Huntsville Division and documented in the ASR (*USAEDH, 1997*). Based on the results of sampling, no modification of the Site OE-59A boundary is necessary.

Equipment Review

HFA used the Schonstedt Models GA-52/C or the GA-72/Cv magnetometers to conduct the geophysical investigation of Site OE-5. These magnetometers are hand held and swung from side to side, generating a maximum search lane width of 5 feet. The Schonstedt instruments are passive dual flux-gate magnetometers -- highly sensitive magnetic locators that detect ferrous (iron) metal objects; however, they cannot detect non-ferrous metal objects (e.g., lead, brass, copper, aluminum). Magnetometers make passive measurements of the earth's natural magnetic field; ferrous metal objects (and rocks) are detected because they produce localized distortions (anomalies) in the magnetic field. The Schonstedt magnetometers actually detect slight differences in the magnetic field (the "gradient") by means of two sensors mounted a fixed distance apart within the instruments' staff. Because the magnetic response falls off (changes) greatly even over a short distance, gradient magnetometers like the Schonstedt GA-52/C or the GA-72/Cv are especially sensitive to smaller, near-surface ferro-metal objects *(Breiner, 1973)*.

The performance of both the Schonstedt GA-52/C and GA-72/Cv magnetometers were evaluated as part of the Ordnance Detection and Discrimination Study (ODDS; *Parsons Infrastructure & Technology Group, Inc. [Parsons], 2001*). As part of the ODDS, studies were performed to evaluate:

- Signatures of inert OE items suspended in air at varying orientations and distances from the geophysical sensor (static tests).

- The ability of various geophysical instruments to detect and discriminate between different OE items buried at various depths (seeded tests).

- Geophysical instrument performance at actual OE sites (field trial site testing).

The Schonstedt tools were not evaluated during the static tests; therefore, only the seeded test results and field trials are discussed herein. The ODDS study areas may not represent the same field conditions present at OE-59A; therefore, differences in field conditions, if applicable, should be considered when using information from the ODDS.

During the seeded test the Schonstedt Model GA-52/C located between 44 and 49 percent of the Type II items (2.36-inch rockets), which may have been used at the site. The Schonstedt model GA-72/Cv located between 41 and 51 percent of the Type II items. The items were buried at depths approaching item's maximum calculated penetration depth (up to 1.4 feet for the 2.36-inch rocket). The detection rate percentages presented in the ODDS vary according to the search radius used for the analysis (either 1.6 or 3.3 feet) and assume a 5-foot wide search lane (the search lane width used by HFA at Site OE-59A). A standard search radius for investigating anomalies was not specified in the OE contractor work plan or the after action reports; therefore, detection ranges for the different search radii are presented above. Results for the 3-foot wide search lane, also evaluated as part of the ODDS, were not included in the detection percentages presented above, because 3-foot wide search lanes were not used during the geophysical investigation of Site OE-59A.The seeded test detection rates discussed above are considered conservative because 1 foot was added to the item's calculated penetration depth to allow for soil deposition over time. Because the field conditions at the seeded test site and orientations of buried items may not be comparable to the Site OE-59A conditions, the results should be used to indicate that in general, the equipment is capable of detecting the same types of items at depths exceeding the items maximum calculated depth of penetration.

Results of the ODDS Field Trial Sites (FTS) were also reviewed for potential use in evaluating instrument performance at Site OE-59A. Detection rates for the Schonstedt magnetometers were calculated for 4 of the 6 test sites; the remaining sites did not have enough OE items detected to allow calculation of site statistics. The calculated detection rates for the combined sites ranged from 52 to 86 percent depending on the search radius used for the calculation. A standard search radius for investigating anomalies was not specified in the OE contractor work plan or the after action report; therefore detection ranges for the different search radii (1.6 and 3.3 feet) are presented above. It should be noted that the ODDS field trial sites were selected to represent areas with high ordnance density. In comparison, Track 1 sites are expected to have very low densities of OE scrap. Therefore, the field trial results may not be applicable to Track 1 sites.

Results of the ODDS field trials for the field test site closest in OE item density to Site OE-59A (FTS-3) were also reviewed. Five OE items were located during the investigation. No additional items were found during sifting of 10 percent of each grid (final Quality Control [QC] sampling). This indicates that it is unlikely that OE items would remain at FTS-3 within the grids sampled. Similar results could be expected at other sites, such as Site OE-59A, after survey and clearance using the Schonstedt magnetometers.

Although not directly comparable to Site OE-59A, the results of the ODDS indicate that all models of the Schonstedts used at this site are capable of detecting the ferrous surface and subsurface OE expected at this site. Small arms ammunition is non-ferrous and cannot be detected with a magnetometer.

Sampling Methods Discussion

One hundred percent grid sampling was conducted at this Site OE-5. This method requires that 100 percent of the anomalies detected in the sample grids be excavated. The Schonstedt GA-52/C or the

Schonstedt GA-72/Cv magnetometers were used to identify the anomalies. A maximum search lane width of 5 feet was used during the geophysical survey. According to the HFA work plan, survey grids were randomly located. Grids were generally to be 100- by 100-feet and separated by at least 200 feet. Each grid was given a 100 percent surface sweep and a 100 percent subsurface geophysical sweep using the Schonstedt GA-52/C or the Schonstedt GA-72/Cv. Surface contacts and anomalies were marked (flagged) for excavation and identification. Subsurface contacts were uncovered using hand tools to a maximum depth of 3 feet. No information was gathered on the types of non-OE scrap discovered during sampling or the depths at which the items were found. Accurate grid information is also not available in the HFA report.

Quality Assurance/Quality Control

The Quality Assurance/Quality Control (QA/QC) procedures are described below.

Field Sampling

Little specific information concerning operational procedures was documented in the HFA after action report (*HFA, 1994*). The following describes field procedures specified in the work plan and the after action report when documented.

According to the HFA work plan, equipment was inspected by the Senior UXO Supervisor (SUXOS) and Quality Control/Site Safety Officer (QC/SS) prior to placing it in service (*HFA, 1993*). Magnetometers were inspected and tested daily on a buried piece of inert ordnance to ensure that the magnetometers were operating within specification. The test source, a solid steel 81mm mortar (inert ordnance item), was buried at a depth of 4 feet. The magnetometers were tested before starting sampling operations in the morning and when operations resumed after lunch (*HFA, 1994*). Magnetometers that failed the inspection and test were determined to be in need of repair, and were to be removed immediately from service. Random checks were to be performed by the QC/SS and/or the SUXOS during daily operations. The QC/SS was to inspect all records bi-weekly to ensure that they were kept and maintained (*HFA, 1993*).

After surface and subsurface clearance of each site and prior to removal of grid markers, the QC/SS performed the standard minimum 10 percent QC check of each grid (*HFA, 1994*). If OE was discovered during the QC check, the grid was to be searched again to ensure that no other anomalies were present. Following the QC checks, the U.S. Army Corps of Engineers Huntsville Division (CEHND) Safety Specialist was to perform a 10 percent QA check of the site (sampled grids) prior to acceptance of the sample data.

According to the after action report, the project was completed without QC discrepancy. It was not possible to perform a check of the reported results and the field-generated grid sampling documentation, because they were not available.

Data Management

Parsons, the current OE contractor, performed a 100 percent QC review of the data associated with the site. This review followed the guidelines presented in the Standard Operating Procedures (SOPs) (Appendix A). This evaluation included a review of the available field documentation (for HFA copies of the Quality Control Logs and Daily Operations Journals). The USACE followed the QC review with a 10 percent QA review of the Parson's data review. The requirements of the QA review are described in the USACE SOP provided as Appendix B in this report. The purpose of the QC/QA review was to complete a 100 percent check of all contractor data to identify discrepancies. Discrepancies were then

researched and corrections made, if appropriate, prior to loading the date into the project database. No discrepancies between the after action report and the contractor data were identified for this site.

For this site, the following conclusions can be made regarding the quality of the data:

- The data collected by HFA were useful in identifying areas were OE is not likely present based on sampling
- Because no OE items were found, the absence of location and depth information does not impact data quality
- There appears to be poor survey control for the grid locations.

3.59.7 Conclusions and Recommendations

The following section presents conclusions and recommendations for this site based on the review and analysis of data associated with historical information and sampling performed at the site.

3.59.7.1 Conclusions

Site Use and Development

- Site OE-59A was identified through an interview conducted during the PA/SI, as the possible location of a 1940's era 2.36-inch rocket range. No evidence was found during the literature search or during the site reconnaissance, supporting the use of 2.36-inch rockets in this area. Additionally, no evidence supporting the use of high explosive projectiles or penetrating OE was found at this site. Expended pyrotechnics were found during the site reconnaissance conducted within area K10 (Site OE -59). The presence of expended pyrotechnics does indicate that military training was conducted in this general area.
- This area is proposed for future development.

Sampling and Reconnaissance Adequacy and Data Quality

Although site-specific sampling was not conducted at Site OE-59A, grids associated with Site OE-5 (immediately adjacent to Site OE-59A) were located within the boundary of Site OE-59A.

- The Schonstedt Models GA–52/C or the GA-72/Cv magnetometers were used for all geophysical surveys. These instruments were evaluated as part of the ODDS and are capable of detecting the type of items suspected at this site. A numerical value for detection of items cannot be calculated for an individual site.
- The sampling methodology used for Site OE-5 was 100 percent grid sampling. All detected anomalies are excavated using this method. Eight grids were sampled within the boundary of Site OE-59A.
- The sample data collected by HFA are useful because, although sampling was not performed to specifically investigate Site OE-59A, the data indicate that OE was not used within the portion of Site OE-59A sampled

- The magnetometers used by HFA were inspected daily. Random checks of the geophysical instruments were conducted by the QC/SS. A standard QC check (minimum 10%) of each grid sampled was performed by the QC/SS. Following the QC the USACE Safety Specialist performed a 10 percent QA check of the sampled grids.

- The data appear to have been collected and managed following guidelines in published work plans and SOPs.

- The site reconnaissance conducted at Site OE-59A for the ASR was conducted in accordance with USACE guidance.

- The data collected and observations made by the UXO Safety Specialist are useful because no evidence of the use of 2.36-inch rockets or impact areas from other OE was found. On the basis of the site reconnaissance and literature review performed for the ASR, no further OE-related investigation was recommended for Site OE-59 (which includes Site OE-59A).

- The BRA work conducted at Site OE-59A met the DQOs established for that program. Many of the DQOs from the BRA are the same DQOs that are currently in use for the OE investigation program

- The data collected and observations made by the BRA team conducting the reconnaissance at Site OE-59A are useful because no OE or OE scrap was found which further supports the conclusion that no further OE-related investigation is necessary at Site OE-59A.

- The data collected and observations made during the site walk at Site OE-59A are useful because two expended pyrotechnic signals (OE scrap) were the only OE items found, further supporting the conclusion that Site OE-59A was used for general training and was not an impact area.

- Although the previous OE sampling efforts performed at Site OE-59A were not specific to this site and are not consistent with requirements in place today, the quantity and quality of the available information in combination with the results of the site reconnaissance, is sufficient to make an informed decision regarding the site. The entire site was not sampled or walked, however, the sampling methods and site reconnaissance were sufficient to confirm that OE was not used at the site. Additionally, because OE was not used at Site OE-59A, further effort to refine the site boundaries or conduct 100 percent sampling of the site would not add significantly to the understanding of the site or change the conclusions of this report.

3.59.7.2 Recommendations

Based on the review of existing data:

- It is not anticipated that OE will be found at Site OE-59A and no further OE-related investigation is recommended. However, because OE was used throughout the history of Fort Ord, the potential for OE to be present at Site OE-59A cannot be ruled out.

- This site qualifies as a Track 1, Category 3 site because it was used for training. OE items that potentially remain pose an acceptable risk based on site-specific evaluations conducted in the RI/FS.

Upon approval of the proposed remedy (no further OE-related investigation), Site OE-59A will be incorporated into the basewide OE RI/FS 5-year review schedule. The purpose of the "5-year review" is to determine whether the remedy at Site OE-59A continues to be protective of human health and the

environment. The 5-year review will also document any newly identified site-related data or issues identified during the review, and will identify recommendations to address them as appropriate.

3.59.8 References

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TABLES

Table 59A-1. Sampling Operations, Site OE-5
Track 1 Ordnance and Explosives Remedial Investigation/Feasibility Study
Former Fort Ord, California

Site	Grid ID	Operation Type	Contractor	Geophysical Instrument Used	Grid Completion Date
OE-05 -- South of East Garrison	C4H3J0-01	Sampling	HFA	SCHONSTEDT GA-72CV or GA-52C	Not available
OE-05 -- South of East Garrison	C4I4A2-01	Sampling	HFA	SCHONSTEDT GA-72CV or GA-52C	Not available
OE-05 -- South of East Garrison	C4I4B4-01	Sampling	HFA	SCHONSTEDT GA-72CV or GA-52C	Not available
OE-05 -- South of East Garrison	C4I4B5-01	Sampling	HFA	SCHONSTEDT GA-72CV or GA-52C	Not available
OE-05 -- South of East Garrison	C4I4B8-01	Sampling	HFA	SCHONSTEDT GA-72CV or GA-52C	Not available
OE-05 -- South of East Garrison	C4I5C1-01	Sampling	HFA	SCHONSTEDT GA-72CV or GA-52C	Not available
OE-05 -- South of East Garrison	C4I5C4-01	Sampling	HFA	SCHONSTEDT GA-72CV or GA-52C	Not available
OE-05 -- South of East Garrison	C4I5C7-01	Sampling	HFA	SCHONSTEDT GA-72CV or GA-52C	Not available

Sampling = 100 percent of anomalies detected were excavated to a minimum depth of 4 feet.
Deeper anomalies were investigated if directed by the USACE.
HFA = Human Factors Applications, Inc.

Note: A field with the annotation "not available" is a null field in the OE database.
Only those Site OE-5 grids that lie within Site OE-59A are presented on this table.

PLATES

Disclaimer

The following plates have been prepared to present pertinent features digitized from historical training maps and scanned aerial photographs. It should be noted that minor discrepancies between source maps, combined with the natural degradation of older source maps and photographs, has resulted in misalignment of some map features. In addition, camera angle and lens distortion introduced into older aerial photographs, combined with changes in vegetation and site features over time may contribute to misalignments of some map features with respect to the aerial photographs.

ATTACHMENT 59-A

ATTACHMENT 59A-A
EVALUATION OF PREVIOUS WORK: SITE OE-59A
EVALUATION CHECKLIST PART 1: LITERATURE REVIEW

	Yes	No	Inconclusive

TYPE OF TRAINING AND OE EXPECTED

1. ***Is there evidence that the site was used as an impact area (i.e., fired OE such as mortars, projectiles, rifle grenades or other launched ordnance)?***		No	

Sources reviewed and comments
This site was identified based on an interview conducted as part of the archives search and was reportedly used as 2.36-inch rocket range. Historically this area was used for a number of training activities including bayonet training (Circa 1954 map) and tank driving (Army, 1956). Site OE-59A lies downrange and adjacent to several small arms ammunition ranges that were active from at least the 1940s through base closure. These ranges included a Known Distance (KD) Range, a Light Machine Gun Range, pistol ranges and small bore rifle range (Army, 1940, 1956, 1958, 1964, 1987). None of the targets associated with the small arms ranges was located within Site OE-59A. The site was included within a larger area that was assigned to the 759th Tank Battalion in 1954 and 1956 (Army, 1956). Area also assigned to the 4th Brigade beginning in the late 1950s and continuing until the early 1970s (Army, 1958, 1961, 1967, and 1972). No specific training facilities identified within Site OE-59A after the mid- The 4th Brigade conducted combat support training including administration, food service, supply, communications, mechanic's, and light wheel vehicle driving.

2. ***Is there historical evidence that training involved use of High Explosive (HE) or Low Explosive (LE) items?***		No	

Sources reviewed and comments
Revised Archives Search Report (ASR), USAEDH 1997; Review of Fort Ord facilities and training maps, After Action Report - HFA, 1994. Historical information indicates use as above.

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?***	Yes		

Sources reviewed and comments
According to the Archives Search Report (ASR) expended pyrotechnics found were found. Review of Fort Ord facilities and training maps and the ASR.

ATTACHMENT 59A-A
EVALUATION OF PREVIOUS WORK: SITE OE-59A
EVALUATION CHECKLIST PART 1: LITERATURE REVIEW

	Yes	No	Inconclusive

DEVELOPMENT AND USE OF THE SURROUNDING AREA

4. ***Does subsequent development or use of the area indicate that OE would have been used at the site?***		No	

Sources reviewed and comments
No evidence to indicate OE use, however, no documented development or use of this area has occurred.

5. ***Does use of area surrounding the site indicate that OE would have been used at the site?***		No	

Sources reviewed and comments
Area is bordered by training areas to the west and south and two older ranges (light machine gun and KD) to the east and west. No evidence of OE use at the two ranges was noted during recent site walks. Site OE-59 (K10) was reportedly used as a 2.36-inch rocket range (ASR). Two pieces of 60mm mortar frag were found at the western most edge of OE-59 during site walk of K10 by the Corps UXO Safety Specialist. Site walks conducted by Corps UXO Safety Specialist of nearby areas K11 and AL identified expended pyrotechnics and small arms blanks (RAC sheets for areas K10, K11 and AL and the ASR).

ESTABLISHMENT OF SITE BOUNDARIES

6. ***Is there evidence of training areas on aerial photographs that could be used to establish***		No	

Sources reviewed and comments
No evidence of a range or training area in the aerial photographs.

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

Sources reviewed and comments
No boundaries are present on the training maps.

8. ***Should current boundaries be revised?***		No	

Sources reviewed and comments
Based on the literature review there is no reason to modify the site boundary.

ATTACHMENT 59A-A
EVALUATION OF PREVIOUS WORK: SITE OE-59A
EVALUATION CHECKLIST PART 1: LITERATURE REVIEW

	Yes	No	Inconclusive
Does the literature review provide sufficient evidence to warrant further investigation?		No	

SUMMARY OF LITERATURE EVALUATION

Comments

No evidence was found during the literature search to warrant additional evaluation of Site OE-59A. Historically the location is situated down range/surrounded by small arms ranges. The ASR recommended further site investigation and random sampling because of the presence of 60mm mortar fragments on the east side of Site OE-59.

References

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ATTACHMENT 59A-A
EVALUATION OF PREVIOUS WORK: SITE OE-59A
EVALUATION CHECKLIST PART 2: RECONNAISSANCE EVALUATION

	Yes	No	Inconclusive
1. ***Is there evidence that the site was used as an impact area (i.e., fired OE such as mortars, projectiles, rifle grenades or other launched ordnance)***		No	

Sources reviewed and comments
No evidence of an impact area was observed within Site OE-59A during the USACE site reconnaissance or the Basewide Range Assessment (BRA) (USAEDH, 1997).

2. ***Is there evidence that training involved use of High Explosive (HE) or Low Explosive (LE) items?***		No	

Sources reviewed and comments
No evidence of high or low explosive items were observed within Site OE-59A during the USACE site reconnaissance or the Basewide Range Assessment (BRA) (USAEDH, 1997).

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

Sources reviewed and comments
Expended pyrotechnics were found during the site walk conducted by the in November 2003 (Appendix C).

4. ***Does subsequent development or use of the area indicate potential that OE would have been used at the site?***			Inconclusive

Sources reviewed and comments
No development of this site has occurred.

5. ***Does use of area surrounding the site indicate that OE would have been used at the site?***		No	

Sources reviewed and comments
No indication that use in the surrounding areas would impact Site OE-59A.

ATTACHMENT 59A-A
EVALUATION OF PREVIOUS WORK: SITE OE-59A
EVALUATION CHECKLIST PART 2: RECONNAISSANCE EVALUATION

	Yes	No	Inconclusive
6. *Is there evidence of training areas on aerial photographs that could be used to establish site boundaries?*		No	

Sources reviewed and comments
No clear indication of a defined training area. No structures or permanent features were observed (3/13/69; 12/17/75; 6/16/78; 3/25/86; 11/4/88; 10/4/89).

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

Sources reviewed and comments
This area was identified during interviews conducted during in the Archives Search and not based on training maps.

8. *Was sampling and/or reconnaissance performed within appropriate area?*	Yes		

Sources reviewed and comments
No site specific sampling of Site OE-59A, however, sampling of Site OE-5 to the north included sampling the northern portion of Site OE-59A. Reconnaissance was conducted throughout Site OE-59A.

9. *Does reconnaissance indicate OE and/or ordnance-related scrap are present at the site?*	Yes		

Sources reviewed and comments
Expended pyrotechnics were found during the site walk conducted by the in November 2003 (Appendix C). Also, expended pyrotechnics reportedly found during reconnaissance, however the specific location of where the expended items were found was not specified (RAC sheet for area K10).

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

Sources reviewed and comments
Specific training identified for this site was bayonet, tank driving and division support services (DSS) training associated with the 4th Brigade. It is possible that pyrotechnic items were employed during these training activities.

ATTACHMENT 59A-A
EVALUATION OF PREVIOUS WORK: SITE OE-59A
EVALUATION CHECKLIST PART 2: RECONNAISSANCE EVALUATION

	Yes	No	Inconclusive
11. *Were the type(s) of items found consistent with the era(s) in which training was identified?*	Yes		

Sources reviewed and comments
The model of pyrotechnics found were in use when training occurred at this site.

12. *Was HE fragmentation found?*		No	

Sources reviewed and comments

No HE found during reconnaissance (RAC sheet for area K10 [Site OE-59 and OE-59A], site recon conducted for Basewide Range Assessment, and 2003 site walk [Appendix C]).

13. *Was HE found?*		No	

Sources reviewed and comments
No LE found during reconnaissance (RAC sheet for area K10 [Site OE-59 and OE-59A], site recon conducted for Basewide Range Assessment, and 2003 site walk [Appendix C]).

14. *Was LE found?*		No	

Sources reviewed and comments
No LE found (RAC sheet for area K10, Sites OE-59 & OE-59A, site recon conducted for Basewide Range Assessment, and 2003 site walk [Appendix C]).

15. *Were pyrotechnics found?*		No	

Sources reviewed and comments
Only expended pyrotechnics reportedly found during DTSC site walk and reconnaissance.

16. *Were smoke producing items found?*		No	

Sources reviewed and comments
No smoke producing items were found (RAC sheet for area K10, Sites OE-59 & OE-59A and site recon conducted for Basewide Range Assessment).

ATTACHMENT 59A-A
EVALUATION OF PREVIOUS WORK: SITE OE-59A
EVALUATION CHECKLIST PART 2: RECONNAISSANCE EVALUATION

	Yes	No	Inconclusive
17. *Were explosive items found (e.g. rocket motors with explosive components, fuzes with explosive components)?*		No	

Sources reviewed and comments
No explosive items were found (RAC sheet for area K10, Sites OE-59 & OE-59A, and site recon conducted for Basewide Range Assessment).

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

Sources reviewed and comments

Expended pyrotechnics were found during the 2003 site walk.

19. *Were items found in a localized area (possibly the remnants of a cleanup action)?*		No	

Sources reviewed and comments
(RAC sheet for area K10, Sites OE-59 & OE-59A, and site recon conducted for Basewide Range Assessment).

20. *Is it appropriate to divide the site into sectors to focus on areas of common usage, similar topography and vegetation, and/or unique site features?*		No	

Sources reviewed and comments
No indication that the site should be divided.

21. *Should site boundaries be revised?*		No	

Sources reviewed and comments
No indication that the boundaries should be revised on the basis of the reconnaissance evaluation.

ATTACHMENT 59A-A
EVALUATION OF PREVIOUS WORK: SITE OE-59A
EVALUATION CHECKLIST PART 2: RECONNAISSANCE EVALUATION

	Yes	No	Inconclusive
22. *Has the field data been collected and managed in accordance with quality control standards established for the project?*	Yes		

Sources reviewed and comments
Data collected for the Basewide Range Assessment (BRA) was managed in accordance the DQOs established in the Basewide Range Assessment Work Plan (IT, 2001). The site reconnaissance conducted as part of the PA/SI was performed in accordance with USACE.

Result of Reconnaissance Evaluation

Does the reconnaissance evaluation provide sufficient evidence to warrant further investigation?		No	

Comments
No reason to conduct further OE-related investigation based on the RAC evaluation and site reconnaissance conducted under the BRA.

References
USAEDH, 1997. Revised Archives Search Report, Former Fort Ord, California, Monterey County, California. Prepared by US Army Corps of Engineers St. Louis District.
_____, 1996. Risk Assessment Procedures For Ordnance And Explosive Waste (OEW) Sites (RAC Sheet), Site T. January 18.
US Army Corps of Engineers, 1995. Procedures For Conducting Preliminary Assessments At Potential Ordnance Response Sites. ETL 1110-1-165, April.
IT Corporation (IT), 2001. Basewide Range Assessment Work Plan And Contractor Quality Control Plan Small Arms And Multi-Use Ranges Fort Ord, California. Revision C. January.

ATTACHMENT 59A-A
EVALUATION OF PREVIOUS WORK: SITE OE-59A
EVALUATION CHECKLIST PART 3: SAMPLING EVALUATION

SAMPLING RESULTS (ITEMS FOUND)

	Yes	No	Inconclusive
1. ***Is there evidence that the site was used as an impact area (i.e., fired OE such as mortars, projectiles, rifle grenades and other launched ordnance)?***		No	

Sources reviewed and comments
No evidence found during sampling to indicate that this was an impact area (HFA, 1994a).

2. ***Is there evidence that training involved use of High Explosive (HE) or Low Explosive (LE) items?***		No	

Sources reviewed and comments
No evidence to suggest that HE or LE items were used in this area (HFA, 1994a).

3. ***Is there evidence that training involved use of pyrotechnic and/or smoke producing items (e.g., simulators, flares, smoke grenades) but not explosives?***		No	

Sources reviewed and comments
No sampling evidence to suggest that pyrotechnics were used at Site OE-59A (HFA, 1994a).

4. ***Was sampling and/or reconnaissance performed within the appropriate area?***	Yes		

Sources reviewed and comments
Site OE-59A was not specifically sampled, however several of the sample grids associated with Site OE-5 were placed within the northern portion of Site OE-59A. Reconnaissance was conducted within the boundary of Site OE-59A (HFA, 1994a, USAEDH, 1997).

5. ***Does sampling indicate OE and/or ordnance-related scrap are present at the site?***		No	

Sources reviewed and comments
No UXO or ordnance scrap was found within the sample grids in Site OE-59A (HFA, 1994a).

ATTACHMENT 59A-A
EVALUATION OF PREVIOUS WORK: SITE OE-59A
EVALUATION CHECKLIST PART 3: SAMPLING EVALUATION

	Yes	No	Inconclusive
6. ***Were the type(s) of items found consistent with the type of training identified for the site?***			Not Applicable

Sources reviewed and comments
Not applicable, nothing found during sampling (HFA, 1994a).

7. ***Were the type(s) of items found consistent with the era(s) in which training was identified?***			Not Applicable

Sources reviewed and comments
Not applicable, nothing found during sampling (HFA, 1994a).

8. ***Was HE fragmentation found?***		No	

Sources reviewed and comments
After Action Report - HFA, 1994a

9. ***Was HE found?***		No	

Sources reviewed and comments
After Action Report - HFA, 1994a

10. ***Were LE found?***		No	

Sources reviewed and comments
After Action Report - HFA, 1994a

11. ***Were pyrotechnics found?***		No	

Sources reviewed and comments
After Action Report - HFA, 1994a

12. ***Were smoke producing items found?***		No	

Sources reviewed and comments
After Action Report - HFA, 1994a

13. ***Were explosive items found (e.g. rocket motors with explosive components, fuzes with explosive components)?***		No	

Sources reviewed and comments
After Action Report - HFA, 1994a

ATTACHMENT 59A-A
EVALUATION OF PREVIOUS WORK: SITE OE-59A
EVALUATION CHECKLIST PART 3: SAMPLING EVALUATION

	Yes	No	Inconclusive
14. ***Do items found in the area indicate training would have included use of training items with energetic components?***		No	

Sources reviewed and comments
After Action Report - HFA, 1994a

SITE BOUNDARIES REVIEW

15. ***Were items found in a localized area (possibly the remnants of a cleanup action)?***			Not Applicable

Sources reviewed and comments
Not applicable, nothing found during sampling (HFA, 1994a).

16. ***Has the site been divided into sectors to focus on areas of common usage, similar topography and vegetation, and/other unique site features?***			Not Applicable

Sources reviewed and comments
Site OE-59A not specifically sampled.

17. ***Should current site boundaries be revised?***		No	

Sources reviewed and comments
Based on the sample results, no change of the site boundaries is warranted.

EQUIPMENT REVIEW

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

Sources reviewed and comments
Grids were sampled to a depth of 3 feet. The Schonstedt equipment used at this site was tested each day for the ability to detect a 2.36-inch rocket at a depth of 3 feet. The maximum calculated depth of penetration for a high explosive 2.36-inch rocket in sandy soil is 0.4 feet (USAESCH, 1997).

ATTACHMENT 59A-A
EVALUATION OF PREVIOUS WORK: SITE OE-59A
EVALUATION CHECKLIST PART 3: SAMPLING EVALUATION

	Yes	No	Inconclusive
19. ***Was equipment used capable of detecting the types of items (e.g., non-ferrous) suspected at the site?***	Yes		

Sources reviewed and comments
Schonstedt models GA-52/C and GA-72/Cv (HFA, 1994a; USA, 2000). These instruments are capable of detecting ferrous items only. Non-ferrous items other than small arms ammunition are not expected at this site.

	Yes	No	Inconclusive
20. ***Do the results of the ODDS indicate that items suspected at the site would have been detected by the instrument used at the time of investigation?***	Yes		

Sources reviewed and comments
2.36-inch rocket listed as a Type II item in the ODDS (Parsons, 2001). Instruments listed in the after action report are the Schonstedt GA-52/C. The results of the ODDS Study indicate that the magnetometers used at this site are capable of detecting the ferrous OE expected at this site.

	Yes	No	Inconclusive
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?***	Yes		

Sources reviewed and comments
that Type II items could be located by the equipment in use at the site. The Schonstedt equipment used was tested each day for the ability to detect a 2.36-inch rocket at a depth of 3 feet.

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

Sources reviewed and comments
As stated in the After Action report, "Each magnetometer was tested each morning and field tested after lunch to determine that it was operating correctly" (HFA, 1994a).

ATTACHMENT 59A-A
EVALUATION OF PREVIOUS WORK: SITE OE-59A
EVALUATION CHECKLIST PART 3: SAMPLING EVALUATION

	Yes	No	Inconclusive

SAMPLING METHODS REVIEW

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

		Inconclusive

Sources reviewed and comments
No OE was detected, therefore a UXO density cannot be calculated. Historical information does not indicate the use of OE other than possibly small arms at this site.

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

		Inconclusive

Sources reviewed and comments
80,000 square feet (approximately 1.8 acres) sampled within Site OE-59A by HFA based on 8 100x100-foot grids (HFA, 1994a). UXO density was not calculated because no UXO was found at the site.

Total Area: 80,000 sq ft	
UXO Density:	Not Calculated

25. ***What percentage of the anomalies were intrusively investigated?***

Sources reviewed and comments
HFA: 100% sampled. Field records documenting the number of anomalies encountered are not available for review.

Total % of anomalies investigated:	HFA: 100%

26. ***Was the appropriate data processing scheme used for the site, how was the data processed?***

		Not Applicable

Sources reviewed and comments
Not applicable, no digital geophysical data was collected.

ATTACHMENT 59A-A
EVALUATION OF PREVIOUS WORK: SITE OE-59A
EVALUATION CHECKLIST PART 3: SAMPLING EVALUATION

	Yes	No	Inconclusive

QUALITY ASSURANCE/QUALITY CONTROL

27. *Has the field data been collected and managed in accordance with quality control standards established for the project?*	Yes		

Sources reviewed and comments
"The project was completed without QC discrepancy," (HFA, 1994a)
Field data are not available for review.

REVIEW OF SAMPLING EVALUATION RESULTS

Does the sampling evaluation provide sufficient evidence to warrant further investigation?		No	

Comments
The results of the sampling evaluation indicate that the data are usable. No OE was identified during sampling. Based on the results of the sampling and review of the literature, no further evaluation is warranted.

References
USAEDH, 1997. Revised Archives Search Report, Former Fort Ord, California, Monterey County, California. Prepared by US Army Corps of Engineers St. Louis District.
Human Factors Applications (HFA), Inc.1994a. Explosive Ordnance Disposal Division, OEW Sampling And OEW Removal Action, FT. ORD FINAL REPORT. December 1. HLA# 62040
HFA, 1994b. Human Factors Applications, Inc. Explosive Ordnance Disposal Division, OEW Site Operations Fort Ord-Phase III Work Plan and Site Specific safety and Health Plan. February 22.
USAESCH, 1997. Penetration of Projectiles Into Earth, An Analysis of UXO Clearance Depths at Ft. Ord. September 10. Appendix F of the Phase 2 EE/CA.
USA Environmental, Inc., (USA) 2000. Ordnance Detection And Discrimination Study, Seeded Test Technical Memorandum, Former Fort Ord, California, Presidio of Monterey, California. In Cooperation with US Army Corps of Engineers Sacramento District and Parsons Engineering Science, Inc. October 23.