

Site OE-27X

Training Site 24

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SITE OE-27X – TRAINING SITE 24

3.27X Site OE-27X (Training Site 24)

This summary report consists of two parts. The first part, contained in Sections 3.27X.1 through 3.27X.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 3.27X.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 3.27X.6.1) and the evaluation of sampling process(es) (Section 3.27X.6.2). These discussions are based upon standardized literature and sampling review checklists (Attachment 27X-A1). Section 3.27X.7 provides conclusions and recommendations for the site. References are provided in Section 3.27X.8.

3.27X.1 Site Description

Site OE-27X encompasses 79.5 acres of undeveloped open space in the southeastern portion of the former Fort Ord (Plate 27X-1). The site was identified through a review of Fort Ord historic records completed for the Fort Ord Archive Search Report (ASR; *U.S. Army Engineer Division, Huntsville [USAEDH], 1997*).

3.27X.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.

1940s Era

Site OE-27X lies within a tract of land purchased from private landowners by the government in the 1940s (*Arthur D. Little, Inc. [ADL], 1994*). Review of 1940s era documentation including historical maps and aerial photographs indicates no specific training areas were used in the area. More specific data are provided below:

- On the 1945 and 1946 training maps, the site area lies within the larger general training area “C-2” (*U.S. Army [Army], 1945a and 1946*).
- No specific training areas are visible on a 1945 aerial photograph (*Army, 1945b*).

1950s Era

Review of 1950s documentation including Fort Ord training maps, historical maps, and aerial photographs indicates that the Oil Well Road Training Area and the Tank Gunnery Range existed just northwest of Site OE-27X. The location and direction of the Tank Gunnery Range fan, as depicted on the 1956, 1957, and 1958 training maps, indicates that firing would have been toward the northwest away from Site OE-27X. More specific data are provided below:

- On the 1954 and 1956 maps, the site is within the “Division Artillery’s” larger general training area (*Army, 1954 and 1956*).
- The boundary of the Oil Well Road Training Area, as depicted on a 1956 training map, partially overlies the northern corner of Site OE-27X (Plate 27X-2). It should be noted that there is some offset in the digitized features. This is a product of the attainable level of accuracy in registering and digitizing.
- On the 1957 and 1958 maps, the site is within the “1st brigade’s” larger general training area (*Army, 1957 and 1958*).

1960s Era

Review of 1960s training maps indicates that aviation training occurred in the area just northwest of Site OE-27X throughout the 1960s. The location of the aviation training area may have included a portion of Site OE-27X. The 1964 through 1972 maps show Site OE-27X within the larger general training area “R (G-3).” More specific data are provided below:

- On the 1964 map, an “Aviation Training Area” is located just outside the northwest corner of the site (*Army, 1964*). According to the Fort Ord Range control officer present at Fort Ord from 1970 through 1990, training at the aviation training areas included the practice of helicopters landing and taking off as part of an evacuation scenario and did not involve the use of OE (*Stickler, 2003*).
- The 1967 map shows a “H” on the same area as the aviation training area depicted on the 1964 map (Plate 27X-2). The map legend identifies the letter “H” as “Helipads” (*Army, 1967*). Helipads were used for the purpose of emergency evacuations (*Army, 1980*).
- On the 1968 map, an “Aviation Training Area” is located just outside the northwest corner of the site (*U.S. Army Corps of Engineers [USACE], 1968*).

1970s Era

Review of Fort Ord training maps indicates that in the early 1970s the northwest portion of the site area was used for aviation and helicopter training. Training maps from 1976 through 1984 identify the site area as Training Site 24. On maps from 1976 through 1987, the site is within the subdivided N (1st brigade) 4 training area. More specific data are provided below:

- On the 1972 training ranges map, an “H (Helipad)” is located on the northwest corner of the site (*USACE, 1972*).
- On aerial photographs from 1969, 1975, and 1978, no evidence is seen of cleared or disturbed areas in the site vicinity.

- Site OE-27X first appears as “Training Site (TS) 24” (Plate 27X-2) on the 1976 Training Facilities Plan map (USACE, 1976). A SOP (Standard Operating Procedures) indicates that each training site included an overnight bivouac area and a training facility (Army, 1980).
- A Noise Buffer Zone (No Firing of Blank Ammo: Pyrotechnics Explosives or Simulators) was established on the southeast side of Fort Ord by January 1978 (Army, 1978). The southern half of the site lies within the Noise Buffer Zone as seen on January 1978 through November 1987 Army maps.

1980s Era

Review of 1980s USACE training maps indicates that Training Site 24 was used as a medical training area. A SOP indicates that the site was used for medical training including trainees moving stretchers through an obstacle course.

- On the 1980 and 1984 training facilities maps, the site is identified as “TS 24” and as “EFMB” or Expert Field Medical Badge (USACE, 1980 and 1984).
- On the 1987 ranges and training map, no training area is identified in the site vicinity (Army, 1987).

Proposed Future Land Use

Site OE-27X lies on property that was transferred to the Bureau of Land Management (BLM) in 1996. Future use of this area will be habitat reserve (USACE, 1997).

3.27X.3 Potential Ordnance Based on Historical Use of the Area

No evidence has been found to suggest that Site OE-27X was used for anything other than a troop training and maneuver area and a bivouac area. Information gathered during site investigation activities indicates that blank small arms ammunition, and smoke-producing items were used at this site.

An expended colored smoke rifle grenade (M22 series) was found during sampling at Site OE-27X. The M22 series of rifle grenades were used for signaling and laying smoke screens. The grenades are fired from a rifle equipped with a grenade launcher and function on impact. At impact a firing pin strikes a primer producing a flame which ignites a starter mixture charge which intern ignites a smoke mixture charge (Army, 1977). Additional information on the M22 series of colored smoke rifle grenades is provided in Attachment 27X-A2.

3.27X.4 History of OE Investigations

The following describes the OE investigations that have been conducted at Site OE-27X.

1994 Archives Search Report (ASR) Supplement

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. Guidance for conducting archives searches did not exist prior to 1995. The 1993 ASR was completed based on the Scope of Work provided to the St. Louis Corps of Engineers by the Huntsville Corps of Engineers and on archive search reports completed at other military installations. 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 ASR are described in Section 2.0 of this report.

Site OE-27X was not identified in the 1993 ASR, but was one of 25 training sites identified in a 1994 supplement to the ASR. The ASR Supplement identified 25 training sites at Fort Ord from a 1984 training facilities map (*USAEDH, 1994*). One of the 25 training sites, Training Site 17 (OE-27Q), was chosen at random to survey for the presence of OE. Blank casings, grenade safety levers, and a grenade fuze (M201A1) were identified. Based on this review, further investigation was recommended for each of the 25 training sites (including OE-27X) identified during the archives search process (*USAEDH, 1994*).

UXB International (UXB) Investigation

Sampling of Site OE-27X was conducted in 1995 by UXB International, Inc. (UXB), using site boundaries provided by the U.S. Army Corps of Engineers, Huntsville Division (Plate 27X-2). The UXB sampling methodology is discussed in Section 3.27X.6.2. Site OE-27X was subdivided into 100- by 100-foot grids and 40 grids were selected at random for 100 percent sampling. The grids were geophysically investigated along search lanes of a maximum 5-foot width using a Schonstedt Model GA-52/Cx magnetometer. All magnetic anomaly locations were excavated using hand tools by the UXB UXO Safety Specialist until an item was located, the magnetic anomaly signal was lost, or a depth of 4 feet was achieved. Four hundred and twenty-five items were removed, 424 of which were live, small arms blanks. One OE scrap item, an expended colored smoke rifle grenade (M22 Series) was found in Sample Grid 01A (Plate 27X-2). No information regarding the depth at which the smoke grenade was found, was provided in the UXB after action report. Information regarding the location of where the item was found within the grid was documented by UXB; however, the orientation of the grid (with respect to north and south) was not provided so the accuracy of the location of the item found is to the sample grid only. On the basis of the sampling results, no further OE response was recommended in the after action report (*UXB, 1995b*). A summary of the sampling operations conducted at Site OE-27X is provided in Table 27X-1. Contract requirements for the scope of work performed by UXB are discussed in greater detail in Section 2.0 of this report.

1997 Revised Archives Search Report

The revised ASR included a review of the sampling investigation conducted in 1995 by UXB. Based on the sampling results (no OE found), the 1997 revised ASR recommended no further OE-related investigation at Site OE-27X (*USAEDH, 1997*). The revised archives search was conducted in accordance with U.S. Army Corps of Engineers guidance (*USAESCH, 1995*).

3.27X.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-27X is based on currently available site-specific and general information including a literature review, review of aerial photographs, training maps, sampling results, field observations, and

technical manuals. It is provided to help evaluate the adequacy of the investigation completed to date and to identify potential release and exposure pathways. Plate 27X-3 presents a conceptual model of the site.

3.27X.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.

Bivouac Area

Bivouac areas at Fort Ord were used for overnight training and field exercise. Twenty-six bivouac areas had been established by 1980 and are documented in Fort Ord Regulation 350-5 (*Army, 1980*).

According to Fort Ord regulations in place during the time that Site OE-27X was active, use of the bivouac areas was closely monitored. The storage of ammunition was not allowed within 100 feet of a bivouac area. Normally, only blank cartridges, simulators, pyrotechnics, chemical smoke items, and smoke items were allowed to be stored near bivouac areas. However, field storage of sensitive items, demolition materials and small arms ammunition (other than blank) was permitted if clearance was obtained from the division ammunition officer (*Army, 1980*). Ammunition holding areas were to be individually fenced with triple concertina wire or comparable fencing. Depending on the quantity of ammunition stored, an armed guard may have been required to maintain access control. According to Fort Ord Regulation 350-5 “Strict accountability will be maintained so that items cannot be buried or discarded to avoid returning unspent ammunition.” To discourage the burial or discarding of unspent ammunition, ammunition was inventoried when checked out from the Ammo Supply Point (ASP), daily while stored in the field, and again upon turn in of the unused ammunition at the ASP.

Fort Ord range regulations required that units be checked into and out of all bivouac areas. Joint inspections of the bivouac areas were conducted by the unit representative and a representative of Range Control prior to releasing the bivouac area from unit responsibility. All tactical digging or holes were to be filled in and all wire removed. All garbage (wet or dry) was to be hauled to the sanitary landfill for disposal or placed within dumpsters in the Main Garrison if the landfill was closed.

Although it is unlikely (for the reasons stated above) that unspent ammunition authorized for use in the bivouac areas would have been buried at Site OE-27X, the possibility that burial did occur does exist. If the burial of spent ammunition occurred at Site OE-27X, these items would not present a hazard if encountered.

Maneuver Area

A maneuver area may have included using the site for squad patrols. Infantry platoons and squads conduct three types of patrols: reconnaissance, combat and tracking (*Army, 1992*). Each patrol includes specific objectives using infantry troops, sometimes with engineer support, to gather information or conduct combat operations. Combat patrols would include the use of blank small arms ammunition and possibly pyrotechnics (e.g., signals).

Aviation Training Area

According to the Fort Ord Range Control officer present at Fort Ord from 1970 through 1990, training at the aviation training areas included helicopters landing and taking off as part of a practice emergency evacuation scenario (*Stickler, 2003*). He also stated that the use of OE was not a part of this training. The former Range Control officer also noted that Range Control was responsible for the scheduling and the

inspection of these training areas prior to checkout of the unit using the area. No conceptual site model is provided for this training activity because the use of OE at this training area is not expected.

3.27X.5.2 Site Features

This site is located in the southeastern portion of Fort Ord in an area of rolling hills dominated by grassland with some oak woodland. No site-specific features are visible on aerial photographs or identified on training maps. The types of training that occurred at the site have been described above. Historical information indicates the area was used as a bivouac and for general training and maneuvers during the 1940s and 1950s, and then as an aviation training area in the 1960s and 1970s. During the 1980s the site was used as a medical training area and as an overnight bivouac area.

A noise buffer zone was established on the southeast side of Fort Ord by January 1976. The southern half of Site OE-27X is included in the Noise Buffer Zone. Within the buffer zone “No Firing of Blank Ammo: Pyrotechnics, Explosives or Simulators” was allowed. Site OE-27X continued to be used for medical maneuver training through November 1987.

3.27X.5.3 Potential Sources and Location of OE

Based on review of historical data, the types of OE expected at this site would be pyrotechnic items including smoke-producing items (e.g., signals and flares). An expended (OE scrap) colored smoke rifle grenade (M22 Series) was found during sampling at Site OE-27X. The M22 Series of rifle grenades were used for signaling and laying smoke screens. Pyrotechnics by design are non-penetrating items and if present at this site as the result of designed use, would typically be found on or near the ground surface. There is a remote possibility that OE may have been buried at Site OE-27X. Although unlikely, if this activity occurred the items buried would be located within 3 feet of the ground surface.

3.27X.5.4 Potential Exposure Routes

Site OE-27X is in an undeveloped area in the southeastern portion of the former Fort Ord. This site is within land transferred to the Bureau of Land Management (BLM) and is open to the public for hiking, biking, and horseback riding. Use is restricted to marked trails. The public has had access to this area for approximately 6 years. To date, no instances of OE items being found by the public in this area have been reported. The results of the literature review and sampling do not indicate that direct fire or high trajectory weapons (e.g., shoulder fired or mortars) were used at this site. Because no OE were discovered during sampling or reported previously, OE is not expected in this area. However, because the site was not 100 percent investigated and OE scrap was found during sampling the possibility exists that a recreational user could come into contact with surface OE such as pyrotechnic signals.

Although no OE items were found at Site OE-27X a brief discussion of the potential injuries that could result from contact with live smoke grenades is provided below. This item was selected for discussion, because a scrap M22 Series rifle fired smoke grenade was found during site sampling. It should be noted that for this item to cause an injury a live item would have to be found, and would have to function, both of which appear unlikely because no OE has been found at this site.

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 27X-A2.

Grenade, Rifle, Smoke, Colored: M22 and M22A2. The grenade, rifle, smoke M22 and M22A2 (green, red, violet, and yellow) was designed for signaling and laying smoke screens. The M22 and M22A2 consist of three basic parts: a steel stabilizer assembly, an integral fuze and a body. The fuze is a mechanical impact-igniting type. The body is filled with a burning-type smoke charge that contains a dye to color the smoke. The surfaces of the smoke charge within the body are coated with a starter mixture charge to facilitate ignition. A nose-closing plug covers a small opening or air hole in the nose of the ogive. After being fired from a rifle equipped with a grenade launcher, it was functioned by impact with the ground or other hard target, causing the firing pin to strike the primer (like a small arms primer), which ignites the starter mixture charge, and in-turn starts the smoke charge to burn. The smoke charge, consisting of baking soda, potassium perchlorate, sugar, and dye, burns for approximately 60 seconds (Navy, 1982). These would be very difficult to cause to function by incidental contact. They would have to be thrown against a hard surface, hard enough for the firing pin to overcome the anti-creep spring and strike the primer. If caused to function, the type of injuries that could be sustained would be burns from the burning smoke charge.

Summary: It is unlikely that a person could cause a smoke grenade to function through casual contact if one were found at the site and be burned, because the grenade: (1) was designed to be functioned by a hard nose-on impact with the ground or other hard target, and (2) would have been exposed to moisture, degradation, and weathering for at least 10 years, which could decrease the effectiveness of the components that cause it to function.

3.27X.6 Site Evaluation

The available data (e.g., archival and reconnaissance data) regarding Site OE-27X 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 checklists are provided as Attachment 27X-A1. This section presents a summary of the results of the checklist evaluations. It is divided into two sections, an assessment of the literature review and an assessment of the sampling performed at the site.

3.27X.6.1 Literature Review

Type of Training and OE Expected

As discussed above (Section 3.27X.2), the 1950s training maps indicate that the Oil Well Road Training Area and a Tank Gunnery Range existed just northwest of Site OE-27X. The 1964 through 1972 maps show helipads and aviation training areas along the northwestern site boundary. The USACE training maps from 1976 through 1984 delineate the site area as Training Site 24. A SOP indicates that all training sites included a training facility and were used as overnight training areas. The 1980 and 1984 training maps indicate that Training Site 24 was used as an EFMB area.

No evidence indicating the site was used as an impact area was discovered during the literature search. Training maps indicate that firing from the Tank Gunnery Range (Sites OE-32A, B, and C) would have been directed toward the northwest, away from Site OE-27X. It is possible that pyrotechnic items could have been used during aviation training.

Development and Subsequent Use

Site OE-27X remains undeveloped; therefore, no evidence as to potential OE use can be ascertained related to subsequent use of the area. Use of Sites OE-32A, B, and C to the north as a Tank Gunnery

Range in the 1940s and 1950s suggests the possibility of OE nearby; however, no evidence of OE associated with the firing of tanks or tank weapons has been found (*UXB, 1995*).

Establishment of Site Boundaries

Aerial photographs from the late 1960s and 1970s show a small cleared area visible at the northwest end of the site. No boundaries can be determined based on the aerial photographs. The Training Site 24 (OE-27X) boundary is defined in several training maps from 1976 through 1984. According to the USACE the training site footprints depicted on training facilities maps were assumed to be approximations of the limits of the training areas. The USACE initially delineated boundaries to approximate those areas. The training site boundaries were modified to their current configurations (1997 ASR) based on interview notes, field (site walk) notes, aerial photograph review, and input from the OE Safety Specialist and the OE contractor (*HLA, 1999*). It appears that the site boundary shown on the training maps is captured by the current Site OE-27X boundary provided in the Archives Search Report.

Summary of Literature Review Analysis

Based on the items found during sampling, Training Site 24 (OE-27X) does not appear to have been used for live firing of anything other than blank small arms ammunition and rifle grenades (smoke). Limited use of pyrotechnic items is also suspected based on use as an overnight bivouac area.

3.27X.6.2 Sampling Review

This section describes the results of the sampling conducted at the site relative to the interpretation of the site history and boundary. The review includes a comparison of sampling locations relative to site boundaries, review of the equipment used during sampling, discussion of the sampling methods used, and the quality control measures used during the investigation.

Sampling Results (Items Found)

Site OE-27X was sampled in 1995 by UXB. One OE scrap item (an expended M22 Series rifle smoke grenade) and four hundred and twenty-four live small arms blanks were found and removed (*UXB, 1995b*). There is no evidence to suggest that this site was used as an impact area. Smoke-producing items may have been used for training because an expended rifle smoke grenade was discovered at this site. There is no evidence to suggest that high explosive (HE) items were used for training at this site. The specific training that was done in this area is unknown; however, OE scrap found to date is consistent with other Fort Ord training sites and maneuver areas. A summary of the sample results for Site OE-27X is provided in Table 27X-2.

Site Boundaries Review

The UXB sample grids appear to be within the ASR site boundary (*UXB, 1995b*). A review of the sampling results indicates that the OE scrap and blank small arms rounds found were scattered throughout the site. The sampling results indicate that the site was included in a larger troop maneuver area. The sample results do not indicate that the site boundaries should be changed.

Equipment Review

UXB used the Schonstedt Model GA-52/Cx magnetometer to conduct the geophysical investigation of Site OE-27X. This magnetometer is 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, a gradient magnetometer like the Schonstedt GA-52/Cx is especially sensitive to smaller, near-surface ferro-metal objects (*Breiner, 1973*).

The performance of the GA-52/Cx was 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 test; therefore, only the seeded test results and the field trial tests are discussed herein. It is recognized that the ODDS study areas may not represent the same field conditions as Site OE-27X; therefore, differences in field conditions, if applicable, should be considered when using information from the ODDS.

The seeded test results indicate that a Schonstedt GA-52/Cx can locate between 64 and 74 percent of the penetrating Type II items at their calculated penetration depth. 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. A standard search radius for investigating anomalies was not specified in the OE contractor work plan or the after action report; therefore the detection ranges for the different search radii are presented above. A search lane width of 5 feet was used by UXB during sampling at Site OE-27X. 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 search lanes were not used during the geophysical investigation of Site OE-27X. The seeded test used a M9 rifle grenade as a Type II item, but rifle grenade (smoke) items like the one found at Site OE-27X were not included in the seeded test. Accordingly, because rifle grenade (smoke) items were not evaluated for the ODDS, detection probabilities stated above should be used with caution. The seeded test results indicate that a Schonstedt GA-52/Cx can locate between 67 and 78 percent of the Type I (surface) items. Detection rates for both surface items and penetrating items (Type I and Type II) are considered conservative because an additional 1 foot was added to the items' 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-27X conditions, the results should be used to indicate that in general, the equipment is capable of detecting the same types of items.

Results of the ODDS field test trials were also reviewed for potential use in evaluating instrument performance at Site OE-27X. Detection rates for the Schonstedt GA-52/Cx were calculated for 4 of the 6 test sites; the remaining sites did not have enough OE detected to allow calculation of site statistics. The calculated detection rates for the combined sites ranged from 97 to 100 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 test trials for field test site FTS-3, which has an OE item density most like Site OE-27X, were also reviewed. Five OE items were located at FTS-3, and no additional OE items were found after sifting 10 percent of each grid (final Quality Control [QC] sampling). This result indicates it is unlikely that OE items would remain at FTS-3. Similar results could be expected at other sites (such as Site OE-27X) after survey and clearance using a Schonstedt GA-52/Cx.

Although not directly comparable to Site OE-27X, the results of the ODDS indicate that all models of Schonstedts used at this site are capable of detecting the ferrous surface and subsurface OE expected at this site. Blank ammunition is non-ferrous and cannot be detected with a magnetometer.

Sampling Methods Discussion

UXB sampled Site OE-27X in 1995. The U.S. Army Corps of Engineers, Huntsville Division, provided the site boundary. Site OE-27X was subdivided into 100- by 100-foot grids and 40 grids were selected at random for sampling (400,000 square feet). Once the sample grid locations were established each grid was divided into 5-foot wide search lanes. Each lane was investigated visually while simultaneously searching for subsurface anomalies using a Schonstedt Model GA-52/Cx magnetometer. All magnetic anomaly locations were marked (flagged) and then excavated using hand tools (100 percent sampling) until an item was located, the magnetic anomaly signal was lost, or to a maximum depth of 4 feet by the UXB UXO Safety Specialist. If the anomaly could not be uncovered within four feet of the surface the CEHND Safety Specialist determined if deeper excavation was required.

Quality Assurance/Quality Control

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

Field Sampling

UXB conducted sampling at Site OE-27Y from January 19, 1995 through February 5, 1995. QA/QC was performed by UXB throughout field sampling effort and is documented in the Site OE-32B Final Primary Report and the Final After Action Report (*UXB, 1995a and 1995b*). According to the reports, to insure that OE sampling was done properly, QC checks were performed by UXB QC specialists on each sample grid. QC checks were performed on 10 percent of each grid after all OE operations were complete. Site OE-27X was investigated with forty 100- by 100-foot grids spaced no closer than 200 feet apart to maximize dispersion of the sampling effort and meet the requirement to cover at least 10 percent of the site. Following the completion of QC checks, the U.S. Army Corps of Engineers Huntsville Division (CEHND) Safety Specialist then performed a QA check of the site (sampled grids) using the Mark 26 Forester magnetometer, prior to accepting it (*UXB, 1995b*).

Magnetometers were inspected and tested daily to ensure that the magnetometers were operating within specification. A seeded test area was established by burying an inert (OE scrap) item (81mm mortar) at a depth of 4 feet. On December 20, 1994 two additional inert OE items (2.36-inch rocket and 105mm projectile) were also buried at a depth of 4 feet at the seeded test area. This area was used by teams to

check their magnetometer and by the QC officer to randomly QC teams on their procedures (*UXB, 1995a*).

Data Management

Parsons, the current OE contractor, performed a 100 percent QC review of the OE investigation data for Site OE-27X. Parson's review followed the guidelines presented in the Standard Operating Procedures (Appendix A, *Parsons, 2001*). The evaluation included a review of the field grid records (if available), and the database created by the OE contractor (UXB). After this QC check the USACE performed a 10 percent QA review of the Parsons data review. The requirements of the QA review are described in the USACE SOP provided as Attachment B of this report. The purpose of the QA/QC review was to complete a 100 percent check of all available grid records to identify discrepancies between the after action reports and grid records. Discrepancies were then researched and corrections made, if appropriate, prior to loading that data into the project database. No discrepancies between the after action report and the grid records were identified for this site.

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

- The data collected are useful in providing information concerning the type of OE items present and in identifying areas where OE is not likely at Site OE-27X.
- The location of any items found was reported within an accuracy of 5 feet, however, QC of the data indicates that the orientation of the grid in relationship to north and south was not documented resulting in a location accuracy that is to the grid only
- Depth information was not reported by UXB
- No discrepancies between the after action report and grid records were identified.

3.27X.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 as summarized above.

3.27X.7.1 Conclusions

Site Use

- Based on the review of Fort Ord training maps, Site OE-27X was used as a troop training and maneuver area from the 1950s through the 1970s.
- The site was used as an overnight bivouac area and a medical training area in the 1980s.
- This site is within land that is under the jurisdiction of the BLM and is to be maintained as habitat reserve. Since the reuse of the property that includes Site OE-27X will continue as habitat reserve, the chance encounter of OE by the public is not likely.

Sampling Adequacy and Data Quality

- The Schonstedt Model GA-52/Cx was used for all geophysical surveys. The instrument was evaluated as part of the ODDS and is capable of detecting many of the metallic OE items expected at this site. It cannot, however, detect non-ferrous metal items (e.g., small arms ammunition consisting primarily of brass and lead). A numerical value for detection of items cannot be calculated for an individual site.
- Sampling and evaluation of previous work followed published work plans and SOPs.
- The data collected by UXB are useful in providing information concerning the type of items present at Site OE-27X. The presence of the expended smoke grenade and blank ammunition is consistent with the types of items authorized for use in a bivouac area. The orientation of the sample grids (with respect to north and south) were not provided so the accuracy of the location of any item found is to the sample grid only. Additionally, the depth at which the items were found was not recorded. However, all anomalies were excavated to a minimum depth of 4 feet.
- No burial pits were discovered during sampling. The sampling results, along with the strict rules prohibiting burials (discussed earlier), support the assertion that burial of OE items was not likely within a bivouac area.
- Based on historical use of the site, it is unlikely OE is present at the site. However, the following OE items, if present at the site, are considered to pose an acceptable risk if encountered for the following reasons:

Grenade, Rifle, Smoke, Colored: M22 and M22A2. It is unlikely that a person could cause a smoke grenade to function through casual contact if one were found at the site and be burned, because the grenade: (1) was designed to be functioned by a hard nose-on impact with the ground or other hard target, and (2) would have been exposed to moisture, degradation, and weathering for many years, which could decrease the effectiveness of the components that cause it to function.

- Although the previous OE sampling efforts performed at Site OE-27X are not consistent with requirements in place today, the quantity and quality of the available information is sufficient to make an informed decision regarding the site. The entire site was not sampled, however, the sampling methods were sufficient to confirm the types of OE items used. Additionally, because there was no OE found in previous investigations and the OE items potentially remaining at Site OE-27X pose an acceptable risk if encountered, 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.

3.27X.7.2 Recommendations

Based on the review of existing data:

- It is not anticipated that OE will be found at Site OE-27X and no further OE-related investigation is recommended. However, because OE were used throughout the history of Fort Ord and because OE scrap was found during sampling, the potential for OE to remain at Site OE-27X 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-27X 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-27X 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.

3.27X.8 References

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TABLES

Table 27X-1. Sampling Operations, Site OE-27X
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-27X -- Training Site 24	OE-27X_(01 A)	Sampling	UXB	SCHONSTEDT GA-52CX	1/23/1995
OE-27X -- Training Site 24	OE-27X_(01 D)	Sampling	UXB	SCHONSTEDT GA-52CX	1/23/1995
OE-27X -- Training Site 24	OE-27X_(01 G)	Sampling	UXB	SCHONSTEDT GA-52CX	1/23/1995
OE-27X -- Training Site 24	OE-27X_(01 J)	Sampling	UXB	SCHONSTEDT GA-52CX	1/26/1995
OE-27X -- Training Site 24	OE-27X_(01 M)	Sampling	UXB	SCHONSTEDT GA-52CX	1/27/1995
OE-27X -- Training Site 24	OE-27X_(04 C)	Sampling	UXB	SCHONSTEDT GA-52CX	1/23/1995
OE-27X -- Training Site 24	OE-27X_(04 F)	Sampling	UXB	SCHONSTEDT GA-52CX	1/26/1995
OE-27X -- Training Site 24	OE-27X_(04 I)	Sampling	UXB	SCHONSTEDT GA-52CX	1/26/1995
OE-27X -- Training Site 24	OE-27X_(04 L)	Sampling	UXB	SCHONSTEDT GA-52CX	1/27/1995
OE-27X -- Training Site 24	OE-27X_(04 O)	Sampling	UXB	SCHONSTEDT GA-52CX	1/27/1995
OE-27X -- Training Site 24	OE-27X_(07 A)	Sampling	UXB	SCHONSTEDT GA-52CX	1/26/1995
OE-27X -- Training Site 24	OE-27X_(07 D)	Sampling	UXB	SCHONSTEDT GA-52CX	1/23/1995
OE-27X -- Training Site 24	OE-27X_(07 D)	Sampling	UXB	SCHONSTEDT GA-52CX	1/26/1995
OE-27X -- Training Site 24	OE-27X_(07 G)	Sampling	UXB	SCHONSTEDT GA-52CX	1/27/1995
OE-27X -- Training Site 24	OE-27X_(07 G)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(07 J)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(07 M)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(10 C)	Sampling	UXB	SCHONSTEDT GA-52CX	1/26/1995
OE-27X -- Training Site 24	OE-27X_(10 F)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(10 I)	Sampling	UXB	SCHONSTEDT GA-52CX	1/27/1995
OE-27X -- Training Site 24	OE-27X_(10 L)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(10 O)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(13 A)	Sampling	UXB	SCHONSTEDT GA-52CX	1/26/1995
OE-27X -- Training Site 24	OE-27X_(13 D)	Sampling	UXB	SCHONSTEDT GA-52CX	1/26/1995
OE-27X -- Training Site 24	OE-27X_(13 G)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(13 J)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(13 M)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(16 C)	Sampling	UXB	SCHONSTEDT GA-52CX	1/26/1995

Table 27X-1. Sampling Operations, Site OE-27X
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-27X -- Training Site 24	OE-27X_(16 F)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(16 I)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(16 L)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(16 O)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(19 A)	Sampling	UXB	SCHONSTEDT GA-52CX	1/26/1995
OE-27X -- Training Site 24	OE-27X_(19 D)	Sampling	UXB	SCHONSTEDT GA-52CX	1/27/1995
OE-27X -- Training Site 24	OE-27X_(19 G)	Sampling	UXB	SCHONSTEDT GA-52CX	1/27/1995
OE-27X -- Training Site 24	OE-27X_(19 J)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(19 M)	Sampling	UXB	SCHONSTEDT GA-52CX	2/1/1995
OE-27X -- Training Site 24	OE-27X_(22 C)	Sampling	UXB	SCHONSTEDT GA-52CX	1/27/1995
OE-27X -- Training Site 24	OE-27X_(22 F)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(22 I)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(22 L)	Sampling	UXB	SCHONSTEDT GA-52CX	1/30/1995
OE-27X -- Training Site 24	OE-27X_(25 A)	Sampling	UXB	SCHONSTEDT GA-52CX	1/27/1995
OE-27X -- Training Site 24	OE-27X_(25 D)	Sampling	UXB	SCHONSTEDT GA-52CX	1/31/1995

Grid ID = Only the portion of the grid ID within parenthesis is posted on Plate 27X-2.

Sampling = 100 percent of anomalies detected were excavated to a minimum depth of 4 feet. Deeper anomalies were pursued if directed by the USACE.

UXB = UXB International Inc.

Grid Completion Date = Work may have been conducted within a particular grid on more than one date.

**Table 27X-2. OE Scrap Found During Sampling, Site OE-27X
Track 1 Ordnance and Explosives Remedial Investigation/Feasibility Study
Former Fort Ord, California**

Site	Grid ID	OE Items	Status	Depth (in)	Quantity
OE-27X -- Training Site 24	OE-27X_(01 A)	Grenade, rifle, smoke, M22 series	Inert	Not available	1

Site = OE Site Number.

Grid ID = Grid where item was found.

Status = Condition of item, either live or inert, inert indicates no OE hazard (i.e., OE scrap).

Depth = Inches below ground surface that the item was found.

Quantity = Number of like items found.

Note: A field with the annotation "not available" is a null field in the OE database.

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 27X - A1

**ATTACHMENT 27X - A1
EVALUATION OF PREVIOUS WORK
EVALUATION CHECKLIST: Site 27X, Training Site 24 (TS24)
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	
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Sources reviewed and comments

No evidence in literature search was identified to support use as an impact area. Site was adjacent to and may have included a portion of "Aviation Training Area" (AVN), as indicated on a 1964 map. "Helipad" shown in this vicinity on January 1967 map. 1968 again labeled as Aviation Training Area. Helipad shown in this vicinity on June 9, 1972 map (Training Ranges And General Road Map). First labeled as Training Site (TS) 24 on 1976 map training facilities plan map. TS-24 appears to be a bit further east than the area investigated (December 1976). On the March 1980 map, the training site is also labeled as EFMB (Expert Field Medical Badge); AR 310-50 (Army, 1985). On 1984 training map, the site is identified as TS-24 and EFMB. By 1987 no training site is identified in this area.

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

	No	
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Sources reviewed and comments

No evidence to support the use of HE or LE in this area. Site was adjacent to an area noted as a Tank Gunnery Range in the 1950s. Revised Archives Search Report (ASR), USAEDH 1997; Review of Fort Ord facilities and training maps, After Action Report - UXB, 1995a.

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		
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Sources reviewed and comments

One expended smoke grenade found during sampling (Revised Archives Search Report (ASR), USAEDH 1997; Review of Fort Ord facilities and training maps, After Action Report - UXB, 1995a).

ATTACHMENT 27X - A1
EVALUATION OF PREVIOUS WORK
EVALUATION CHECKLIST: Site 27X, Training Site 24 (TS24)
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?

		Inconclusive
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Sources reviewed and comments

No development or use of the site has occurred

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

		Inconclusive
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Sources reviewed and comments

A 1945 map shows a Tank Gunnery Range adjacent to the site prior to establishment of TS-24. No evidence of OE related to the firing of tanks or tank weapons has been found (UXB, 1995b).

ESTABLISHMENT OF SITE BOUNDARIES

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

	No	
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Sources reviewed and comments

No cleared areas are visible in the site vicinity.

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

Yes		
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Sources reviewed and comments

Boundary defined on several maps from 1976 through 1984

8. Should current boundaries be revised?

	No	
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Sources reviewed and comments

It appears that the location shown on the training maps are captured by the current site boundaries.

ATTACHMENT 27X - A1
EVALUATION OF PREVIOUS WORK
EVALUATION CHECKLIST: Site 27X, Training Site 24 (TS24)
LITERATURE REVIEW

Yes No Inconclusive

RESULTS OF LITERATURE EVALUATION

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

	No	
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Comments

Most of the site is included in the existing site boundary. Based on review of historical data, blank small arms ammunition, pyrotechnic, and smoke producing items may have been used at this site.

References

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- Ranges and Training Area Overlay, November 15, 1987.

ATTACHMENT 27X - A1
EVALUATION OF PREVIOUS WORK
EVALUATION CHECKLIST: Site 27X, Training Site 24 (TS24)
SAMPLING 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 and other launched ordnance)?

Yes		
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Sources reviewed and comments

One scrap item (Rifle Grenade, Smoke) was found during sampling. (UXB, 1995, USAEDH 1997; Review of Fort Ord facilities and training maps).

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

Yes		
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Sources reviewed and comments

Low explosives only - Live blank small arms ammunition, scrap rifle smoke grenade (UXB, 1995).

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		
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Sources reviewed and comments

One expended rifle smoke grenade was found during sampling (UXB, 1995).

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

Yes		
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Sources reviewed and comments

The sample grids appear to be in the correct area (UXB, 1995).

5. Does sampling indicate OE and/or ordnance-related scrap are present at the site?

Yes		
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Sources reviewed and comments

One expended rifle smoke grenade was found during sampling (UXB, 1995).

ATTACHMENT 27X - A1
EVALUATION OF PREVIOUS WORK
EVALUATION CHECKLIST: Site 27X, Training Site 24 (TS24)
SAMPLING EVALUATION

Yes No Inconclusive

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

Yes		
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Sources reviewed and comments

Specific training in this area unknown, however, OE-related items found to date are consistent with other Fort Ord training areas (UXB, 1995).

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

Yes		
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Sources reviewed and comments

Area was used as training area from the 1940s, M22 series rifle grenades were available for use since at least the 1940s.

8. Was HE fragmentation found?

	No	
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Sources reviewed and comments

No HE identified (UXB, 1995).

9. Was HE found?

	No	
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Sources reviewed and comments

No HE found (UXB, 1995; USAEDH 1997).

10. Were LE found?

Yes		
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Sources reviewed and comments

Live blank small arms ammunition (UXB, 1995; USAEDH 1997).

11. Were pyrotechnics found?

	No	
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Sources reviewed and comments

One expended M22 series rifle grenade, smoke round was found during sampling (UXB, 1995; USAEDH 1997).

12. Were smoke producing items found?

	No	
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Sources reviewed and comments

One expended rifle smoke grenade (UXB, 1995;USAEDH 1997).

ATTACHMENT 27X - A1
EVALUATION OF PREVIOUS WORK
EVALUATION CHECKLIST: Site 27X, Training Site 24 (TS24)
SAMPLING EVALUATION

Yes No Inconclusive

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

	No	
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Sources reviewed and comments

UXB, 1995; USAEDH 1997.

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

Yes		
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Sources reviewed and comments

Expended rifle smoke grenade and live blank small arms ammunition (UXB, 1995;USAEDH 1997).

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

	No	
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Sources reviewed and comments

UXB, 1995; USAEDH 1997.

16. Has the site been divided into sectors to focus on areas of common usage, similar topography and vegetation, and/other unique site features?

	No	
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Sources reviewed and comments

UXB, 1995; USAEDH 1997.

17. Should current site boundaries be revised?

		Inconclusive
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Sources reviewed and comments

Sampling occurred within the current site boundaries. No OE was discovered, therefore no sampling information is available that would support revising the site boundaries.

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

	No	
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Sources reviewed and comments

Rifle grenades penetrate to a depth of 0.1 foot in sand (USAESCH, 1997). The items are ferrous and would be expected to be detected by the Schonstedt. However, blank small arms ammunition is primarily non-ferrous and would not be detected.

**ATTACHMENT 27X - A1
EVALUATION OF PREVIOUS WORK
EVALUATION CHECKLIST: Site 27X, Training Site 24 (TS24)
SAMPLING EVALUATION**

Yes No Inconclusive

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

	No	
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Sources reviewed and comments

The Schonstedt magnetometer is expected to detect the ferrous OE items, however blank small arms ammunition is non-ferrous and would not be detected by that instrument (UXB, 1995).

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		
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Sources reviewed and comments

Although not directly comparable to Site OE-27X, the results of the ODDS indicated that the instrument used at this site (Schonstedt GA-52/Cx) is capable of detecting the ferrous surface OE (Type I items) expected at this site. Blank ammunition is non-ferrous and cannot be detected with a magnetometer (UXB, 1995; Parsons, 2001).

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?

	No	
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Sources reviewed and comments

The Schonstedt magnetometer cannot detect non-ferrous items, such as small arms blanks. It would be able to detect anomalies from ferrous OE items (UXB, 1995).

22. Were all the instruments used to evaluate the site maintained and calibrated in accordance with associated work plan and manufacturer's specifications?

		Inconclusive
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Sources reviewed and comments

Reports indicate instruments were used according to the work plan (After Action Report - UXB, 1995).

ATTACHMENT 27X - A1
EVALUATION OF PREVIOUS WORK
EVALUATION CHECKLIST: Site 27X, Training Site 24 (TS24)
SAMPLING EVALUATION

Yes No Inconclusive

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?

Yes		
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Sources reviewed and comments

Sample grids were required to cover at least 10% of the total area of the site to be sampled (UXB, 1995)

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
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Sources reviewed and comments

400,000 square feet (approximately 9 acres) sampled by UXB based on 40 100x100-foot grids (UXB, 1995). No UXO was found; therefore, a UXO density could not be calculated.

Total Area:	400,000 sq. ft
UXO Density:	Not Calculated

25. What percentage of the anomalies were intrusively investigated?

Sources reviewed and comments

Each anomaly was marked. "Each contact was then hand excavated by a UXO specialist to determine if it was OE or scrap." UXB, 1995

Total % of anomalies investigated:	100%
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26. Was the appropriate data processing scheme used for the site, how was the data processed?

		Not Applicable
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Sources reviewed and comments

Not Applicable, no digital geophysical data were collected.

ATTACHMENT 27X - A1
EVALUATION OF PREVIOUS WORK
EVALUATION CHECKLIST: Site 27X, Training Site 24 (TS24)
SAMPLING EVALUATION

Yes No Inconclusive

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

Yes		
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Sources reviewed and comments

Quality Control "(QC) checks were performed on each grid after all UXO operations were complete. UXB QC specialists checked a minimum of 10 percent of each grid to insure that OE removal was done properly. After this QC check the CEHND Safety Specialist performed a QA check of the site prior to accepting it." UXB, 1995

Result of Sampling Evaluation

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

	No	
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Comments

Based on the review of existing site data, it is not anticipated that OE would remain at this site; however, because the site was used as a bivouac area the possibility exists that OE could remain at the site. No further OE-related investigation is warranted.

References

UXB International Inc., (UXB) 1995. Final Report for Ordnance and Explosives Removal Action, Fort Ord, California, Training Site 24 (TS 24). November 1.
 USAEDH, 1997. Revised Archives Search Report, Former Fort Ord, California, Monterey County, California. Prepared by U.S. Army Corps of Engineers St. Louis District.
 USA, 2000. Ordnance Detection And Discrimination Study, Seeded Test Technical Memorandum, Former Fort Ord, California, Presidio of Monterey, California. In Cooperation with U.S. Army Corps of Engineers Sacramento District and Parsons Engineering Science, Inc. October 23.
 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.

ATTACHMENT 27X - A2

ATTACHMENT 27X - A2

POTENTIAL ORDNANCE USED AT SITE OE-27X

Colored Smoke Rifle Grenades

M22 and M22A2 Colored Smoke Rifle Grenades – The M22 Series of rifle grenades are/were used for signaling and for laying smoke screens. Produces green, red, violet, or yellow smoke. The M22 and M22A2 consist of three basic parts: a steel stabilizer assembly, an integral fuze and a body. The fuze is a mechanical impact-igniting type. The body is filled with a burning-type smoke charge (a mixture of baking soda, potassium perchlorate, and sugar) which contains a dye to color the smoke. The surfaces of the smoke charge within the body are coated with a starter mixture charge to facilitate ignition. A small opening or air hole in the nose of the ogive is covered by a nose closing plug.

Colored smoke rifle grenades M22 and M22A2 function on impact, emitting a cloud of colored smoke for approximately one minute. After being fired from a rifle equipped with a grenade launcher, these grenades function as follows: The grenade ogive strikes the ground or other resistant object. Inertia of the firing pin overcomes spring tension and the firing pin strikes the primer. The primer emits a small, intense spit of flame. Flame from the primer ignites the starter mixture charge. The burning starter mixture charge ignites the smoke charge. The smoke charge burns for approximately 1 minute, emitting a dense cloud of colored smoke through holes in the base of the body. Colored smoke rifle grenades M22 and M22A2 have a range of over 200 meters (*Army, 1977*).