

APPENDIX H: AGENCY CONCERNS

EPA General Comments

1. As we have discussed, risks associated with potential ordnance (including unexploded ordnance (UXO), discarded military munitions (DMM), and munitions constituents (MC)) should be assessed pursuant to CERCLA and our Federal Facility Agreement. A date by which a Record of Decision to address potential ordnance-related risks will be submitted by the Army is currently being negotiated by the FFA parties as part of Operable Unit 3.

USACE Response: USACE intends to integrate all aspects of the Military Munitions Response Program at this site into the ongoing NOP Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process for Operable Unit 3 (OU3) to ensure any munitions response, to include Chemical Warfare Materiel (CWM) response, actions are addressed in a final OU3 Record of Decision (ROD).

2. The Report should evaluate risks at the potential ordnance sites according to the recently developed guidance, “Munitions and Explosives of Concern Hazard Assessment Guidance” (November 2006). This document was developed by several agencies, including DOD and EPA, and has been published in the Federal Register.

USACE Response: The “Munitions and Explosives of Concern Hazard Assessment Guidance” (November 2006) is draft and is still under review by many DoD entities. The 2007 OE Recurring Review will continue to be conducted under USACE EP 75-1-4 until further guidance is finalized.

3. It may be appropriate to consolidate the OE Recurring Review as part of the upcoming Five Year Review under CERCLA. Ultimately, risks associated with OE will be evaluated as part of the Five Year Review process.

USACE Response: Currently, USACE intends to keep the OE Recurring Review separate from the CERCLA 5-year review for Operable Unit 2 (OU2). This will be the last OE RR conducted. In the future, OE will be addressed as part of the CERCLA process and 5-year review for OU3.

4. Please clarify whether the Army has included the NOP Site under its Military Munitions Response Program.

USACE Response: USACE intends to integrate all aspects of the Military Munitions Response Program at this site into the ongoing NOP CERCLA process for OU3 to ensure any munitions response, to include CWM response, actions are addressed in a final ROD. However, since substantial investigation and evaluation of military munitions has been conducted at this site, USACE intends to summarize the OE actions and incorporate them into the Proposed Plan for OU3. This has been discussed with EPA on previous occasions and USACE believes EPA is in agreement with this path forward.

5. The Report should address whether the presence of munitions constituents (such as RDX, TNT, metals, etc...) have been evaluated in all areas.

USACE Response: Constituents, such as RDX, TNT, etc, which may be in the soil or groundwater were addressed in the Operable Unit 1 (OU1) ROD. The 2001 OE Recurring Review Report (dated December 2002) identifies that approximately 160 cubic yards of Site 9 soil containing secondary explosives constituents was excavated and incinerated on-site in 1997 as part of OU-1 remedial action. In an area west of the NRD Reservoir, near the former landfill area, approximately 580 cubic yards of soil containing secondary explosives constituents was excavated and incinerated on-site as part of OU-1 remedial action. The purpose of the OE Recurring Review is to determine the protectiveness of removal actions conducted for Ordnance and Explosives both intact and "trash".

6. Land use restrictions should be in place at the site to prohibit access to areas with potential ordnance concerns. The review concludes that conditions at these areas are safe. EPA believes that additional investigation and response actions to address potential ordnance areas may be required (consistent with our comments in Appendix G [of the 2001 OE Recurring Review Report]), and that land use controls, at a minimum, are needed to insure that conditions at possible ordnance sites are protective over the long term. Deed notices (see enclosure) are required as part of the Consent Decree with the University of Nebraska that address the North Burning Grounds/Proving Grounds area and the NOP/University Landfill area. These notices should be considered in the OE Review.

USACE Response: Fencing and signage are in place at Site 5 (Culvert Area), at Site 8 (Landfill Area, Former Treatment Plant), at Site 9 (Proving Range), at Site 10 (North Burning Ground), at the Potential Landfill Area between Sites 9 and 10, and at Site 12 (Bomb Booster Area). DoD provided funding for these controls to be implemented by the current landowner. The Deed notices placed on certain sites by the landowner, the University of Nebraska-Lincoln (UNL), are documented in the 2007 OE Recurring Review Report.

7. The Report should assess potential risks associated with ordnance in all areas of concern (12 areas identified in PA) at the NOP.

USACE Response: The twelve areas identified in the Preliminary Assessment (PA) are summarized in the 2007 OE Recurring Review Report. The history of each site along with any sampling or actions taken at the site is summarized in more detail than was provided in the 2001 OE Recurring Review Report (December 2002). The overall risks presented by the site are also documented in the 2007 OE Recurring Review, based on previous evaluations. USACE did not reevaluate risk in areas where previous investigations and evaluations did not find OE-related risks. Since many of these twelve areas have not had any new

OE-related discoveries, changes in land use, or changes in accessibility, risk in these areas was not reevaluated in the 2007 OE Recurring Review.

8. The Review fails to appropriately consider the presence of two ordnance items that were found near Site 9 which required disposal. The potential presence of unexploded ordnance at the Site poses a threat which requires a CERCLA response action.

USACE Response: It is presumed this comment is referring to the 1999 discovery of munitions debris (partial bomblets) near Site 9, in the Potential Landfill Area. USACE has separated the Potential Landfill Area from adjacent Sites 9 and 10, so this information on the discovery munitions debris near Site 9 is presented independently in the discussions of the Potential Landfill Area. Conclusions for Site 9 and Site 10 considered data separate from the data identified at the Potential Landfill Area.

9. The Report should include figures illustrating the specific areas of interest for possible ordnance contamination.

USACE Response: New updated figures have been included for all sites.

10. EPA does not concur with a number of the responses to our comments included in Appendix G, including responses to a number of comments related to the sufficiency of the historical records review.

USACE Response: It is difficult to identify the true concerns of the agency based on the comment as written. USACE requests that EPA identify (in writing) all specific comments, comment responses, and concerns from Appendix G of the 2001 OE Recurring Review Report (dated December 2002) that are unacceptable to ensure they can be adequately addressed.

In addition, responses to comments 4B, 4C, 4D, 5B, 5D, 5F, 6/6A, 6B, 6C, 7A are troublesome. We suggest that the parties discuss EPA's comments as outlined in Appendix G as they relate to future work at the site and the completion of the upcoming OE Recurring Review Report.

USACE Response: USACE has reviewed responses to agency concerns from the 2001 OE Recurring Review, specifically 4B, 4C, 4D, 5B, 5D, 5F, 6/6A, 6B, 6C, 7A, and has provided an updated response as appropriate. We are open to discussions to clarify our position.

- 4B. There is no record that an adequate prove-out plot, and associated testing, was developed and implemented to document that the geophysical instruments (and surveying teams) were capable of identifying and analyzing geophysical anomalies at specific depths. At a minimum, the geophysical investigation should be required to meet the investigation requirements identified in DoD Directive 6055.9-STD. The Army should provide complete documentation that a successful

prove-out plot and associated testing was developed and implemented, also indicating whether the requirements of DoD Directive 6055.9 were met.

2001 USACE Response:

Comment Noted. It is uncertain as to whether a prove-out plot was developed and implemented. The geophysical investigations conducted for the PA and EE/CA were performed in association with work plans approved by USACE-Huntsville and prior to issuance of the DoD directive in 1997, therefore they may not meet all requirements of the DoD directive.

2007 revised USACE Response: This comment was in regard to geophysical investigations conducted for the 1991 Preliminary Assessment (PA) and 1996 Engineering Evaluation/Cost Analysis (EE/CA). The geophysical investigations conducted for the PA and EE/CA were performed in association with work plans approved by USACE-Huntsville and prior to issuance of the DoD directive in 1997, therefore they may not meet all requirements of the DoD directive. Attachment A to these comment responses is the statement of work provided to the contractors performing the EE/CA at the Former NOP. Detailed in Section 6, specifically section 6.6, are the testing requirements for the magnetometers. These requirements ensured all instrumentation was working properly and knowledgeable accountable personnel were performing and overseeing the investigation.

4C. The sensor technologies used are recognized as useful for detecting and locating buried UXO, however, certain limitations on the detection equipment should be addressed. For example, the EM-61 and the Schoenstedt GA-72C, both used at NOP, are designed to detect buried anomalies. The EM-61 detects all metals, both ferrous and non-ferrous, while the Schoenstedt GA-72C is primarily designed to detect ferrous utilities lines and equipment. Both instruments are limited to shallow or medium depth investigations, depending on target size and mass. In addition, the EM-61 is designed to detect changes in soil density only and should not be used to detect buried objects. None of the documents reconcile these deficiencies with the types and depths of ordnance potentially present at each site, in an attempt to document the actual vertical extent of the geophysical surveys.

2001 USACE Response:

Comment noted.

2007 revised USACE Response: USACE believes that there were no deficiencies with the choice of equipment. Each piece of equipment has its own limitations, thus the staggered use of three pieces of equipment each with its own unique capabilities. This approach resulted in achieving vertical extent objectives as defined in the workplan. As stated in Section 4.2 of the EE/CA, the Schonstedt GA-72CV was selected to assisted in locating surface ordnance during the initial visual sweeps of the sites; the EM-61 was selected to locate buried ordnance and calculate depth of burial; and the EM-31 was selected to

map variation in ground conductivity which could indicate trenches or burial pits. As the comment states the Schonstedt GA-72CV has shallow depth limitations, but can pinpoint an object, determine its orientation and identify magnetically detectable nonmetallic duct, cable and pipe, thus its use during the initial visual sweep to identify objects within the first 6-12' of subsurface and distinguish between buried utilities and potential ordnance.

The EM-31 provides data on both the occurrence of buried metal (not just iron or steel) objects and disturbed ground. The EM-31 was used to determine the presence of bulk waste burial, disturbed ground or the occurrence of buried metallic waste. Its effective depth of investigation is about 18 feet. If disturbances were located further excavation was completed.

The EM-61 is a time-domain metal detector which detects both ferrous and non-ferrous metals. The EM-61 is used to discriminate between moderately conductive earth materials and very conductive metallic targets. The depth of the target can usually be estimated by the width of the response. A large object such as a 55-gallon drum can be detected up to 12 feet below the surface. Individual ordnance can be detected to depths of 3 feet.

The information presented here and in the EE/CA does document that the geophysical instruments used during the EE/CA investigation were capable of detecting potential waste trenches, buried metallic waste, and individual ordnance from near surface to a possible depth of 12 feet.

4D. As previously noted, there are several sites where anomalies were not re-acquired for investigation and excavation. For example, the 1996 EE/CA indicates that several deeper anomalies at the Culvert Area (Site 5) were never re-acquired and excavated due, in part, to the limited vertical detection capabilities of the geophysical instruments. Geophysical instruments capable of deeper characterization, such as a total field magnetometer (*e.g.*, Geometrics G585), should have been used for the deeper investigation of ferrous metal objects. The Army should conduct a complete investigation of the Culvert Area to re-acquire all anomalies originally identified in the 1996 EE/CA.

2001 USACE Response:

The EE/CA recommended surface clearance and subsurface clearance at Site 5 to a depth of 1 foot. This recommendation was based on land use. A six-acre portion of the site was cleared to 4 feet during the 1997 Removal Action. An evaluation of complete clearance at Site 5 was conducted during the EE/CA and found that associated costs for complete clearance at Site 5 were also found to be prohibitive. Clearance area was determined based upon review of aerial photography, historical records of land use, and current land use. USACE believes this area was adequately characterized and cleared for OE within technology and costs limitations.

2007 revised USACE Response: *The USACE does not intend to conduct further investigation at the Culvert Area (Site 5) to re-acquire all anomalies originally identified in the 1996 EE/CA, as we believe the intent of this activity was accomplished in the 1997 Removal Action. USACE believes this area was adequately characterized and cleared for OE within technology and costs limitations identified in the EE/CA.*

The EE/CA field investigation consisted of surface clearance activities and collection of geophysical data. Surface clearance was conducted in three 100'x100' grids for geophysics over an area of 0.7 acres, followed by a geophysical survey. A total of 107 anomalies were recorded for Site 5. Of these 107 anomalies 79 were excavated. Of the remaining 28 locations, the magnetometer could not detect any anomaly. Since no metallic signals were recorded, these 28 locations were not excavated. Of the 79 excavated anomalies, 33 contained inert OE and one was treated as UXO.

Following the EE/CA, a Removal Action was conducted in May 1997 at the Culvert Area (Site 5), where approximately 6 acres of land were cleared of surface and subsurface OE to a depth of 4 feet. The 6 acres of land were divided into 26 grids 100 feet long by 100 feet wide. A geophysical survey was conducted grid by grid and geophysical anomalies found within the grids were excavated by hand. Thirteen pieces of inert OE were uncovered during the excavations. The inert OE was limited to three of the twenty-six grids. The inert OE was located in the upper two feet of the site; no anomalies were located from two to four feet below ground surface. In October 1997, a Statement of Clearance was signed by USACE, which recommended the cleared 6-acre parcel on Site 5 be used for any purposes that do not involve intrusive activities below 4 feet.

5B. The 1991 PA states that earlier reports identified what might have been a small (*i.e.*, ¼-acre) disposal site in the area identified as the Turnout Area (Site 6). This potential pit area contained numerous metallic contacts, and should have been the focal point of any geophysical investigations in this area. However, neither the 1991 PA nor the 1996 EE/CA states whether this area was ever investigated.

2001 USACE Response:

According to the PA, the small (¼-acre) area had been identified during an initial survey in 1989 as "possibly containing metallic contacts." However, that area could not be located during the PA field investigation, which is why it was not investigated. Five possible craters located from aerial photos were geophysically investigated during the PA. One ordnance-related item, a fuze with no explosives components, was located in the area thought to be a detonation crater. According to the PA report, the location of this finding is within the possible kickout range from Site 5 and it was noted that the fuze may have come from the demolition of items at Site 5.

Site 6 was classified as No DoD Action Indicated in the 1996 EE/CA. A new ARDC facility was recently constructed at the location of Site 6. According to the

ARDC construction contractor, OE was not discovered during construction excavation. USACE does not believe there is a need for additional investigation at Site 6.

2007 revised USACE Response: *No new changes to the previous response are proposed for this comment.*

5D. The North Burning Ground Area (Site 10), identified as a possible disposal site, exhibited anomalies during the geophysical investigation that were never excavated and recovered. Numerous anomalies were identified at up to four feet below ground surface, yet tabulated data indicates that only one target from that depth was re-acquired, excavated, and recovered. Most of the items recovered were from a depth of less than one foot below ground surface. In addition, metallic targets up to six feet in diameter were identified in the geophysical report, but are not documented as being excavated and recovered. Although the 1991 PA indicates that additional geophysical surveys were performed at this site, the surveys accounted for only a small percentage of the total site area [*i.e.*, only 1.4 acres of the total 5.0 acres (28%)]. In addition, the investigations reported in the 1991 PA identified over 100 anomalies, although the document is unclear regarding the identification of all of these anomalies. Because the North Burning Ground Area served as one of two sites for the disposal of approximately 340,000 ordnance items, the site warranted closer scrutiny in the geophysical investigations and subsequent excavation activities.

- 2001 USACE Response:
 - Comment noted. Table 2-1 in the EE/CA identifies 130 anomalies addressed at Site 10. Of the 130 identified, 127 anomalies were excavated and two of those were identified as inert OE. Appendix A of the EE/CA present the depths and size of those anomalies excavated in Site 10, many of which exceed one foot in depth. The EE/CA recommended NDAI for OE at Site 10.
 - During the PA, two trenches were excavated in Site 10 in areas of ferrous saturation. Hand excavations were conducted in both pit areas that revealed one OE-related item (spent booster cup), which did not contain explosive components. All other contacts hand excavated from the pits were non-ordnance items.

USACE conducted supplemental RI work at the former NOP in 1999, which included geophysical and subsurface investigations. Site 10 was included in the 1999 investigation. The geophysical surveys conducted during the additional RI investigation determined areas for chemical contaminant sampling and areas that had a potential for further UXO screening. Two test pits were placed at the assumed location of two former revetments. In 1999, no OE was detected while excavating at Site 10. USACE is satisfied with the extent of investigations conducted historically at this site.

2007 revised USACE Response: *USACE believes the historic investigations at Site 10 described above are sufficient to prove that no current OE-related risks are present at Site 10. During the PA, Trench 10-1 was excavated to a depth of*

five feet and trench 10-2 was excavated to a depth of three feet. Trenches excavated during the RI were six feet and 7 feet in depth. Additionally, UNL has a deed notice on Site 10. There is no history of reported incidents or mishaps at Site 10. The remote location and the current and imminent land use as a wildlife enhancement area further supports the potential of a person encountering a UXO item is remote. No further action was determined for Site 10 based on this information.

5F. The sites identified as the Bomb Loading Lines (*i.e.*, Sites 1, 2, 3, and 4) were recommended for No Further Action, even though no geophysical investigations were performed in these areas. None of the documents attempt to evaluate remaining UXO/OE risks at the Bomb Loading Lines, nor do they discuss any future UXO/OE investigations.

2001 USACE Response:

Comment noted. Since no unexploded ordnance were discovered within the Bomb Load Lines during the visual survey conducted during the PA, USACE found it unnecessary conduct a geophysical investigation in the area. USACE collected over 400 surface soil samples (0-1 feet bgs) in the load lines areas during the PA and subsequently investigated the basin and sump area of the load lines under OU1. USACE is satisfied with the no further action recommendation for the load lines determined in the EE/CA.

2007 revised USACE Response: *Since no UXO was discovered within the Bomb Load Lines during the visual survey conducted during the PA, USACE found it unnecessary conduct a geophysical investigation in the area. USACE collected over 400 surface soil samples (0-1 feet bgs) in the load lines areas during the PA and subsequently investigated the basin and sump area of the load lines under OU1, none of which detected UXO. Additionally, field work conducted during load line demolition activities did not result in an OE action. USACE is satisfied with the no further action for OE recommendation for the load lines determined as in the EE/CA.*

6. None of the documents indicate whether an adequate file review or investigation was performed regarding the disposal of CWM at the area identified as the Landfill (Site 8). As previously noted, the 1991 PA presents a summary of findings from the 1983 ASR which indicates that no evaluation was performed for *Record Group 175 (Chemical Warfare Service)*, the file material containing all CWM information in the National Archives. Therefore, neither the 1983 ASR nor the 1991 PA provides a sufficient review of all CWM file material for the site. In addition, the following deficiencies were noted with regard to CWM and the resulting conclusions for the site:

6A. File material indicates that in the 1950s, six rounds of *leaking* CWM were buried at the area identified as the Landfill. Most notably, a *Survey and Analysis Report* (November 1993), produced by the U.S. Army Program Manager for Non-

Stockpile Chemical Materiel, makes a statement regarding the “likely burial” of CWM at the Landfill. Use of the term “likely burial” indicates a high probability of burial in the Landfill, compared to other designations which might have been used, but were not (*e.g.*, suspected burial or possible burial). However, the 1996 EE/CA states this information is “hearsay” and that no actual documentation exists to suggest that CWM disposal ever occurred at NOP. Based on the 1993 *Survey and Analysis Report*, which sufficiently documents the “likely burial” of CWM at the Landfill, this conclusion is incorrect. The Army should provide justification for not performing CWM investigations at the Landfill.

2001 USACE Response:

In the Supplementary ASR, the evidence of CWM at the former NOP was evaluated and Record Group 175 was included in this evaluation. It was acknowledged in the Supplementary ASR that canisters of CWM were reportedly disposed of in the landfill area around 1950 and 1960. The exact location of the buried alleged CWM is not known. The landfill has since been closed and capped with a soil cover and the area is fenced. The research conducted during the Supplementary ASR revealed no evidence that would indicate the presence of CWM at any other location at the former NOP. Interviews relevant to CWM presence at the NOP are included in Appendix C of the OE Recurring Review Report dated June 2002. Review of these interviews has not substantiated this occurrence. Groundwater monitoring wells were installed downgradient of the landfill area in 1992. Samples from these wells have found no detections of thiodiglycol, an indicator of CWM, to date.

2007 revised USACE Response: USACE believes that an adequate file review and evaluation was conducted regarding the potential CWM burial. The 2001 and 2007 OE Recurring Review Reports, the EE/CA, and the Supplementary ASR provided numerous sources and accounts related to the incident. Additionally, USACE disagrees with the comment as Record Group 175 was included in historical evaluations as noted in the Supplementary ASR. Additionally, in the 1990s, USACE conducted personal interviews and site visits with former NOP personnel in an attempt to get first hand information on the incident.

The EE/CA stated that insufficient evidence and inaccurate documentation exists regarding the potential CWM burial (Site 8) because some of the historic documentation contained conflicting information regarding the burial and former NOP personnel were unable to physically locate a burial location during field activities conducted during the 1990s. Despite this assertion in the EE/CA, the USACE is proceeding with the assumption that the CWM was buried in the site landfill.

Regarding the justification for not performing CWM investigations at the Landfill Area, USACE has monitored groundwater for CWM breakdown products. Groundwater sampling would indicate any leakage of this secure container, however no detections mustard agent indicator compounds have been found in groundwater near the suspected burial location to date. USACE does not see

the value in conducting intrusive or geophysical activities to detect CWM, as it would be difficult to distinguish between a CWM burial and the current waste in the landfill. Current geophysical methods do not allow for determination between buried cars, metal debris, and 55-gallon drums. Disruption of landfills is not technically advisable or practical. If suspected mustard agent is buried at NOP it would be in a small amount, possibly decontaminated before burial and secured in plastic within a 55-gallon drum. The anecdotal accounts of this burial indicate that any mustard agent buried was secured in plastic and in a 55-gallon drum and at a depth of more than 20 feet below the current ground surface. Therefore, in this instance, USACE believes that users of the site would be protected from any exposure to the suspected mustard agent. If future uses of the suspected burial site change to include excavation or disturbance of the landfill, proper notification and precautions will be taken or recommended. However, the management and disturbance of landfills is regulated by Nebraska Title 132, [Integrated Solid Waste Management Regulations](#).

6B. The 1993 Supplementary ASR contains several technical problems with regard to the correct identification of potential types of CWM at the Landfill. All references in the 1993 Supplemental ASR identify “mustard” as the only CWM agent potentially present at the site. However, a detailed review of the document indicates that other CWM agents may be present as well. For example, in a letter dated October 20, 1993, from a USACE contractor (TCT, St. Louis) to the USACE (St. Louis District), interviews with three former individuals indicated that additional CWM was potentially buried at the site. Most notably one former employee identified photographs of chemical warfare tests kits (*i.e.*, “Toxic Gas Sets”) as being similar to items formerly buried at the site. In addition, the former employee correctly described the physical appearance of the chemical warfare test kits, and identified the items as having arrived at NOP in a “leaking condition” from an Army reserve unit. The fact that the items were described as “leaking” increases the likelihood that they were sent to NOP for disposal. Also, in an August 24, 1993, interview, the former Civilian In Charge of NOP stated that he observed the burial of five or six, two-foot long “leaking” canisters of Mustard Gas within the Landfill. The Army should conduct a complete review of this information to evaluate whether additional CWM may have been disposed of at the Landfill.

2001 USACE Response:

A record of the interviews referred to by EPA is included in Appendix C of the OE Recurring Review Report dated June 2002. These interviews provide three accounts from different individuals, however only two of those individuals worked at the former NOP. The employee who correctly described the physical appearance of the chemical warfare test kits, and identified the items as having arrived at NOP in a “leaking condition” from an Army reserve unit, was actually an employee at Offutt Air Force Base, not the NOP. In his interview he stated that leaking containers from an Army Reserve Unit in Omaha were brought to Offutt Air Force Base (See Appendix C of the OE Recurring Review Report dated June 2002). The employee was later told that the containers were taken to a

“permanent Army burial facility” believed to be in Nebraska for disposal, though he did not know the specific location.

Although the August 24, 1993 interview with the former Civilian in Charge described “Toxic Gas Sets” as having arrived at NOP in a “leaking condition,” that person also revealed that the incident was ‘*a little hazy in his memory and that at the time of the disposal he thought the incident to be a minor item, barely worthy of remembering.*’ The Supplementary ASR reported that this 1993 account differed from the 1989 interview of the same individual. The Supplementary ASR concluded that the two different accounts (in 1989 and in 1993) pertained to the same incident and that the discrepancy could be a result of a memory lapse. In the Supplementary ASR, it was determined that although the former Civilian in Charge was judged to be a credible interviewee, the information provided by him is not judged to be indisputable evidence concerning the current presence of CWM at the former NOP.

The third employee who was interviewed on this subject was the NOP facility manager at the time. When this employee was sent a letter containing color photographs of chemical weapons identification and training kits (i.e., “Toxic Gas Sets”), he stated that he had not seen anything like that [on the NOP]. A copy of the letter and photos sent to the manager and others is included in Appendix C of the OE Recurring Review Report dated June 2002.

There is a discrepancy concerning the date of the burial as it was identified as having occurred during the 1950s in historic reports, yet the interviews indicate that it occurred in the 1960s. The occurrence was reported more than 30 years after it was said to have occurred. The Supplementary ASR concluded that the incident could feasibly have been a miscommunication or misunderstanding concerning the composition of the items disposed, which is why it was subsequently dismissed from the EE/CA and other reports.

2007 revised USACE Response: USACE believes the information provided in the 2001 comment response provides a comprehensive summary of the suspected CWM burial. Regarding the type of mustard agent in question, there is no indication that CWM agents other than mustard agent were contained in the suspected burial. The suspected mustard agent was likely contained in a Chemical Agent Identification Set (CAIS), also known as war gas identification sets, an item used to train military personnel safely to identify, handle and decontaminate chemical agents. CAIS consisted of small quantities of various dilute chemical agents in glass vials and bottles that were packed in metal shipping containers or wooden boxes. CAIS K941 (toxic gas set M-1) and CAIS K942 (toxic gas set M-2/E11) contained small bottles of undiluted (neat) chemical agent (mustard agent). CAIS K941 contained 24 glass bottles, each with approximately 3.5 ounces of undiluted mustard agent. CAIS K942 contained 28 glass bottles, each with approximately 3.8 ounces of undiluted mustard agent. CAIS were either disposed of in their original metal or in wooden storage and shipping containers, called PIGS, or loose. Typically, CAIS vials were broken before disposal and decontaminant was used to neutralize any chemical agent present.

6C. Based on the wording in the 1996 EE/CA, it appears that the authors made several assumptions regarding the Mustard Gas (blister agent) reportedly buried in the area of the Landfill. The authors assumed that, because there had been no detections of thiodiglycol in the groundwater from the area of the Landfill, the reports of the burial were in question. The 1996 EE/CA, therefore, concludes, that CWM is not present. However, thiodiglycol is produced by the decomposition of 1,1-thiobis[2-chloroethane]. For this decomposition to occur, 1,1-thiobis[2-chloroethane] must be in direct contact with water. If the munitions containing CWM are still intact, then the decomposition would not have occurred yet. The fact that thiodiglycol has not been detected does not mean that CWM is not present, it may simply mean that the integrity of the CWM is still intact and has not *yet* leaked. The presence or absence of thiodiglycol should not be used to determine the presence or absence of Mustard Gas (blister agent).

2001 USACE Response:

USACE sampled for thiodiglycol to identify the presence of CWM in groundwater, if any, however its absence in the samples is not the sole reason USACE questions the existence of buried CWM. As stated previously, historic documentation of CWM burial does not exist and accounts given by former employees related to CWM burial have not been substantiated by USACE.

2007 revised USACE Response: *Historical documentation and eye witness accounts report the CWM containers as leaking (not intact) and being wrapped in plastic before being placed and sealed in secondary containment (55-gallon drum) before burial. Research has shown that mustard agent rarely breakdowns in water and more regularly occurs as a global mass which is highly immobile in groundwater. If breakdown happens to occur thiodiglycol, 1,2-dithiane, and 1,4-oxathiane, more mobile breakdown products, would be the only indication of the presence or absence of the mustard agent as noted in the EPA **Handbook on the Management of Munitions (EPA 505-B-01-001, May 2005).***

The burial location pointed out in 1994 by the Former Civilian-in-Charge had been covered by present-day landfill activities and is now 20 feet below the surface of the landfill. These two facts alone eliminate contact pathways with the reported material. The fact that USACE monitored for breakdown products was yet another step to ensure that contact risk was negligible concerning the reported CWM. Given the secondary containment, lack of evidence of contact with water and its immobility in water if present the CWM presents less of a risk encased 20 feet below ground surface than it would if disturbed. Another level of protection USACE will undertake is to extend the current fence to encompass the supposed burial location identified by the Former Civilian-in-Charge.

7A. Neither the 1991 PA nor the 1996 EE/CA identifies how USACE management communicated with appropriate state and federal regulatory personnel regarding planning and implementation of the geophysical survey and intrusive efforts. The Army should describe how project management was performed, identifying all Army/USACE personnel, all contractor/subcontractor

personnel, and appropriate regulatory personnel consulted during the investigation. Lines of communication and regulatory notification of investigation activities should be provided.

2001 USACE Response:

Comment noted.

2007 revised USACE Response: USACE has no reason to believe that the historic process for evaluating OE at this site was not communicated with the public and the regulators appropriately. Although we may not have thorough and complete documentation of all planning, implementation, personnel, and management activities that were ongoing for this process, there is indication that the regulators and public were involved in the process. In fact, the 1991 PA Report indicates that a representative from the State of Nebraska was present during the PA site inspection. Additionally, the USACE appended responses to comments submitted by EPA and NDEQ to the EE/CA and developed that document in accordance with the CERCLA process (e.g., made the EE/CA available for public comment). Therefore, USACE did engage the regulators in the historic OE evaluations.

11. The State has recently provided information from Offutt Air Force Base that is germane to the possible burial of mustard agent at the Landfill area. This new information should be considered in the OE Review. We also suggest that Mr. Jurgiel and other personnel (including the Air Force) be contacted to further evaluate the possible disposal of mustard at NOP.

USACE Response: USACE included the Offutt Air Force Base (Offutt) memorandum, forwarded by the Nebraska Department of Environmental Quality (NDEQ), in Appendix D of the 2007 OE Recurring Review Report. Although this memorandum was not included specifically in the 2001 OE Recurring Review Report (December 2002), the information contained in the memorandum has been captured in previous historical accounts of the Offutt incident as it relates to the suspected CWM burial. Therefore, no additional discussion will be provided in the 2007 OE Recurring Review Report based on the information provided by NDEQ. The information contained in the memorandum is consistent with the 1993 interview between Mr. John Jurgiel and TCT, which is documented in Appendix C of the 2001 OE Recurring Review Report (December 2002).

Additionally, subsequent to receipt of these comments, in April 2007 the USEPA contacted Mr. Jurgiel to discuss the incident. A phone record of that conversation, provided by USEPA, is included in Appendix D of the 2007 OE Recurring Review. Similar to the NDEQ memorandum, the recent communication between USEPA and Mr. Jurgiel did not result any new information about this incident, as Mr. Jurgiel confirmed the information that he provided to USACE previously, in 1993.

EPA Specific Comments

1. Section 0.2 – In paragraph 1, how does the Review evaluate “future land use changes”?

USACE Response: For the 2001 OE Recurring Review, USACE evaluated future land use changes by communicating with current land owner (UNL) and Saunders County, as identified in Section 4.1 of the 2001 OE Recurring Review Report (December 2002). Both the UNL and the County indicated they were unaware of any planned changes in land use on the former NOP and on adjacent properties. For the 2007 OE Recurring Review, the UNL, who consequently owns the property for all the OE sites evaluated, was questioned regarding future land use and indicated there were no current plans to change land use in the future, both on their property and on adjacent property.

How did you evaluate whether the public may have been exposed to ordnance within the past 40 (or past 5?) years?

USACE Response: For the 2001 and 2007 OE Recurring reviews, the USACE evaluated public exposure to OE through document reviews; interviews and communications with the UNL, community members, and local law enforcement; and a public availability session. Based on information gathered through these sources, there have been no reported exposures to OE other than those previously documented by USACE.

The absence of visible ordnance is not an accurate nor protective metric for assessing possible ordnance-related risks.

USACE Response: The statement that “no visible DoD-related OE hazards or wastes that remain at the former NOP”, included in the Executive Summary of the 2001 OE Recurring Review Report (December 2002), was intended to summarize the findings of the OE Recurring Review. It was not intended to indicate that a visual inspection was used to evaluate OE risk at this site. In fact, the response actions undertaken by USACE were not solely based on visible inspections of each site. Historical document reviews were conducted and geophysical investigations were completed at many sites. At many sites USACE has said the risk of an ordnance incident is low not non-existent, but the protective measure instituted during the response actions along with current land use will serve as appropriate mitigation to any remaining risk for public exposure to ordnance. OE Recurring Reviews are also conducted to monitor land use changes which may raise the ordnance related risk at these sites.

In paragraph 2, please discuss why the University has voluntarily implemented access controls (fencing, signs) at Site 5, Site 8, Site 9, Site 10, and the Potential Landfill Area, and DOD has not taken steps to address these potential risks.

USACE Response: Since the USACE does not own the property in question, we are not able to impose access controls. Although USACE has not recommended fencing or signage based upon OE-related risk at any location at the former NOP, the UNL agreed to install both fencing and signage with funding that was provided to them by USACE. This will be further clarified in the 2007 OE Recurring Review Report. Signage at the Landfill Area (Site 8) was upgraded in August 2007.

2. Section 0.2.1 – The Review indicates that intrusive activities below 4 feet should not be conducted at Site 5, however, no use restrictions have been placed on the property. These conditions should be identified and use restrictions should be considered. Alternatively, the property should be cleared of ordnance to support unrestricted use.

USACE Response: The Department of Defense (DoD) no longer hold the deeds to the sites and therefore cannot impose restrictions on land not owned by the DoD. The current landowner, the UNL, is aware of the restrictions on Site 5 and operate accordingly in this area, as identified in the Statement of Clearance issued following the removal action. UNL operates in the vicinity of Site 5 in accordance with these restrictions. The EE/CA considered clearance of this site for unrestricted use, however that was determined to be cost prohibitive based on the current land use.

3. Section 0.2.2 – Please clarify whether a physical investigation has been performed to assess the potential mustard disposal area.

USACE Response: Neither geophysics nor intrusive activities have been conducted at the suspected mustard agent disposal area since it is thought to be located below or adjacent to a landfill. Since landfills typically have a variety of waste material present, it would be extremely difficult to differentiate between typical waste and OE waste.

The absence of thiodiglycol in groundwater is not a reliable indicator or whether mustard agent may have been disposed in the area.

USACE Response: USACE disagrees with the statement that thiodiglycol is not a reliable indicator of mustard agent. In fact, the EPA *Handbook on the Management of Munitions (EPA 505-B-01-001, May 2005)* states, “The most persistent degradation product [of mustard] is [thiodiglycol].”

4. Section 0.2.3 – The Review cites evidence of potential ordnance near the NRD reservoir and indicates that warning signs and gates warn of potential hazards. However, DOD has not identified any ordnance-related risks in the area. Also, you indicate that no new information for this site was identified, however, you also note visual observation of ordnance-related debris at the site. This would constitute significant new information. Also, note that EPA observed bee-keeping

activity at this area in the recent past. We understand that the University took steps to discontinue this activity shortly after it was observed.

USACE Response: Potential ordnance and ordnance-related debris include partial bomblets, empty booster cups, and inert bomb fuze that were found during a 1999 OU3 field investigation in the Potential Landfill Area. The potential landfill area is bordered by the NRD Reservoir to the east; Site 10 (North Burning Ground) to the west; Site 9 (Proving Grounds) to the south. As stated in the 2001 OE Recurring Review Report (dated December 2002), during the 1999 OU3 field work, 39 test pits were excavated in the area of the potential landfill area. Construction debris and some OE scrap were discovered in the test pits. USACE would characterize the partial bomblets, empty booster cups, and inert bomb fuzes as OE scrap, and would therefore expect that such materials may be present in a landfill in this area of the site.

There was no evidence of beekeeping activities during the 2007 site visit.

5. Section 1.1 – Under CERCLA, response actions must do more than minimize risks, as described in paragraph 2. They must be protective of human health and the environment. The review should be conducted to assess whether conditions at the site are protective.

USACE Response:

Recurring reviews are intended to determine whether the OE response action continues to minimize risks posed by OE to a level of acceptable protection to the public safety and environment. This review combined with CERCLA response actions, investigations, and evaluations of risk fully assess the protectiveness of site conditions.

Please clarify why the Corps would require a special request to review site conditions if an incident involving ordnance occurs at the site.

USACE Response: The statement in question, “Should a problem with a response action be identified or an incident occurs between scheduled Recurring Reviews, a request for an OE Recurring Review may be submitted to the CENWK office to have the response action reviewed,” is referring specifically to the frequency of to conducting site-wide recurring reviews. USACE has addressed and will address all OE-related issues as they arise, but will not necessarily conduct a complete site-wide OE Recurring Review outside of every five years. USACE believes that conducting such reviews every five years is sufficient, but also recognizes there may be instances where a more frequent recurring review is requested or deemed necessary. Regardless, this will be the last OE RR conducted for this site. In the future, OE will be addressed as part of the CERCLA process and 5-year review for OU3.

6. Table 2-1 – Please clarify at which site the partially expended bomblets were found, and how the presence of these ordnance were considered in the Review.

USACE Response: The partial bomblets, considered to be munitions debris, were found in the Potential Landfill Area. The Potential Landfill Area is bordered by the NRD Reservoir to the east; Site 10 (North Burning Ground) to the west; Site 9 (Proving Grounds) to the south, and is considered a separate area from the adjacent sites. The 2001 and 2007 OE Recurring Review Reports both evaluate the partial bomblets in the Potential Landfill Area discussions. As stated in the 2001 and 2007 OE Recurring Review Reports, during the 1999 OU3 field work, 39 test pits were excavated in the area of the potential landfill area. Construction debris and some OE scrap were discovered in the test pits. USACE would characterize the partial bomblets, empty booster cups, and inert bomb fuzes as OE scrap, and would therefore expect that such materials may be present in a landfill in this area of the site. Land use, access and other factors affecting risk of public exposure to ordnance were evaluated as part of the 2001 and 2007 OE Recurring Reviews for the Potential Landfill Area.

7. Section 2.2.2 – The review should evaluate protectiveness at all 12 potential ordnance areas identified in the PA, including sites where “no further action” was recommended, to determine whether current conditions are protective.

USACE Response: The 12 areas identified in the PA are summarized in the 2007 OE Recurring Review Report. The history of each site is described along with any sampling or actions taken at the site. The overall risks presented by the site are also documented. This information will be considered as part of the OU3 CERCLA process. USACE does not see the need to reevaluate risk in areas where previous investigations and evaluations did not find OE-related risks. Since many of these 12 areas have not had any new OE-related discoveries, changes in land use, or changes in accessibility, risk in these areas was not evaluated in the 2007 OE Recurring Review.

8. Section 2.2.5 – Please clarify whether any field investigative efforts have occurred to identify the potential disposal of mustard agent.

USACE Response: Neither geophysics nor intrusive activities have been conducted at the suspected mustard agent disposal area due to its proximity to the Landfill Area (Site 8). Since landfills typically have a variety of waste material present, it would be extremely difficult to differentiate between typical waste and CWM waste. Intrusive investigations into landfills are normally inadvisable and not typically productive because other waste material is present. Additionally, the disturbance of landfills is regulated by Nebraska Title 132, [Integrated Solid Waste Management Regulations](#).

9. Section 2.2.7 – The basis for the removal decisions selected at each site should be described. The status of Site 7 and Site 11 should be clarified.

USACE Response: The twelve areas identified in the PA are summarized in the 2007 OE Recurring Review Report. The history of each site along with any sampling or actions taken at the site is summarized in more detail than was provided in the 2001 OE Recurring Review Report (December 2002). The overall risks presented by the site are also documented in the 2007 OE Recurring Review, based on previous evaluations. USACE did not reevaluate risk in areas where previous investigations and evaluations did not find OE-related risks. Since many of these twelve areas have not had any new OE-related discoveries, changes in land use, or changes in accessibility, risk in these areas was not reevaluated in the 2007 OE Recurring Review.

10. Section 2.2.9 – The July 1996 Action Memorandum recommended no action at Site 9. However, in April 1999, unexploded ordnance was found near Site 9. It appears that additional work at Site 9 is warranted to insure conditions are protective.

USACE Response: USACE has separated Site 9 from the Potential Landfill Area, where the munitions debris (partial bomblets) was discovered in 1999, in the 2001 and 2007 OE Recurring Reviews. Although the sites are close in proximity, they have been considered separate sites for the purposes of the OE evaluation. The discussions and conclusions related to the Potential Landfill Area is presented independently of that of Site 9. The 2007 OE Recurring Review provides further documentation supporting the NDAI for Site 9 established in the EE/CA.

11. Section 3.2.1 – The report concludes that a cattle feedlot in the area of Site 5 impedes foot and vehicular traffic. We disagree and believe that activity at the feedlot in fact insures that foot and vehicular traffic will be prevalent in the area. A figure illustrating details of Site 5 and land adjacent to Site 5 should be included.

USACE Response: The report states, “cattle pens, fencing, and gates serve as a barrier against foot and vehicular traffic” and is referring to that of the general public since access to the site is restricted. This will be clarified in the 2007 OE Recurring Review Report. UNL indicated that Site 5 is currently being used as a feedlot. Signs are used to restrict access and any new personnel are made aware of the history of OE at this site. UNL only allows its personnel to conduct mowing activities here. An updated figure of Site 5 will be provided in the 2007 OE Recurring Review Report.

12. Table 3-2 – This table identifies anomalies identified and excavated at Site 5, Site 9 and Site 10. However, Section 2.2.7 indicates that no further action was recommended for Site 9 and Site 10. Please clarify. Also, at Site 5 and Site 10, not all of the anomalies were apparently excavated. Please clarify how you have determined that these anomalies pose no threat.

USACE Response: The following information will be included in the 2007 OE Recurring Review Report to further explain the geophysical investigation conducted during the EE/CA, as referenced in Table 3-2:

Site 9

During the 1994 field investigation no evidence of UXO was observed during the visual survey. The geophysical survey identified 128 anomalies. A portion of the NRD reservoir covered 25 anomalies. The remaining 103 anomalies were located and excavated. USACE believes there were a sufficient number of accessible anomalies (103 out of 128) to provide a statistical representation of the area. The material found was scrap metal, wire and construction debris. No inert OE or UXO were identified from the remaining 103 anomalies excavated. In addition, there is no history of reported incidents or mishaps in this area. Since the area remotely located, is owned by the UNL, and is currently used as a wildlife enhancement area, public access is minimal. No further action was determined for Site 9 due to the fact that no UXO and OE were detected in the area and because the area is privately owned. Also, as stated previously, USACE has separated Site 9 from the Potential Landfill Area, where the munitions debris (partial bomblets) was discovered in 1999.

Site 5

In 1994, USACE conducted an EE/CA field investigation which consisted of surface clearance activities and collection of geophysical data. Surface clearance was conducted in three 100'x100' grids for geophysics over an area of 0.7 acres at Site 5 using a Schonstedt A-72C ferrous metal locator. Following surface clearance a geophysical survey using a Geonics EM31 electromagnetic ground conductivity meter and Geonics EM61 time-domain metal detector was conducted. Based on these activities, a total of 107 anomalies were recorded for Site 5. Of these 107 anomalies 79 were excavated. Of the remaining 28 locations, the magnetometer could not detect any anomaly. Since no metallic signals were recorded, these 28 locations were not excavated. Of the 79 excavated anomalies, 33 contained inert OE and one was treated as UXO. The types of inert OE located consisted of M48 series fuses, ballistic windshields, pull tabs, starter screens, booster cups, and pull rings. One of the M48 series fuses had a very slight possibility of containing a small detonator in the nose element and thus was treated as UXO. Following the EE/CA, a Removal Action was conducted in May 1997, where approximately 6 acres of land were cleared of surface and subsurface OE to a depth of 4 feet.

Site 10

A geophysical survey was conducted at two areas believed to be burn pads. The survey identified 130 possible anomaly locations. At three of these locations, the magnetometer could not detect any anomaly, thus these three locations were not excavated. Of the remaining 127 anomalies located and excavated, only two were identified as inert OE.

Soil samples were collected from various locations. Samples from Site 10 revealed levels of explosive constituents were not indicative of an explosive hazard. In addition, there is no history of reported incidents or mishaps in these areas. Since the area remotely located, is owned by the UNL, and is currently used as a wildlife enhancement area, public access is minimal. No further action was determined for Site 10 due to the fact that only 2 detections of inert OE were detected in the area and because the area is privately owned.

13. Table 3-3 – This table identifies 13 “OE” items encountered and removed at Site 5. Please clarify how this compares to the number of anomalies with UXO identified at Site 5 in Table 3-2.

USACE Response: The 1997 Removal Action (summarized in Table 3-3) was conducted subsequent to the 1994 field investigation (summarized in Table 3-2). The 2007 OE Recurring Review Report will include a more detailed explanation of the 1997 Removal Action activities.

14. Section 3.2.2 – Please clarify how you have determined that “inaccurate documentation” regarding possible CWM at Site 8 exists. Note that the “Supplementary Archives Search Report at the Former NOP” (November 1993) states that, “There is evidence that relatively small quantities of CWM was disposed of at the former NOP” (page 3-5). Field activities to assess possible CWM disposal should be implemented.

USACE Response: The EE/CA stated that insufficient evidence and inaccurate documentation exists regarding the potential CWM burial (Site 8) because some of the historic documentation contained conflicting information regarding the burial and former NOP personnel were unable to physically locate a burial location during field activities conducted during the 1990s. Despite this assertion in the EE/CA, the USACE is proceeding with the assumption that the CWM was buried in the site landfill.

Groundwater monitoring for thiodiglycol and other mustard agent breakdown products has been conducted to assess the presence of any CWM in groundwater around the Landfill Area (Site 8). To date, no breakdown products have been detected in groundwater in the vicinity of the suspected CWM burial. USACE does not believe other field activities, such as a geophysical investigation or excavation, would be beneficial to specifically identify the CWM burial or other military munitions due to the proximity of the burial location to the landfill. Since landfills typically have a variety waste material present, it would be extremely difficult to differentiate between typical waste and OE waste with geophysics. Excavation of landfills is not technically advisable or practical and disturbance of landfills is regulated by Nebraska Title 132, Integrated Solid Waste Management Regulations.

15. Section 3.2.3 – Section 2.2.9 indicates the presence of two devices found near Site 9 which required detonation by an explosive ordnance team. This information

should be discussed here. It is unclear how you conclude that hazards at/near Site 9 are negligible based on these findings.

USACE Response: As stated previously, this comment is referring to the 1999 discovery of munitions debris (partial bomblets) near Site 9, in the Potential Landfill Area. USACE has separated the Potential Landfill Area from adjacent Sites 9 and 10, so this information on the discovery munitions debris near Site 9 is presented independently in the discussions of the Potential Landfill Area. Conclusions for Site 9 and Site 10 considered data separate from the data identified at the Potential Landfill Area.

Also, note that University personnel indicate that the reservoir area near Site 9 is a common gathering place for children (see Appendix D, page 6).

USACE Response: This issue was identified in the 2001 OE Recurring Review stakeholder interviews. During those interviews, UNL indicated that the reservoir is a common area for teens/kids to gather. As indicated in EPA Specific Comment #4 above, the University took steps to discontinue this activity shortly after it was observed. Although the issue of public entry to the reservoir area is mentioned in Section 3.3.3 of the 2001 OE Recurring Review Report (dated December 2002), it is also stated that UNL does not allow access to this area. Signage and fencing exist at the entrance of the reservoir to warn against trespassing and the potential risks related to OE in the area. No evidence of these activities was noted during the 2007 OE Recurring Review site visit.

16. Section 3.2.4 – The Report indicates that Site 10 may have contained three large metal burn cages, however, concludes there is no evidence that the site was used as a burning ground. These statements appear to contradict. Please clarify.

USACE Response: Regardless of past uses of Site 10, data collected during the 1991 PA show that explosive constituents did not indicate an explosive hazard. During the 1994 field investigation only inert OE was located during the visual and geophysical surveys.

The site is approximately 5 acres in size, however, only 3 grids of 100 square feet, 2 test pits and an undescribed geophysical survey have been evaluated. Please clarify how you have determined the status of ordnance in the areas of the site that have not been evaluated.

USACE Response: The undescribed geophysical survey was that which was conducted during the EE/CA investigation. Data collected during this investigation is contained in Section 3.2.1, Table 3-2, of the 2001 OE Recurring Review Report (December 2002). The following information will be included in the 2007 OE Recurring Review Report to further explain the historical investigations conducted at Site 10:

The EE/CA survey identified 130 possible anomaly locations. At three of these locations, the magnetometer could not detect any anomaly, thus these three locations were not excavated. Of the remaining 127 anomalies located and excavated, only two were identified as inert OE.

USACE believes this site has been sufficiently characterized for OE-related material. In addition to the EE/CA geophysical investigation and excavations, soil samples were collected from various locations. Samples from Site 10 revealed levels of explosive constituents were not indicative of an explosive hazard. In addition, there is no history of reported incidents or mishaps in these areas. Since the area remotely located, is owned by the UNL, and is currently used as a wildlife enhancement area, public access is minimal. No further action was determined for Site 10 due to the fact that only two detections of inert OE were detected in the area and because the area is privately owned.

17. Section 3.2.5 – See comments re: Site 9 and the presence of incendiary bomblets.
We do not concur with the conclusion that risks at the site are negligible.

USACE Response: As stated previously, this comment is referring to the 1999 discovery of munitions debris (partial bomblets) near Site 9, in the Potential Landfill Area. USACE has separated the Potential Landfill Area from adjacent Sites 9 and 10, so this information on the discovery munitions debris near Site 9 is presented independently in the discussions of the Potential Landfill Area. Conclusions for Site 9 and Site 10 considered data separate from the data identified at the Potential Landfill Area.

Results from sampling of surface water and sediment of the NRD Reservoir should be discussed.

USACE Response: The purpose of the OE Recurring Review is to determine the protectiveness of removal actions conducted for military munitions. Surface water and sediment sampling of the NRD Reservoir was not conducted as part of the OE Recurring Review or the evaluation of military munitions; however, this data is included in the OU3 Remedial Investigation.

18. Section 3.3 – Details of each of the elements of the site visit which address the factors enumerated (development, erosion, recreation, fire, etc...) should be presented. Please clarify how the site visit evaluated frost heave, institutional controls, and stakeholder interest.

USACE Response: The notes from the 2001 OE Recurring Review site visit were appended to the 2001 OE Recurring Review Report (dated December 2002). Frost heave and erosion were not specifically evaluated during the 2001 OE Recurring Review. All other information, including institutional controls, stakeholder interest, site development, recreation, fire, changes in land use and accessibility, and OE incidents were identified by visual confirmation during the site visit and/or communications with the landowner and stakeholders.

Community, agency, stakeholder, and landowner interviews identified any issues of interest related to OE. The 2007 OE Recurring Review Report will provide more clarification of each of the factors assessed during the site visit.

All sites with potential ordnance concerns should be assessed in the Review, including Site 6 and Site 12, to determine whether conditions at these areas are protective.

USACE Response: The twelve areas identified in the PA are summarized in the 2007 OE Recurring Review Report. The history of each site along with any sampling or actions taken at the site is summarized in more detail than was provided in the 2001 OE Recurring Review Report (December 2002). The overall risks presented by the site are also documented in the 2007 OE Recurring Review, based on previous evaluations. USACE did not reevaluate risk in areas where previous investigations and evaluations did not find OE-related risks. Since many of these twelve areas have not had any new OE-related discoveries, changes in land use, or changes in accessibility, risk in these areas was not reevaluated in the 2007 OE Recurring Review.

In all areas of interest, the current land use at and near the site, along with the accessibility of the site should be described in detail.

USACE Response: The 2007 OE Recurring Review Report will provide a more detailed description of land use and access for each site evaluated. USACE evaluates future land use changes by communicating with current land owners. Based on the sites evaluated in the 2001 and 2007 OE Recurring Reviews, the current landowner, who consequently owns the property for all the OE sites evaluated, was questioned regarding future land use and accessibility. Current land use for all OE sites evaluated is agricultural. The UNL indicated there were no future plans for changes in land use at these sites.

19. Section 3.3.1 – As noted previously, it is unclear how/why a cattle operation would inhibit rather than encourage foot and vehicular traffic. Please clarify.

USACE Response: The report states, “cattle pens, fencing, and gates serve as a barrier against foot and vehicular traffic” and is referring to that of the general public since access to the site is restricted. This will be clarified in the 2007 OE Recurring Review Report. UNL indicated that Site 5 is currently being used as a feedlot. Signs are used to restrict access and any new personnel are made aware of the history of OE at this site. UNL only allows its personnel to conduct mowing activities here. An updated figure of Site 5 will be provided in the 2007 OE Recurring Review Report.

20. Section 3.3.2 – Please clarify the nature of “conflicting information” regarding potential CWM at Site 8. Note that at least three individuals have reported the disposal of CWM near the former NOP landfill.

USACE Response: The EE/CA stated that insufficient evidence and inaccurate documentation exists regarding the potential CWM burial (Site 8) because some of the historic documentation contained conflicting information regarding the burial and former NOP personnel were unable to physically locate a burial location during field activities conducted during the 1990s. Despite this assertion in the EE/CA, the USACE is proceeding with the assumption that the CWM was buried in the site landfill.

21. Section 3.3 – It should be stated that the gate is insufficient to control access to the site.

USACE Response: It is presumed that this comment refers to Section 3.3.3 of the 2001 OE Recurring Review Report (December 2002), which states, “Access to this area is controlled with a gate, however indications of recent entry by the public were noted during the site visit. UNL does not allow access to this area.” This incident is related to the account by UNL in 2001 that teens/kids had been accessing this area, as noted in EPA Specific Comment #15. As indicated previously, the University took steps to discontinue this activity shortly after it was observed. Although the issue of public entry to the reservoir area is mentioned in Section 3.3.3 of the 2001 OE Recurring Review Report (dated December 2002), it is also stated that UNL does not allow access to this area. Signage and fencing exist at the entrance of the reservoir to warn against trespassing and the potential risks related to OE in the area. No evidence of these activities was noted during the 2007 OE Recurring Review site visit.

22. Section 3.4.1 – Please note that EPA does not concur with many of the responses provided by USACE in Appendix G.

USACE Response: USACE requests that EPA identify (in writing) all specific comments, comment responses, and concerns related to the 2001 OE Recurring Review Report (December 2002) to ensure they can be adequately addressed. It is difficult to identify the true concerns of the agency based on the comment as written.

In paragraph 2, it is unusual that the USACE was “unable to contact Offut AFB to review their historical records”. Mr. John Jurgiel of Offut provided a detailed account of CWM activity at NOP.

USACE Response: USACE previously contacted Mr. Jurgiel with regard to CWM activity in 1993. The 1993 interview between Mr. John Jurgiel and TCT, which is documented in Appendix C of the 2001 OE Recurring Review Report (December 2002). Subsequent to receipt of these comments, in April 2007 the USEPA contacted Mr. Jurgiel to discuss the incident. A phone record of that conversation, provided by USEPA, is included in Appendix D of the 2007 OE Recurring Review Report. The recent communication between USEPA and Mr. Jurgiel did not result any new information about this incident, as Mr. Jurgiel confirmed the information that he provided to USACE in 1993.

23. Section 3.4.2 – The University has expressed several concerns regarding potential DOD-related ordnance on its property, which are described in this section. The Report does not indicate how the Army is planning to address University concerns.

USACE Response: USACE and UNL have discussed the current and future status of Site 5. In the event that intrusive activities below 4 feet are required, USACE will evaluate their ability to assist the UNL with UXO avoidance or if necessary removal.

Section 4.1 - Please clarify how you have evaluated “future land use changes” at the site.

USACE Response: USACE evaluates future land use changes by communicating with current land owners, as stated in section 4.1. Based on the sites evaluated in the OE RR, the current landowner, UNL, who consequently owns the property for all the OE sites evaluated, was questioned regarding future land use. At the time of the 2001 and 2007 OE Recurring Reviews, the UNL indicated they do not foresee changes in land use in the future.

Please note the status of any construction work at Site 5. The fact that such activities were feasible indicates a potentially unprotective condition.

USACE Response: During the site visit there was no visible signs of construction activities. During the 2001 and 2007 OE Recurring Reviews, UNL stated that Site 5 is only used as a cattle feedlot and there are no future construction or expansion activities planned for the site.

24. Section 4.2 – The absence of formal land use controls at areas of potential ordnance hazards is not protective.

USACE Response: USACE presumes that USEPA considers formal land use controls to be deed restrictions and institutional controls. The UNL has placed a deed notices on the Landfill Area, Site 8, and the North Burning Ground, Site 10. The deed notice for Site 8 describes that both the UNL and DoD used the area as a solid waste disposal area, and it must be managed in accordance with Nebraska Title 132, Integrated Solid Waste Management Regulations.

Additionally, institutional controls consisting of fencing and signage are in place at Site 5 (Culvert Area), at Site 8 (Landfill Area, Former Treatment Plant), at Site 9 (Proving Range), at Site 10 (North Burning Ground), at the Potential Landfill Area between Sites 9 and 10, and at Site 12 (Bomb Booster Area). All of these sites are located on property owned by the UNL and access is not provided to the public.

25. Section 4.3 – The bases for the assessments presented in this section should be included.

USACE Response: USACE did not reevaluate risk in areas where previous investigations and evaluations did not find OE-related risks. Since many of the originally identified twelve OE areas have not had any new OE-related discoveries, changes in land use, or changes in accessibility, risk in these areas was not reevaluated in the 2007 OE Recurring Review.

26. Section 5.1 – All areas with potential ordnance hazards should be assessed as part of the Review.

USACE Response: The twelve areas identified in the PA are summarized in the 2007 OE Recurring Review Report. The history of each site along with any sampling or actions taken at the site is summarized in more detail than was provided in the 2001 OE Recurring Review Report (December 2002). The overall risks presented by the site are also documented in the 2007 OE Recurring Review, based on previous evaluations. USACE did not reevaluate risk in areas where previous investigations and evaluations did not find OE-related risks. Since many of these twelve areas have not had any new OE-related discoveries, changes in land use, or changes in accessibility, risk in these areas was not reevaluated in the 2007 OE Recurring Review.

GENERAL COMMENT

The purpose of the Recurring Review for OE response actions is to determine if a response action continues to minimize explosives safety risks and continues to be protective of human health, safety, and the environment (EP 75-1-4, October 2003).

One of the questions the Recurring review attempts to address is whether any new information indicates that the previously selected response is no longer protective of human health, safety, and the environment considering the best available technology. Based on the information provided in the Draft 2002 Recurring Review Report, it doesn't appear as if risks at potential ordnance sites have been sufficiently evaluated.

USACE Response: USACE conducted the 2001 and 2007 Ordnance and Explosives (OE) Recurring Review in accordance with the OE Recurring Review Work Plan which was issued to Nebraska Department of Environmental Quality (NDEQ) for review in 2001, prior to its finalization. USACE requests that NDEQ provide specific details and concerns as to what ordnance risks were insufficiently evaluated. It is difficult to identify the true concerns of the agency based on the comment as written.

SPECIFIC COMMENTS

1. **Section 0.2.2, and Section 2.2.5: Site 8-Landfill Area.** Please clarify and provide further information. The report mentions that the EE/CA suggested that insufficient evidence and inaccurate documentation regarding the potential that chemical warfare material (CWM) exists for this site. As a result the EE/CA classified this site as no action indicated for OE and USACE has not been able to substantiate the burial. However, there were at least three eyewitnesses who were interviewed and confirmed the burial of CWM at this site. It is unclear whether geophysics have been conducted in the Landfill Area. Further, a site visit generally would not substantiate the presence of CWM.

USACE Response: The EE/CA stated that insufficient evidence and inaccurate documentation exists regarding the potential Chemical Warfare Materiel (CWM) burial (Site 8) because some of the historic documentation contained conflicting information regarding the burial and former NOP personnel were unable to physically locate a burial location during field activities conducted during the 1990s. Despite this assertion in the EE/CA, the USACE is proceeding with the assumption that the CWM was buried in the site landfill.

A geophysical investigation has not been conducted at the Landfill Area, because USACE does not believe a geophysical investigation would be beneficial to specifically identify the CWM burial or other military munitions due to the proximity of the burial location to the landfill. Since landfills typically have a variety waste material present, it would be extremely difficult to differentiate between typical waste and OE waste with geophysics.

USACE did not intend to imply that a site visit substantiated the presence of CWM. In addition to historic document review and interviews with former NOP personnel, groundwater monitoring for thiodiglycol and other mustard agent breakdown products has been conducted to assess the presence of any CWM in groundwater around the Landfill Area (Site 8). To date, no breakdown products have been detected in groundwater in the vicinity of the suspected CWM burial.

The Final Supplementary Archives Search Report (SASR) states that, “*There is evidence that relatively small quantities of CWM was disposed of at the former NOP*” relative to Site 8-Landfill Area.

NDEQ requests that further evaluation of the Landfill Area be conducted. NDEQ recently acquired correspondence from Offutt Air Force Base (Offutt) and this documentation has not been evaluated in the Recurring Review, and should be evaluated in the 2007 OE Recurring Review. A decision to take no action on OE due to “insufficient evidence” for the burial of CWM, the lack of CWM identified during the recurring review site visit, and/or inaccurate documentation does not appear to be substantiated.

USACE Response: USACE included the Offutt Air Force Base (Offutt) memorandum, forwarded by the NDEQ, in Appendix D of the 2007 OE Recurring Review Report. Although this memorandum was not included specifically in the 2001 OE Recurring Review Report (dated December 2002), the information contained in the memorandum has been captured in previous historical accounts of the Offutt incident as it relates to the suspected CWM burial. Therefore, no additional discussion will be provided in the 2007 OE Recurring Review Report based on the information provided by NDEQ. The information contained in the memorandum is consistent with the 1993 interview between Mr. John Jurgiel and TCT, which is documented in Appendix C of the 2001 OE Recurring Review Report (December 2002).

As indicated above, in addition to historic document review and interviews with former NOP personnel, groundwater monitoring for thiodiglycol and other mustard agent breakdown products has been conducted to assess the presence of any CWM in groundwater around the Landfill Area (Site 8). To date, no breakdown products have been detected in groundwater in the vicinity of the suspected CWM burial. USACE does not believe other field activities, such as a geophysical investigation or excavation, would be beneficial to specifically identify the CWM burial or other military munitions due to the proximity of the burial location to the landfill. Since landfills typically have a variety waste material present, it would be extremely difficult to differentiate between typical waste and OE waste with geophysics. Excavation of landfills is not technically advisable or practical and disturbance of landfills is regulated by Nebraska Title 132, Integrated Solid Waste Management Regulations.

2. **Section 0.2.3 Site 9 and Section: Proving Range and Site 10-North Burning Ground and Potential Landfill Area.** Please review and revise. The report

states that since no new information was identified for these sites during the recurring review, these sites do not warrant further investigation for OE. However, the report mentions that in 1999 two (2) partial bomblets were found during the investigation at the NRD Reservoir. The report also mentions that during the OE Recurring Review site visit in October 2001, empty booster cups, and an inert bomb fuze were discovered on the shore of the NRD Reservoir. NDEQ requests that these areas be re-evaluated, as the decision for no further investigation for OE does not appear to be substantiated based on the field evidence.

USACE Response: The partial bomblets, empty booster cups, and inert bomb fuze were found during a 1999 OU3 field investigation in the Potential Landfill Area. USACE has separated Site 9 from the Potential Landfill Area, where the munitions debris (partial bomblets) was discovered in 1999, in the 2001 and 2007 OE Recurring Reviews. Although the sites are close in proximity, they have been considered separate sites for the purposes of the OE evaluation. The discussions and conclusions related to the Potential Landfill Area is presented independently of that of Site 9. The EE/CA established NDAI for OE at Site 9, independent of the Potential Landfill Area.

In an October 10, 2001 interview, an Omaha Corps District representative stated that the bomb(s) found in 1999 were “not known to have been manufactured at the NOP site.” NDEQ requests that USACE review munitions correspondence from Offutt. According to the SASR there was an agreement between NOP and Offutt to dispose of Offutt items, which was substantiated in two documents (NOP Monthly Surveillance Report, April 1949; Ordnance Department Memo to Inspector General “NOP of Salvage Functions to Offutt AFB”, July 1, 1949).

USACE Response: As stated in the OE RR Report, the former NOP was constructed as a load, assembly, and pack facility for explosive weapons. With the exception of ammonium nitrate, the materials used to manufacture weapons were fabricated elsewhere and shipped to the NOP for assembly. Therefore the fact that military munitions were not ‘manufactured’ at this site is irrelevant to the OE Recurring Review, as USACE is responsible for and will continue to evaluate and minimize any risks associated with the munitions assembled, tested, and disposed at his site. Although the statement that the potential bomblets (munitions debris) were not manufactured at the former NOP is correct, it was not stated in the context of dismissing liability from USACE for the burial.

- 3. Sections 0.2.1, 3.2.1, and 5.1.1-Site 5: Culvert Area.** Please provide further information. Table 3-2 shows that of 107 subsurface anomalies, only 79 were excavated. In an October 2001 interview with UNL, it was mentioned that not all anomalies were investigated, and USACE made an action item to verify this fact. NDEQ request that an update of the outcome of this action item be provided.

USACE Response: The following information will be included in the 2007 OE Recurring Review Report to further explain the geophysical investigation conducted during the EE/CA at Site 5, as referenced in Table 3-2:

In 1994, USACE conducted an EE/CA field investigation which consisted of surface clearance activities and collection of geophysical data. Surface clearance was conducted in three 100'x100' grids for geophysics over an area of 0.7 acres at Site 5 using a Schonstedt A-72C ferrous metal locator. Following surface clearance a geophysical survey using a Geonics EM31 electromagnetic ground conductivity meter and Geonics EM61 time-domain metal detector was conducted. Based on these activities, a total of 107 anomalies were recorded for Site 5. Of these 107 anomalies 79 were excavated. Of the remaining 28 locations, the magnetometer could not detect any anomaly. Since no metallic signals were recorded, these 28 locations were not excavated. Of the 79 excavated anomalies, 33 contained inert OE and one was treated as UXO. The types of inert OE located consisted of M48 series fuses, ballistic windshields, pull tabs, starter screens, booster cups, and pull rings. One of the M48 series fuses had a very slight possibility of containing a small detonator in the nose element and thus was treated as UXO. Following the EE/CA, a Removal Action was conducted in May 1997, where approximately 6 acres of land were cleared of surface and subsurface OE to a depth of 4 feet.

Section 5.1.1 states that the culvert area was cleared for any purposes that do not involve intrusive activities below 4 feet. At the time of the report UNL had plans to expand its cattle feedlot, which could involve excavations to greater than 4 feet below ground surface. A statement of Clearance was signed by USACE, which recommended the cleared parcel at Site 5 (approximately 6 acres to a depth of 4 feet) be used for any purposes that do not involve intrusive activities below 4 feet (USACE Statement of Clearance 1997). However, the Corps maintained that this action would conflict with the statement of clearance and that the current response action would need to be re-evaluated.

NDEQ requests that the Corps provide the following updates with regard to the expansion of the feedlots: a) Has the expansion of the feedlots occurred; b) Did USACE provide UXO support to UNL or determine if support was necessary; c) Was the current response action re-evaluated; and d) What was the outcome and were the EPA and NDEQ made aware of the re-evaluation. Please provide any supporting documentation with regard to this issue, if it has not already been provided in the 2002 Draft OE Recurring Review.

USACE Response: During the 2001 and 2007 OE Recurring Reviews, UNL stated that Site 5 is only used as a cattle feedlot and there are no future construction or expansion activities planned for the site. USACE and UNL have discussed the current and future status of Site 5. In the event that intrusive activities below 4 feet are required, USACE will evaluate their ability to assist the UNL with UXO avoidance or if necessary removal. This will be clarified in the 2007 OE Recurring Review Report.

4. **Section 2.2.4.** Please clarify and provide additional information. The report states that due to a lack of supporting information seven of the sites identified in the ASR were eliminated from future investigations. However, none of the references confirmed presence or disposal of CWM. A lack of information should not preclude a site from being investigated. NDEQ requests that all 12 sites be re-evaluated pursuant to whether OE is present. There should be supporting information to prove that a site should be eliminated from future investigations.

USACE Response: The twelve areas identified in the Preliminary Assessment (PA) are summarized in the 2007 OE Recurring Review Report. The history of each site along with any sampling or actions taken at the site is summarized in more detail than was provided in the 2001 OE Recurring Review Report (December 2002). The overall risks presented by the site are also documented in the 2007 OE Recurring Review, based on previous evaluations. USACE did not reevaluate risk in areas where previous investigations and evaluations did not find OE-related risks. Since many of these twelve areas have not had any new OE-related discoveries, changes in land use, or changes in accessibility, risk in these areas was not reevaluated in the 2007 OE Recurring Review. USACE intends to integrate all aspects of the Military Munitions Response Program at this site into the ongoing NOP Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process for Operable Unit 3 (OU3) to ensure any munitions response, to include CWM response, actions are addressed in a final OU3 Record of Decision (ROD).

5. **Military Munitions Response Program (MMRP).** Please provide additional information. It would appear some of the OE sites might constitute munitions response area(s), whereas other portions of the NOP site may need munitions response. NDEQ requests the USACE to evaluate whether the NOP site is eligible for the Defense Environmental Restoration Program's Military Munitions Response Program. It is NDEQ's understanding that via the MMRP the USACE is evaluating Formerly Used Defense Sites that were historically used for military training and testing, and which contain military munitions such as unexploded ordnance (UXO), discarded military munitions, or munitions constituents. A Munitions Response Site Prioritization Protocol scoring is completed for each Munitions response site and it is determined whether further response action is warranted.

USACE Response: USACE has discussed previously with NDEQ that it intends to integrate all aspects of the MMRP at this site into the ongoing NOP CERCLA process for OU3 to ensure any munitions response, to include CWM response, actions are addressed in a final OU3 ROD.