

### 1. IDENTIFICATION & OWNERSHIP

LA Number: 103036 (contact ARMS for site registration)  **Site Update?** (complete at least Sections 1-4)  
 Site Name(s): N-2 and "New Demolition Area" Bomb Targets  
 Other Site Number(s): \_\_\_\_\_ Agency Assigning Number: \_\_\_\_\_  
Volcan No. 34 Cibola Research Consultants  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Current Site Owner(s): City of Albuquerque (Double Eagle II Airport)  
 Site Type: Structural Occupation Type: Historic

### 2. RECORDING INFORMATION

NMCRIS Activity No.: 123288 Field Site Number: \_\_\_\_\_  
 Site Marker?  (specify ID#): \_\_\_\_\_  
 Recorder(s): J. Decker, J. Van Hoose  
 Agency: US Army Corps of Engineers Recording Date (dd-MMM-yyyy): 12-Mar-2012  
 Site Accessibility (choose one):  accessible  buried (sterile overburden)  flooded  urbanized  not accessible  
 Surface Visibility (% visible; choose one):  0%  1-25%  26-50%  51-75%  76-99%  100%  
 Remarks: Surface Visibility is very high throughout the site.

Recording Activities:  sketch mapping  photography  
 instrument mapping (e.g., total station mapping)  shovel or trowel tests; probes  
 surface collection (controlled or uncontrolled)  test excavation  
 in-field artifact analysis  excavation (data recovery)  
 other activities (specify): Archival research using historic aerial imagery, mapping of the site using aerial imagery

Description of Analysis or Excavation Activities: The Corps conducted field visits to the site on January 30 and March 12 of 2012 to assess the site's condition on the ground. In addition, the site was mapped using modern and historic aerial imagery.

Photographic Documentation: N/A

Surface Collections (choose one):  no surface collection  
 uncontrolled surface collection  collections of specific items only  
 controlled (sample: <100%)  controlled (complete: 100%)  
 other method (describe): \_\_\_\_\_

Records Inventory:  site location map  excavation, collection, analysis records  field journals, notes  
 sketch map(s)  photos, slides, and associated records  NM Historic Building Inventory form  
 instrument map(s)  other records: Archival records

Repository for Original Records: US Army Corps of Engineers, Albuquerque District

Repository for Collected Artifacts: N/A

### 3. CONDITION

Archaeological Status:  surface collection  test excavation  partial excavation  complete excavation  
 Disturbance Sources:  wind erosion  water erosion  bioturbation  vandalism  construction/land development  
 other source (specify): \_\_\_\_\_  
 Vandalism:  defaced glyphs  damaged/defaced building  surface disturbance  manual excavation  
 mechanical excavation  other vandalism (specify): \_\_\_\_\_  
 Percentage of Site Intact (choose one):  0%  1-25%  26-50%  51-75%  76-99%  100%

Observations on Site Condition: The site is in good condition. Both targets are fading from view due to backfilling from aeolian deposition, but both are still visible from the air. Site IA 172409 was built in the same area, and the westernmost structure of that site is within target N-2.



LA 103,036

HPD Staff: JRE Date (dd-MMM-yyyy): 18 April 2012 HPD Log No: 94251

Register Status:  listed on National Register  listed on State Register  formal determination of eligibility

State Register No.: \_\_\_\_\_

SHPO Remarks: Integrity Setting is poor due to recent development.

6. LOCATION

Source Graphics:

- USGS 7.5' (1:24,000) topo maps  rectified aerial photos [Scale: \_\_\_\_\_]
- other topo maps [Scale: 1:24000]  unrectified aerial photos [Scale: \_\_\_\_\_]
- GPS unit GPS accuracy (choose one):  < 1.0 m  1-10 m  10-100 m  >100 m
- other source (describe): Aerial photography from 1945, 1949, 1951, 1959 and 1963 as well as a variety of imagery from the period between 1991 and 2011.

UTM Coordinates (@ center of site; at least one set of coordinates required):

Map-based Coordinates Datum: NAD83 Zone: \_\_\_\_\_ E: \_\_\_\_\_ N: \_\_\_\_\_

GPS-based Coordinates Datum: NAD83 Zone: 13 E: 336,227 N: 3,892,879 N-2 Target Center

Datum: NAD83 Zone: 13 E: 336,989 N: 3,893,065 NDA Target Center

Directions to Site: \_\_\_\_\_ In highway R-O-W?

Town (if in city limits): \_\_\_\_\_ State: NM County: Bernalillo

USGS Quadrangle Name	Date	USGS Code
<u>The Volcanoes, NM</u>	<u>1990</u>	<u>35106-B7</u>
_____	_____	_____

PLSS Meridian	Unplatted	Township	Range	Section	¼ Sections	Protracted?
<u>New Mexico</u>	<input type="checkbox"/>	<u>T 11 N</u>	<u>R 1 E</u>	<u>13</u>	_____	<input type="checkbox"/>
<u>New Mexico</u>	<input type="checkbox"/>	<u>T 11 N</u>	<u>R 1 E</u>	<u>14</u>	_____	<input type="checkbox"/>
<u>New Mexico</u>	<input type="checkbox"/>	<u>T 11 N</u>	<u>R 1 E</u>	<u>23</u>	_____	<input type="checkbox"/>
<u>New Mexico</u>	<input type="checkbox"/>	<u>T 11 N</u>	<u>R 1 E</u>	<u>24</u>	_____	<input type="checkbox"/>
<u>New Mexico</u>	<input type="checkbox"/>	<u>T 11 N</u>	<u>R 1 E</u>	<u>25</u>	_____	<input type="checkbox"/>
<u>New Mexico</u>	<input type="checkbox"/>	<u>T 11 N</u>	<u>R 1 E</u>	<u>26</u>	_____	<input type="checkbox"/>

7. PHYSICAL DESCRIPTION

Site Dimensions: 2,860 x 2,230 meters Basis for Dimensions (choose one):  estimated  measured

Site Area: 5,066,470 sq m Basis for Area (choose one):  estimated  measured Elevation: 5820 feet

Site Boundaries Complete? (choose one):  Yes  No (explain): \_\_\_\_\_

**Basis for Site Boundaries:**  distribution of archeological features & artifacts  modern features or ground disturbance  
 property lines  topographic features  other (specify): \_\_\_\_\_

**Depositional/Erosional Environment:**  alluvial  aeolian  colluvial  residual  no deposition (on bedrock)  
 other process (describe): \_\_\_\_\_

**Stratigraphy & Depth of Archeological Deposits** (choose one):  unknown/not determined  
 no subsurface deposits present  subsurface deposits present  stratified subsurface deposits present

**Estimated Depth of Deposits:** No greater than 4 feet according to metal detecting equipment used during testing.

**Basis for Depth Determinations:**  estimated  shovel/trowel tests  core/auger tests  excavations  
 road or arroyo cuts  rodent burrows  other observations (describe): Metal detection and geophysical testing.

**Observations on Subsurface Archeological Deposits:** \_\_\_\_\_

**Local Vegetation** (list species in decreasing order of dominance):

Overstory: \_\_\_\_\_

Understory: \_\_\_\_\_

**Vegetation Community** (choose one or two):  forest  woodland  grassland  scrubland  desert scrubland  marshland  
 other community (specify): \_\_\_\_\_

**Topographic Location:**

<input type="checkbox"/> bench	<input type="checkbox"/> dune	<input type="checkbox"/> low rise	<input type="checkbox"/> ridge
<input type="checkbox"/> alluvial fan	<input type="checkbox"/> blowout	<input type="checkbox"/> flood plain/valley	<input type="checkbox"/> mesa/butte
<input type="checkbox"/> arroyo/wash	<input type="checkbox"/> canyon rim	<input type="checkbox"/> foothill/mountain front	<input type="checkbox"/> mountain
<input type="checkbox"/> badlands	<input type="checkbox"/> cave	<input type="checkbox"/> hill slope	<input type="checkbox"/> open canyon floor
<input type="checkbox"/> base of cliff	<input type="checkbox"/> cliff/scarp/bluff	<input type="checkbox"/> hill top	<input type="checkbox"/> plain/flat
<input type="checkbox"/> base of talus slope	<input type="checkbox"/> constricted canyon	<input type="checkbox"/> lava flow (malpais)	<input type="checkbox"/> playa
<input type="checkbox"/> other location (describe): _____			

**Observations on Site Setting:** \_\_\_\_\_

## 8. ASSEMBLAGE DATA

**Assemblage Content** (all components):

Lithics:

- lithic debitage
- chipped-stone tools
- diagnostic projectile points
- non-local lithic material
- stone-tool manufacturing items (cores, hammerstones, etc.)
- ground-stone tools
- other stone tools
- Other items (specify): \_\_\_\_\_

Prehistoric Ceramics

- whole ceramic vessels
  - diagnostic ceramics
  - other prehistoric ceramics
- Historic Artifacts:
- diagnostic glass artifacts
  - other glass artifacts
  - diagnostic metal artifacts
  - other metal artifacts
  - whole ceramic vessel
  - diagnostic ceramics
  - other historic ceramics

Other Artifacts and Materials:

- bone tools
- faunal remains
- macrobotanical remains
- perishable artifacts
- ornaments
- figurines
- mineral specimens
- architectural stone
- burned adobe
- fire-cracked rock/burned caliche

**Assemblage Size** (all components):

artifact class	estimated frequency						*Counts (if <100)
	0	1s	10s	100s	1000s	>10,000	
lithic artifacts (choose one): <small>(include debitage)</small>	<input type="checkbox"/>	_____					
prehistoric ceramics (choose one):	<input type="checkbox"/>	_____					
historic artifacts (choose one):	<input type="checkbox"/>	_____					
total assemblage size (choose one):	<input type="checkbox"/>	_____					

**Dating Potential:**     radiocarbon     dendrochronology     archeomagnetism     obsidian hydration  
 relative techniques (e.g. seriation, diagnostics, etc.)     other methods (specify): \_\_\_\_\_

**Assemblage Remarks:** Unlike the thin-walled metal used in the construction of sand-filled practice bombs, the debris on the NDA target is jagged strips of dense, heavy-gauge metal that by its very appearance hints at the violence of the explosions and indicates a much different bomb composition than those used for practice.

The munitions debris on N-2 is markedly different from that of NDA. Artifacts observed were the remains of sand-filled practice bombs, mostly of the M38A2 variety. There was no evidence for the use of concrete practice bombs or high explosives at N-2. Typical debris includes crushed M38A2 practice bomb casings, M1A1 initiator disks and spotting charge canisters, bomb fins, arming vanes and the remains of parachute material from aircraft flares. Appendix D of the 1994 USACE report provides an excellent overview of the different types of bombs and their individual parts used at the various targets.

**9. CULTURAL/TEMPORAL AFFILIATIONS**

TOTAL NUMBER OF COMPONENTS DEFINED: 1

COMPONENT #1 (EARLIEST)

Cultural Affiliation: \_\_\_\_\_

**Basis for Temporal Affiliations** (choose one):     not applicable     based on associated chronometric data or historic records  
 associated diagnostic artifact or feature types     based on analytically derived assemblage data or archeological experience

\*Period of Occupation: (\*see NMCRIS Guidelines for valid periods, default occupation dates, and phase/complex names)

Period Name	Begin Date	End Date
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Earliest Period: \_\_\_\_\_

Latest Period (if any): \_\_\_\_\_

**Dating Status:**     radiocarbon     dendrochronology     archaeomagnetism     obsidian hydration  
 relative techniques (e.g. seriation, diagnostics, etc.)     other methods (specify): \_\_\_\_\_

**Basis for Cultural/Temporal Affiliation:** \_\_\_\_\_

Component Type: \_\_\_\_\_

Remarks: \_\_\_\_\_

\*Associated Phase/Complex Name(s): \_\_\_\_\_

**10. FEATURE DATA**

(see NMCRIS User's guide for a list of valid feature types)

Feature Type	Reliable ID ?	# Observed	Assoc. Comp. #s	Feature ID, Notes
N-2 Bomb Target	Yes	1	1	
Nda Bomb Target	Yes	1	1	
Bomb Craters	Yes	12+	1	Taschek noted 12 craters, but more are likely present

Feature Remarks: The original recordings of the site only included the NDA target. The Corps made the decision to record the both the NDA and N-2 targets as one site due to their close proximity, overlapping artifact scatters, and identical periods of use and significance. The condition of the NDA target remains unchanged, so this section provides a description of the newly recorded N-2 target.

The N-2 target is a different type of bull's-eye than the one at NDA. The target consists of five concentric rings centered on the intersection of two massive rectangular crosshairs. This target would have been constructed in a fashion similar to NDA. Also like NDA, the target was highly visible during the active years at the range, but is currently very difficult to make out, even from aerial imagery. Poor visibility likely accounts for why this target has not been recorded during any previous projects. During the 2012 site visit, Corps archaeologists could not make out any part of the target feature on the ground.

## 11. REFERENCES

### Written Sources of Information:

Decker, Jeremy T.

2012 Bombs Away! A Report of Cultural Resources in the Remediation Area for the Historic N-2 and "New Demolition Area" Bomb Targets, Bernalillo County, New Mexico.

### Additional Sources of Information:

Hurt, Teresa, Danny Gregory, Tamara Jager Stewart, Christa Burrus, and Kimberly Parker

2004 Cultural Resource Inventory of 5743 Acres at Double Eagle Airport, Bernalillo County, New Mexico. Report No. 600-183, Taschek Environmental Consulting. Albuquerque, NM.

### US Army Corps of Engineers

1994 Defense Environmental Restoration Program (DERP) for Formerly Used Defense Sites, Ordnance, and Explosive Waste, Archives Search Report, Findings, Kirtland Air Force Base Precision Bombing Ranges N-1, N-3, N-4, & "New" Demolitions. Project No. K06NM044501. Albuquerque, NM.

Marshall, Michael P.

1995 The Paseo del Volcan Cultural Resource Management Project: A Sample Survey and Records Search for the Proposed Alternate Corridors in Bernalillo and Sandoval Counties, New Mexico. Report No. 116, Cibola Research Consultants, Albuquerque, NM.

### TerranearPMC

2011 West Mesa Remedial Investigation/Feasibility Study. Report prepared by TerranearPMC for the US Army Corps of Engineers, Albuquerque District.

## 12. NARRATIVE DESCRIPTION

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LA 103036 is a set of two historic bomb targets, the NDA and N-2 targets, utilized by the Bombardier Training School out of Kirtland Field (now Kirtland Air Force Base) from 1941 to 1946. The site was first recorded by Cibola Research Consultants in 1995 (Marshall 1995), and was re-recorded by Taschek Environmental Consulting in 2004 (Hurt et al. 2004). Both Cibola and Taschek only recorded the NDA bomb target, but the current site update by the Corps also includes the N-2 target and the associated scatter of munitions debris. The Corps made the decision to record the two targets as one site due to their close proximity, overlapping artifact scatters, and identical periods of use and significance.

The “New” Demolition Area target was established in 1941 or 1942 and, unlike other targets on the Precision Bombing Range, was used for dropping high explosive bombs (USACE 1994). The target consists of a set of perpendicular lines forming a crosshair. A circle with a diameter of approximately 180 feet is centered on the intersection of the two lines forming a bull’s-eye. The perpendicular lines are approximately 975 feet long. The target appears to have been formed by using a bulldozer to scratch lines into the soft aeolian sediments down to a light-colored caliche layer. Each line is approximately six feet wide, and was once lined with white stones to increase visibility (USACE 1994). These white stones were not observed during any of the recent site visits. During the years the range was active, this target would have been highly visible, as is evident from historic aerial imagery. The target has become difficult to make out in recent years as the area revegetates and sediment fills the bulldozed features (Figure ). Hurt and colleagues note that the north/south-oriented arm of the target was visible in 2004, but the east/west arm and bull’s-eye circle were not (2004:33). During the March 12 site visit, Corps archaeologists were not able to make out any portion of the target on the ground.

Upon graduation from bombardier training school, students were allowed to drop a single high-explosive bomb on the NDA target. Two physical lines of evidence support this claim. Taschek archaeologists recorded 12 bomb craters near the target interior, and these craters were relocated on the 2012 site visit. Craters such as these are unique to the NDA target, as they were created by explosions from high explosive bombs. The craters average approximately 15 feet in diameter and one foot in depth (Hurt et al. 2004:33). In addition to the craters, another unique aspect of the NDA target is the shrapnel present on the target. Unlike the thin-walled metal used in the construction of sand-filled practice bombs, the debris on the NDA target is jagged strips of dense, heavy-gauge metal that by its very appearance hints at the violence of the explosions and indicates a much different bomb composition than those used for practice.

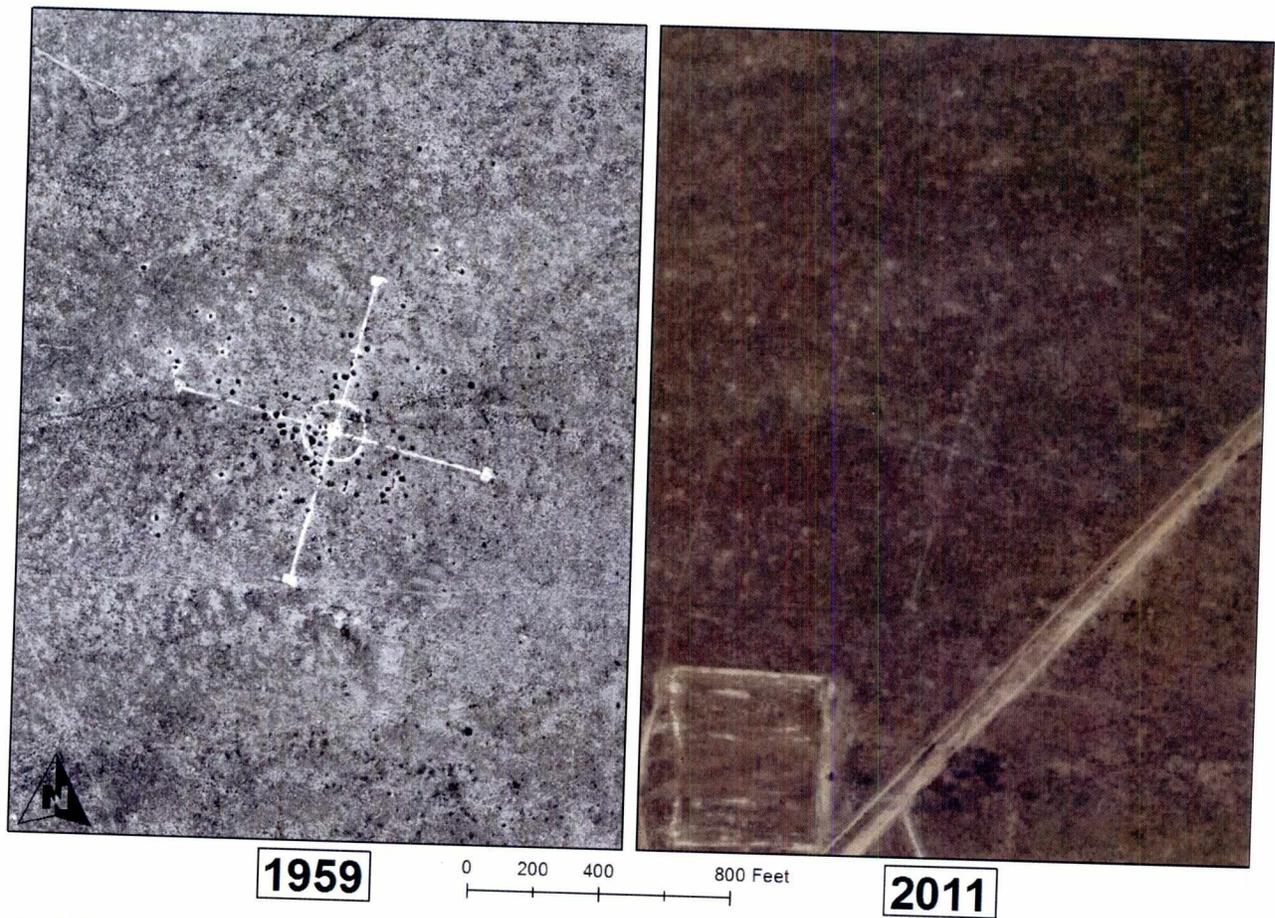
The N-2 target is a different type of bull’s-eye than the one at NDA. The target consists of five concentric rings centered on the intersection of two massive rectangular crosshairs. This target would have been constructed in a fashion similar to NDA. Also like NDA, the target was highly visible during the active years at the range, but is currently very difficult to make out, even from aerial imagery (Figure ). Poor visibility likely accounts for why this target has not been recorded during any previous projects. During the 2012 site visit, Corps archaeologists could not make out any part of the target feature on the ground.

The munitions debris on N-2 is markedly different from that of NDA. Artifacts observed were the remains of sand-filled practice bombs, mostly of the M38A2 variety (Figure ). There was no evidence for the use of concrete practice bombs or high explosives at N-2. Typical debris includes crushed M38A2 practice bomb casings (Figure 0), M1A1 initiator disks and spotting charge canisters (Figure), bomb fins, arming vanes and the remains of parachute material from aircraft flares. Appendix D of the 1994 USACE report provides an excellent overview of the different types of bombs and their individual parts used at the various targets. Numerous bomb parts are present on the surface, but metal detecting conducted by USACE in the project area indicates that practice bombs were capable of penetrating the ground up to four feet in depth, and additional buried materials are likely.

Most of the practice bomb remains in the project area are simply harmless pieces of metal. The spotting charges, however, still potentially contain dense concentrations of black powder that could be lethal if ignited. The black powder comes from the remains of spotting charges. Each practice bomb had a 3-lb canister of black powder that was ignited by a 28-gauge shotgun shell blank (Figure). These charges fired upon impact creating a white puff of smoke that allowed bombardiers to see if their drop had hit its mark. As it turns out, based on the distribution of practice bomb debris many bombs did not hit their intended target. Interestingly, while the high-explosives shrapnel at NDA is fairly closely clustered within the target area, practice bomb debris is found throughout the entire project area, indicating that those bombardiers dropping bombs on NDA were, not surprisingly, much more accurate than others who were still in training.

According to historic records, the N-2 target, and possibly the NDA target as well, was lighted for night drops. A completion report detailing the construction of the N-2 target is included in Appendix F of the 1994 USACE report. According to this document, the target, control points, a temporary power plant building and associated lighting were all constructed by Ed F. Bridgeman of Albuquerque between July 11 and December 8, 1941. The lighting system consisted of 22 150-watt floodlights powered by a three kilowatt generator housed in a temporary wooden frame structure measuring six feet by eight feet and seven feet tall. The report notes that the lighting system is connected to the target by a combination of 2,250 feet of electrical cable. This distance is significant, as site LA 144341, a historic trash scatter dating to the 1940s, is located nearly exactly 2,250 feet from the center of the target. Based on the fact that LA 144341 contains numerous Sinclair Oil cans concentrated near the center of the site, it is reasonable to assume that it was the site of the generator for the

lighting system. LA 144341 is described in further detail below. While the location of the generator is known, the layout of the actual lights in relation to the targets remains unknown.



**Figure 1. Aerial photograph comparison showing the NDA target as it appeared in 1959, and as it looked in 2011.**

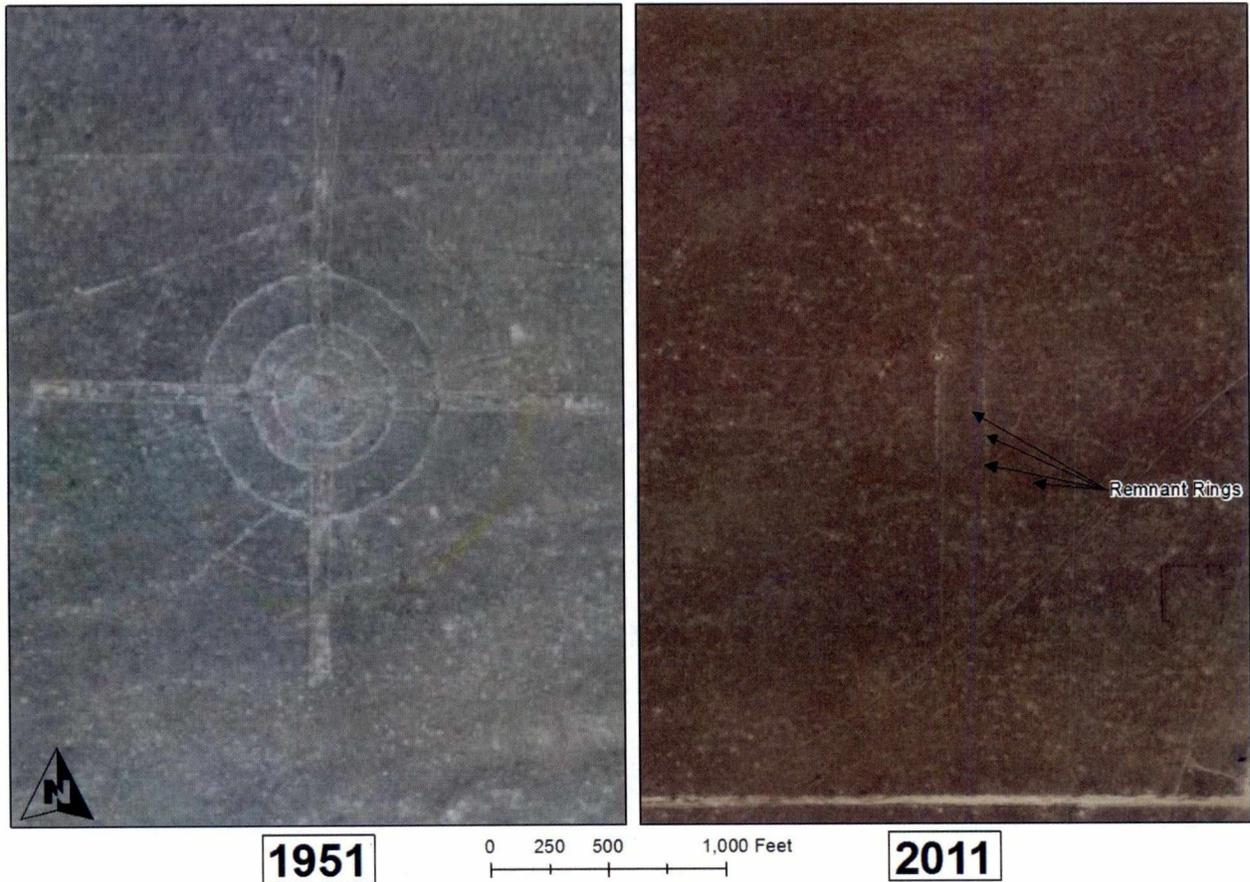


Figure 2. Aerial photograph comparison showing the NDA target as it appeared in 1951, and as it looked in 2011.

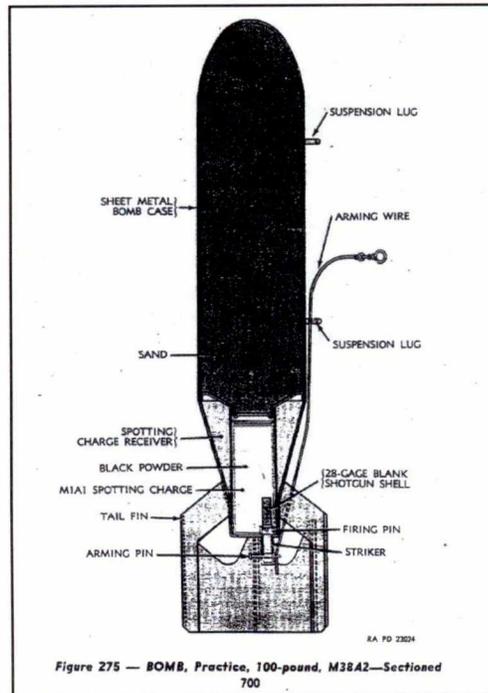


Figure 3. Schematic drawing of an M38A2 sand-filled practice bomb. Figure reproduced from USACE report (1994:D-3).

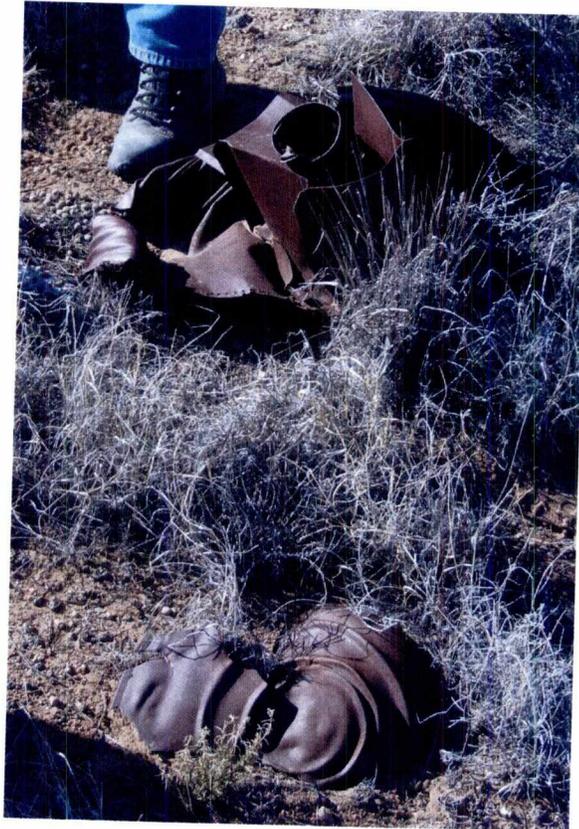


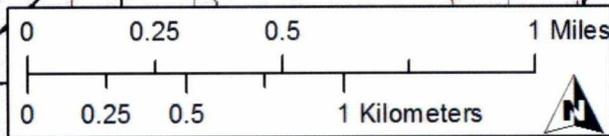
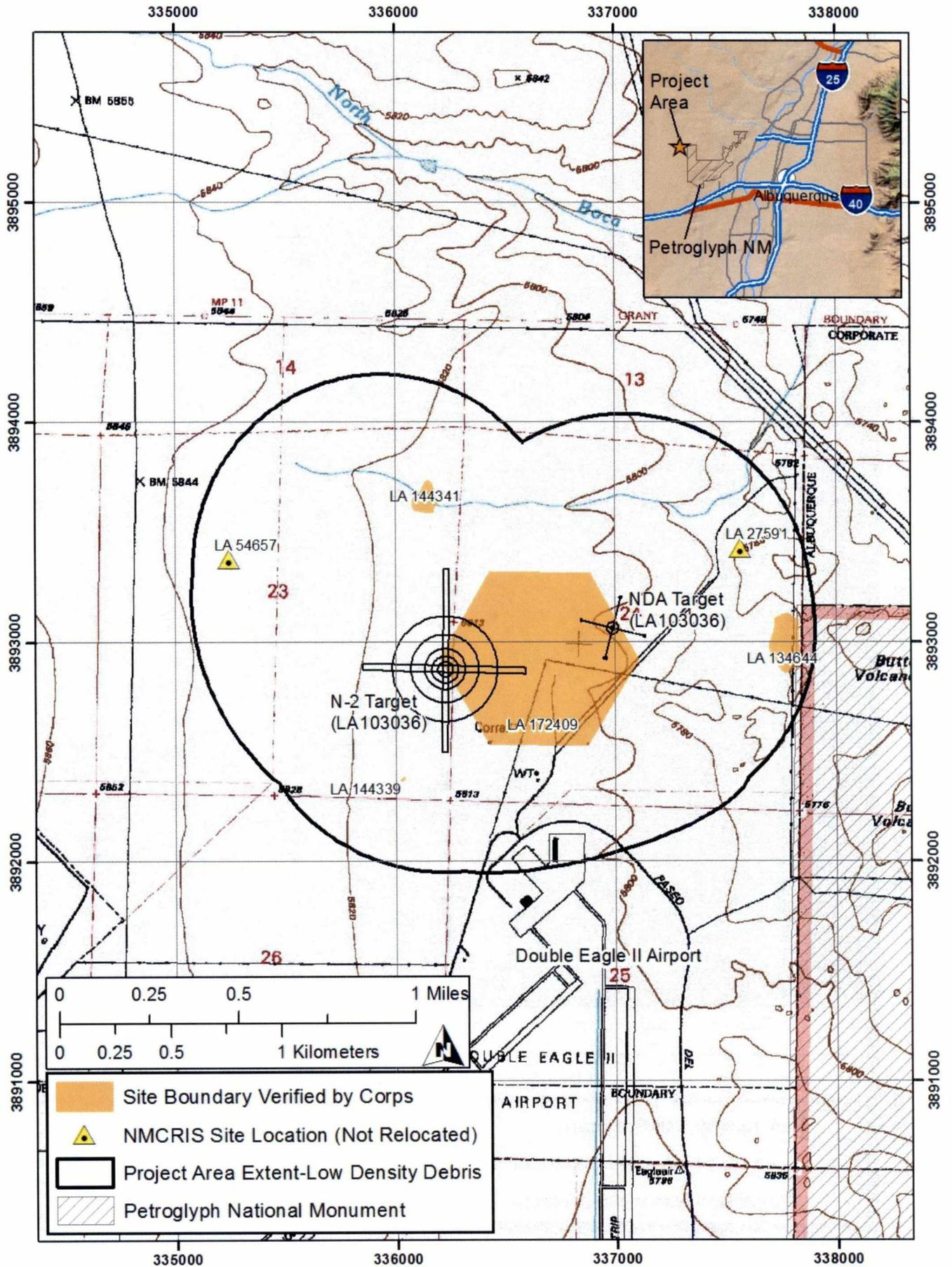
Figure 0. Remains of an M38A2 sand-filled practice bomb. Note the thin metal casing. The piece in the foreground is the nose cone. The cylinder on the upper piece is where the spotting charge was located (see Figure below).



Figure 5. M1A1 initiator disk. The cylinder holds a 28-gauge shotgun shell blank used to ignite the powder in the 3-lb black powder spotting charge canister (no longer attached).

### 13. SITE RECORD ATTACHMENTS

- site location map (USGS 7.5' topo; required)  sketch map or site plan (required)  continuation forms?  
 other materials (itemize): \_\_\_\_\_



-  Site Boundary Verified by Corps
-  NMCRIS Site Location (Not Relocated)
-  Project Area Extent-Low Density Debris
-  Petroglyph National Monument

