



US Army Corps of Engineers



Underwater Munitions Areas at Formerly Used Defense Sites (FUDS)

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FUDS Underwater Areas

- Associated with water ranges
- Inland water bodies (lakes, ponds, rivers)
- Coastal areas (lagoons, near shore)
- NO Offshore-Disposal Sites



Underwater Data are Approximate

- Few studies focused on characterizing underwater areas:
 - Natural barrier to exposure - relatively inaccessible - lower risk
 - Expensive to study and clean-up
 - Limited application of available technologies for detection, evaluation, recovery, and disposal



FUDS Underwater Data Compilation Study

- Compilation of readily available information
- Data elements for each underwater area Include
 - Identifying information
 - Area (Acreage)
 - Operations history
 - Munitions involved
 - Historical, current and anticipated future use
 - Munitions Response Site Priority or Alternative Rating
- 317 FUDS/435 Ranges include underwater area



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FUDS Underwater Area Example: Inland

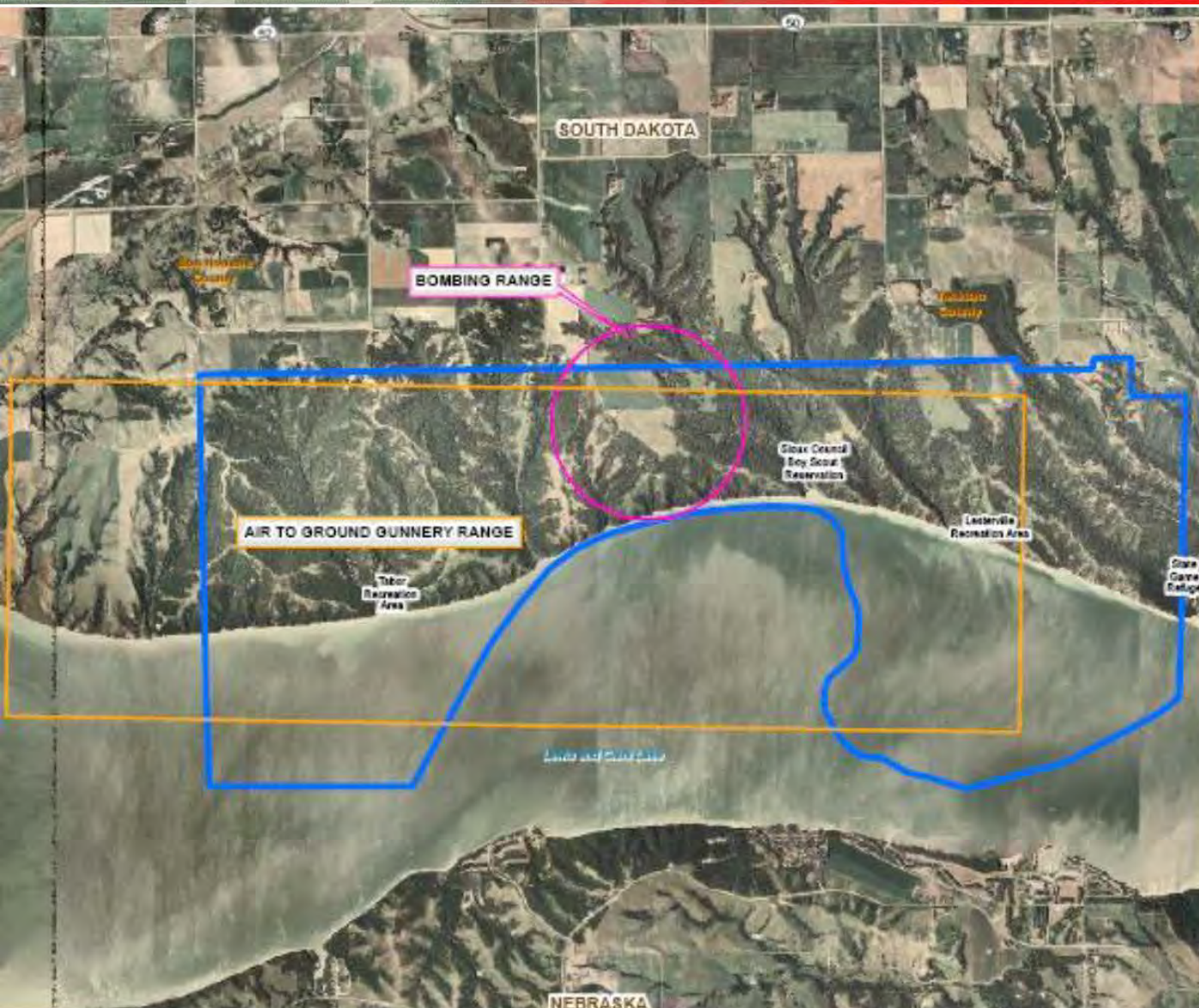
Yankton Air to Ground Gunnery Range

Bon Homme and Yankton Counties, SD

FUDS Property No. B08SD0876



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Legend

- Yankton Air to Ground Gunnery Range FUDS Boundary
- Bombing Range Boundary
- Air To Ground Gunnery Range Boundary

NOTES:

- 1) FUDS and range boundaries were derived from the Yankton ATG Gunnery Range ASR Supplement.
- 2) Aerial photo (Bon Homme and Yankton Counties) obtained from the U.S. Department of Agriculture, Service Center Agencies, photo is from the USDA-APFO National Agriculture Inventory Project (NAIP), 2006.



0 1,750 3,500 7,000 Feet
REFERENCE PROJECTION: NAD 83 UTM Zone 14N



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FIGURE 2-2

CURRENT SITE LAYOUT

YANKTON AIR TO GROUND GUNNERY RANGE



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Legend

- Yankton Air to Ground Gunnery Range FUDS Boundary
- Bombing Range Boundary
- Air To Ground Gunnery Range Boundary

NOTES:
1) FUDS and range boundaries were derived from the Yankton ATG Gunnery Range ASR Supplement.
2) Historical aerial photographs were obtained from the National Archives, they are dated August 10, 1941.



0 1,750 3,500 7,000 Feet

REFERENCE PROJECTION: NAD 83 UTM Zone 14N



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FIGURE 2-1B
ORIGINAL SITE LAYOUT
HISTORICAL AERIAL PHOTOGRAPHS
YANKTON AIR TO GROUND GUNNERY RANGE



Yankton Air to Ground Gunnery Range

Historical Use	Total Acre	Land Acre	Tidal Water Acre	Inland Water Acre
Bombing (44-46)	649	642	0	7
Air-to-Ground (44-46)	7680	4184	0	3496



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FUDS Underwater Area Example: Inland & Near Shore

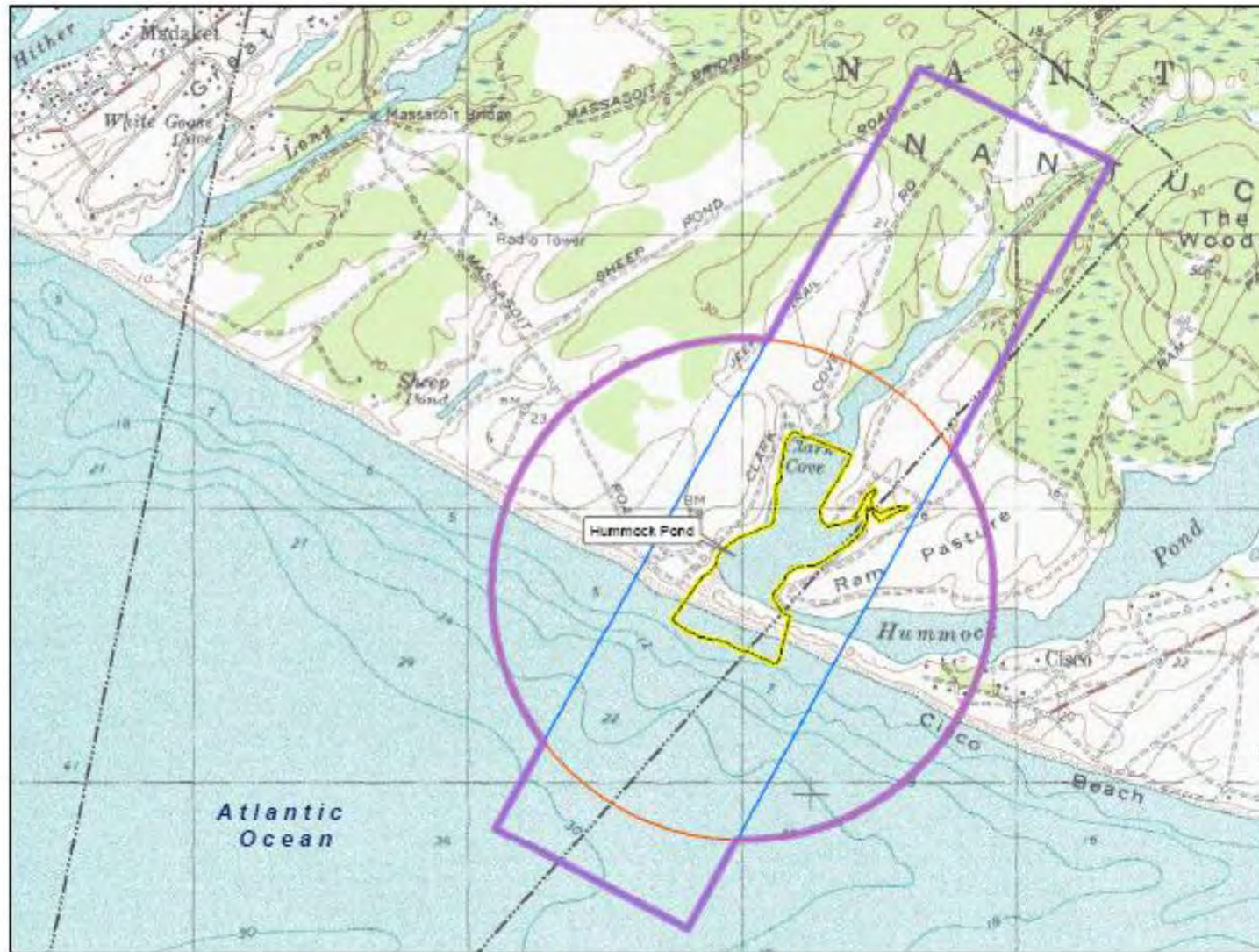
Hummock Pond

Nantucket Island, MA

FUDS Property No. D01MA0454



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Hummock Pond Nantucket Island, Massachusetts

Legend

- MRS 1 - Aerial Target Range
Total Acreage = 937.73 Ac
Land Acreage = 575.38 Ac
Inland Water Acreage = 73.93 Ac
Tidal Acreage = 288.42 Ac
- Air to Ground Rocket Range
Identified on FUDS Property Number
D01MA0455 (Sheep Pond)
- Bombing Range/Subset of MRS 1
- Air to Ground Gunnery Range/
Subset of MRS 1
- FUDS Boundary

Sources:
USACE, 2004
USDA-NRCS-NOCC, 2000
USGS Topographic Quadrangle, 1978



0 250 500 1,000
Meters





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Hummock Pond
Nantucket Island, Massachusetts

Legend

- Sheep Pond
- MRS 1 - Aerial Target Range
- FUDS Boundary

Sources:
- USGS, 1971
- Office of Geographic and Environmental Information
(MassGIS) Commonwealth of Massachusetts
Executive Office of Environmental Affairs, 2007





Hummock Pond

Historical Use	Total Acre	Land Acre	Tidal Water Acre	Inland Water Acre
Bombing (43-46); Air-to- Ground (43-46)	938	575	289	74



Conclusion

- FUDS include some underwater area
- Underwater areas are associated with water ranges
- Underwater areas pose relatively lower risks compared to land areas of FUDS



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Questions?

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