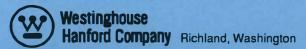
## North Slope Investigation Report

Prepared for the U.S. Department of Energy Assistant Secretary for Environment, Safety and Health



Hanford Operations and Engineering Contractor for the U.S. Department of Energy under Contract DE-AC06-87RL10930

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Date Published April 1990



Prepared for the U.S. Department of Energy Assistant Secretary for Environment, Safety and Health



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Richland, Washington 99352

Hanford Operations and Engineering Contractor for the U.S. Department of Energy under Contract DE-AC06-87RL10930

## NORTH SLOPE INVESTIGATION REPORT

Environmental Engineering Group
Westinghouse Hanford Company

13 April, 1990

## NORTH SLOPE INVESTIGATION REPORT

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#### WHC-EP-0359

#### **ABSTRACT**

The Department of Energy owns approximately 190 square miles of land north and east of the Columbia River (referred to as the "North Slope").

This land has not been used for production activities associated with the Hanford Site. Physical evidence does remain of use associated with military activities in the defense of the Hanford Site. Before government control, the area had been homesteaded since the late 1800's.

The North Slope area was investigated between December 1989 and

April 1990 to gather information on potential hazards that may exist. The investigation consisted of the following:

- Review of historic records
- Interviews with people knowledgeable of the area
- Aerial search
- Ground search

Potential hazards that have been identified include open cisterns, pits, and target areas for military ordnance practice. The cisterns and pits present a physical hazard to people traveling in the North Slope.

These cisterns and pits are being fenced and posted to limit the potential hazard. The military practice areas pose a problem because of the possibility of non-exploded rounds or "duds" being located in the area. Target areas

have been investigated by the Department of the Army, 53rd Ordnance

Detachment and the Seattle District Corps of Engineers (COE). The Department
of the Army, 53rd Ordnance Detachment found no unexploded ordnance and the

Corps of Engineers concurred in their finding and stated that nothing observed
so could be regarded as a significant public hazard.

Other sites in the North Slope include military encampments, motorpools, and landfills associated with military and homestead sites. These sites did not appear to pose any immediate threat to public health and the environment. Initial reports of an ammunition dump on the North Slope were investigated, but no site was found.

#### WHC-EP-0359

## LIST OF TERMS

COE Corps of Engineers

dichloro-diphenyl-trichlo-roethane DDT

U.S. Department of Energy DOE

U.S. Department of Energy-Richland Operations Office DOE-RL

**Explosive Ordnance Division EOD** 

WIDS Waste Information Data System

Westinghouse Hanford Westinghouse Hanford Company

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#### 1.0 INTRODUCTION

The U.S. Department of Energy (DOE) owns approximately 190 mi<sup>2</sup> of land north and east of the Columbia River [hereinafter referred to as the North Slope (Figure 1)]. This land has not been used for defense production activities associated with the Hanford Site. However, there is physical evidence of use before government control and from early Hanford Site military activities.

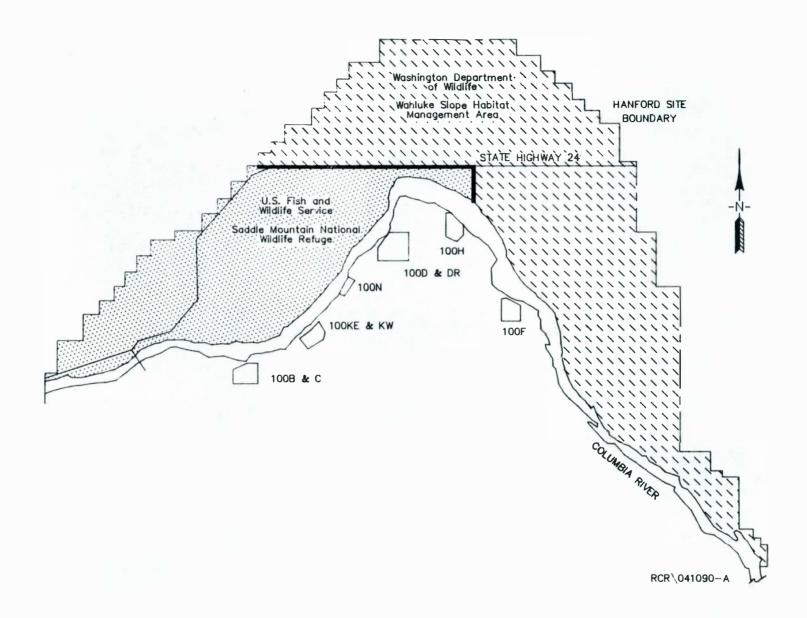
The history of the North Slope area includes homesteading from the late 1800's until government control of the area began in the early 1940's. After government acquisition of the land, the area was used for military defense of the Hanford Site. Defensive positions on the North Slope area originally consisted of seven antiaircraft gun positions. These were replaced in the 1950's with three NIKE missile positions. Since approximately 1960, there has been no permanent military installation at the Hanford Site. However, the area has been used for military training maneuvers.

The North Slope area remained unused and closed to public access until the mid-1970's. At that time, the area was permitted by U. S. Department of Energy-Richland Operations Office (DOE-RL) to the predecessors of the Washington State Department of Wildlife and the U.S. Fish and Wildlife Service (Figure 1). As a result of the use permit granted to the Washington State Department of Wildlife, much of the land has been open to public access as a recreation area during daylight hours. The remainder of the North Slope is permitted to the U.S. Fish and Wildlife Service, and there is limited public access. This area is used as a wildlife refuge.

Public access to the North Slope creates special concern because of the potential hazards that remain in the area. Concerns have been raised of possible hazards, including the following:

- Homestead structures, primarily exposed cisterns
- Structures and material remaining from military use of the area:
  - Disposal landfills
  - Open pits from building structures
  - Underground structures
  - Possible hazardous chemicals
  - Possible ordnance.

Before initiation of this investigation, two sites on the North Slope were formally documented in the Hanford Site Waste Information Data System [WIDS (DOE-RL 1989)]. These are the "Battery A" NIKE missile site (H-O6C and H-O6L, numbers 12 and 16, respectively, described in Section 5.1) and the U.S. Bureau of Reclamation 2,4-D burial site (Appendix A). These two sites are within the 100-IU-3 operable unit.



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Figure 1. North Slope Area Map.

#### 2.0 SCOPE AND OBJECTIVES

The objectives of this investigation were to assess potential health, safety and environmental concerns, and the need for corrective action in the North Slope area. These objectives are being accomplished in two phases. Phase I objectives were to inventory sites of potential hazards and assess current site conditions by visual observation, as documented in this report. Phase II is the implementation phase for interim corrective actions. Actions will be based on Phase I findings and subsequent investigation including appropriate sampling and excavation. Some Phase II activity has been initiated (refer to Sections 4.1 and 4.2).

Information gathered during this project has been presented to the Westinghouse Hanford Company (Westinghouse Hanford) Environmental Protection Group for evaluation of chemical and waste hazards according to internal Westinghouse Hanford procedures. The Operational Site Services organization of Westinghouse Hanford will be responsible for determining and implementing appropriate mitigation of physical hazards.

Having complete information on all suspected hazards will allow those responsible within DOE-RL and Westinghouse Hanford to make informed decisions regarding corrective action on the North Slope. This study also will allow Westinghouse Hanford and DOE-RL to respond to additional inquiries.

Information has been gathered from a variety of sources. This information has been pursued and related, whenever possible, to a location in the field. Considerable time was spent in a ground search of the North Slope. This search was conducted over many miles, on foot, in off-road vehicles, and from the air. The ground search concentrated on known site areas and specific areas of suspected historical activity.

#### 3.0 INVESTIGATION PLAN

The plan for investigation of the North Slope consisted of several activities:

- Documenting sites that were known but not entered into a Hanford Site database
- Information gathering from persons and historical records
- Verify information gathered from various sources
- Conducting ground searches and an aerial survey of areas considered most likely to be impacted by past uses.

These activities were continued throughout the project duration.

#### 3.1 SITE DOCUMENTATION

The intent of Phase I activities was to locate sites in the field and document current site conditions. Sampling or excavation was not performed for safety reasons, as described in Section 3.3.

Field crews consisted of at least two individuals. When a site was located, a walk-through survey was conducted of the immediate area of disturbance. This was typically followed by a perimeter search in an expanding spiral until evidence of past disturbance or potential hazards was no longer found. Photographs were taken of the site, and areas of potential hazard were documented in a field notebook. Notes on each site, including field notes, are presented in Appendix B.

As sites were documented, field personnel made an initial evaluation regarding the threat posed to health, safety, or the environment. The evaluation was based on conditions observed and did not include sampling or excavation. If the threat was judged to be imminent, immediate corrective action was taken as appropriate. Initial evaluation of the threat level was a field decision guided by the following factors:

- The potential for explosion
- The concern of chemical constituents
- The potential for increasing problems with time
- The potential for physical injury.

Ordnance experts were called in for investigation of the three sites on the North Slope. These sites are designated PSN 07/10, Shrapnel Area, and Hanford Firing Range. Each of these sites potentially contained military ordnance. These sites were investigated by personnel from the U.S. Army Explosive Ordnance Division (EOD), with assistance from the Hanford Site Patrol, and Westinghouse Hanford Environmental Engineering Group. No unexploded ordnance has been located during these investigations. The COE has also investigated the area and has found nothing constituting a significant public hazard.

#### 3.2 INFORMATION GATHERING

Gathering information was a vital part of this project. As much as possible, all reports, stories, and rumors were investigated in an attempt to either confirm or reject each one. Information was gathered from a variety of sources including those listed below.

#### 3.2.1 Historical Records Survey

Historical records are available that give insight to land uses during a number of time periods. Records are available with information about

pre-Hanford settlement, military activities, and Hanford Site cleanup efforts. Records used in this search include:

- Hanford historical files
- U.S. Army Corps of Engineers Records
- Douglas, Grant, and Franklin Counties property ownership transfer records
- U.S. Bureau of Reclamation survey records
- Personal histories of past residents of the site.

#### 3.2.2 Information from People Knowledgeable About the Area

Information was gathered from the following people:

- Ranchers with grazing agreements on the North Slope
- Former residents of the area
- Professionals working in the area
- Persons who use the area for recreation.

#### 3.2.3 Information Known but Not Recorded

Some information was known about sites on the North Slope but not formally documented until this project began. This information was generally confined to sites of physical hazards or sites that did not appear to pose imminent threat to health, safety, or the environment. As this information was gathered, sites were documented and will be evaluated for inclusion into WIDS according to internal Westinghouse Hanford procedures.

#### 3.3 SITE VERIFICATION AND DOCUMENTATION

When sufficient information was gathered on a suspected site, an attempt was made to verify the site in the field. Field verification included the following:

- Locating the site to confirm existence and location
- Documenting current site conditions
- Identifying site location on a map for future reference.

Health and safety requirements prohibited more than visual observation of each site. If a follow-up study is necessary, a more intensive investigation will take place after evaluation of potential hazards and

safety risks at each specific site. No sampling or excavation will be done as part of site characterization until a sampling plan (including a quality assurance plan) and a health and safety plan are prepared and approved.

#### 4.0 INVESTIGATION FINDINGS

The great majority of sites identified in this investigation can be categorized as associated with either military or homestead activity. Within these categories, findings from site to site are generally similar. A discussion of typical sites follows. Notes on specific sites are included in Appendix B.

#### 4.1 MILITARY SITES

Evidence of a number of old military sites is found on the North Slope. Military records kept by the U.S. Army Corps of Engineers identify three NIKE missile sites and seven camps or antiaircraft sites.

Although sites may have had different operating functions, their origin in the same military system results in several similarities. The typical military site on the North Slope consists of several reinforced concrete foundation pads, scattered bottles and metal cans, and a disposal area.

Above-ground structures have been demolished and removed. Exceptions are five water well structures made of reinforced concrete. They are 2 to 3 ft tall and extend underground into chambers approximately 6 by 8 by 10 ft deep. These structures usually have metal covers that can be opened. The well shaft is located in the floor of the chamber.

Underground structures have been destroyed or filled in. Exceptions are two rooms at the radar site and a few small structures at the other sites. These are noted in Appendix B.

Originally, well covers were locked by Hanford Site contractors to prevent unauthorized access. After the public was allowed in the area for recreation, curious persons began to cut locks and latches off the wells to open the doors. Efforts at opening the covers have been so persistent that securing the doors with locks have been ineffective.

Reports from personnel assigned to military units at and near the North Slope indicate that there was no centralized refuse disposal system in operation for military sites on the North Slope. Each site maintained an individual landfill. Investigation of debris at the surface of disposal areas reveals the typical range of military camp items (e.g., food cans and bottles, motor pool refuse, office and personal supplies). Personnel in nearby military units report that no controls were kept on materials disposed of in the landfills. Paint cans and empty oil cans are commonly found in the disposal areas. Several 1-gal cans of solvent have been found but are not numerous. Nothing was found at the surface of any landfill that was

considered an imminent hazard to personnel or the environment. Although many empty oil and paint cans were found, there is no indication that large quantities of environmental pollutants were disposed.

Typically, small amounts of refuse can be found in the vicinity of the military sites; this frequently includes oil and lubricant cans ranging in size from 1 qt to 5 gal. Only a few cans have oil remaining in them. These cans have collected dust, plant debris, and insect bodies so that no free liquid remains. Paint cans also are common and are frequently partially full of dried paint.

At essentially every military site, scraps of asbestos-transite siding from building structures remain. Pieces are generally small, apparently overlooked as materials were being removed from the sites for disposal. Personnel associated with site cleanup in the mid-1970's indicate that building structures were knocked down and buried in pits near the original building locations. Significant quantities of siding materials containing asbestos may be buried near each of the military locations on the North Slope.

While the military was stationed on the North Slope, a main-site motor pool was located across the Columbia River where the main Hanford Site construction and operations were occurring. Major repairs and nonroutine vehicle requirements were completed at this location. Each military site is also reported to have had its own smaller motor pool. Routine maintenance was performed, indicating the potential for used motor oil, solvents, and antifreeze at the sites. Reports indicate that standard procedure at that time was to use used oil for dust control on roads.

Some military sites have maintenance areas with sunken pits for convenient access by mechanics to the underside of vehicles. These grease pits may have had dry wells for solvent and oil disposal. However, they have been filled with soil, so this possibility could not be verified.

In addition to the several military camps described above, three sites were found or reported that are not similar to those described previously (also shown in Appendix B); (1) an area of shrapnel concentration; (2) a practice firing range; and (3) a reported bombing range.

#### 4.2 HOMESTEAD SITES

It is reported that the entire area included in the North Slope was homesteaded at some time since the late 1800's. The North Slope area was used for orchards and row crops near the river, wheat on the high ground away from the river, and as a grazing area where soil conditions would not allow the raising of crops.

As with military and other sites on the North Slope, homestead structures such as homes and outbuildings were leveled and removed during the mid-1970's. Typically, homestead locations can be identified by scattered cans, bottle shards, and pieces of lumber. Occasionally, a section of fence line remains near the homesite.

Many homestead sites are located within the 190 mi<sup>2</sup> of the North Slope. Relatively few have been noted in this study. As mentioned above, most sites are identified only by a few scraps of lumber and a half-dozen old cans. Sites identified in this report have either a remaining cistern or an identifiable garbage disposal pit.

Cisterns are structures used for the storing of water for domestic and livestock use. They are concrete or mortar lined and range in size from 3 to 10 ft in diameter and 4 to 14 ft deep. Water was hauled from the river or a spring and stored in the cistern.

Those cisterns that are largely intact may represent a physical hazard to persons and livestock. A person or animal falling into one of the larger cisterns may be injured, and the sheer walls may make escape without assistance difficult. As cisterns are identified, the location is communicated to DOE-RL and the Washington Department of Wildlife. The Washington Department of Wildlife has agreed to fence and post warnings at these sites. No cisterns have been located during this investigation on land permitted to the U.S. Fish and Wildlife Service.

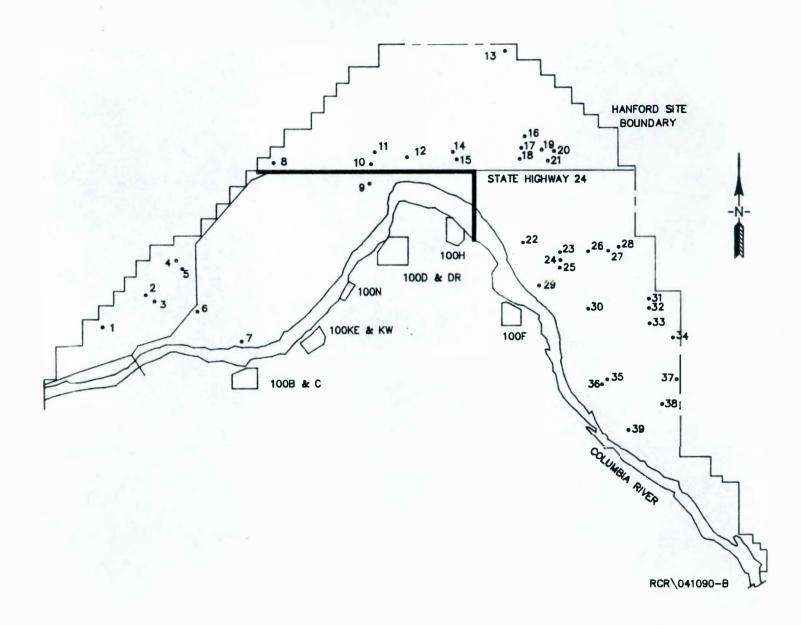
No specific hazards have been found associated with homestead garbage pits. One former resident indicated that, because money was scarce, canned goods were expensive and, consequently, rarely purchased. Most goods came in paper containers. Anything that could be reused was, and the few items that could not be reused were burned.

In the orchard areas, pesticides were used. Pesticides included lime sulfur and lead arsenate. In latter years, dichloro-diphenyl-trichloroethane (DDT) and other pesticides may have been used. No areas have been found that are suspected of being pesticide disposal areas associated with homestead activity. The 2, 4-D burial site, resulting from the U.S. Bureau of Reclamation work in the 1960's, is documented.

#### 5.0 SUMMARY OF SITES INVESTIGATED

A brief summary of each site addressed in Phase I is included in this section. Some were not verified by investigation (e.g., an underground military warehouse) and may be only rumor, with no actual existing site. Sites in this section are listed in alphabetical order under the headings Military Sites, Homestead Sites, and Other Sites. The names of military sites are in most cases taken from U.S. Army Corps of Engineers records. Some of the military names are based on references to locations in records. Site designations in doubt are noted. Other site names are based on field observations. A total of 22 military sites, 12 homestead sites, and 8 other sites are discussed.

The summary for each investigated site is followed by a parenthetical number that corresponds to the map shown as Figure 2. Appendix B contains field notes for investigated sites.



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Figure 2. North Slope Site Investigation Locations.

#### 5.1 MILITARY SITES

Ammunition Dump--Two reports have been received of an ammunition dump possibly existing on the North Slope. Confirmation of these reports has been a major effort in this investigation. Although unconfirmed reports persist, no evidence of such a site has been found.

Bombing Range--Two practice bombing ranges have been reported on the North Slope. One is reported to be between East White Bluffs ferry landing and H-O6C (the NIKE control center at the summit of the Saddle Mountains, number 12 on Figure 2). The second range is reported to have been along what is now the Wahluke Branch Wasteway. No evidence has been found to confirm either area as a practice bombing range.

Construction Dump--This dump appears to be an area used for the disposal of building structures and general trash remaining from military sites. Several empty lubricant cans were found at the site. (28)

H-06C--This is the control center for the "Battery A" NIKE missile site. A graded area of approximately 1/2 acre indicates the possible location of a landfill used for the disposal of building structures. Concrete foundation pads are the only remains on the site. (13)

H-06L--This is the launch site for the "Battery A" NIKE missile site. The underground structure has been partially excavated but is fenced and posted with the warning, "DANGER." (17)

H-12C--This is the control center for the "Battery B" NIKE missile site. A small excavated area is the probable location of demolished structures. Several paint cans remain at the site. (26)

H-12L--This is the launch site for the "Battery B" NIKE missile site. An underground structure is partially excavated and may pose a physical hazard to vehicular traffic. (23)

H-12R--Actual use of this area is uncertain. This location does not coincide with the military maps of H-12R, but concrete footings at the site suggest that towers (possibly radar towers) were present. Two other sites, Radar Site and PSN 80 have similar layouts. The exact function of all three sites is not known. (25)

H-81R--This site corresponds to site H-81R on military maps. Little remains on the ground surface except graveled roads. One small berm apparently covers items disposed of including radio batteries and bottles. A "snake trap," consisting of a 55-gal drum buried in the ground, is at this site. The lid is exposed, and a 4-in. by 10-in. hole is cut in the lid. The actual purpose of the snake trap is unknown. (3)

H-83C--This is the control center for the "Battery C" NIKE missile site. Concrete foundation pads and an apparent well structure remain. Nearby is a small burial pit with a few hundred 30/06 blank rounds of ammunition (fired), together with steel links from a belt-fed automatic weapon. Several military style tires are left at the site. (2)

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- H-83L--This is the launch site for the "Battery C" NIKE missile site. The structures have been demolished except for the well structure at the barracks location. A disposal area extends to the north of the site. (4)
- **Igloo Site--**This is the site of the ammunition storage "igloos." The area is cleaned up with the exception of several empty broken shipping crates for 120-mm gun ammunition. (12)
- **PSN** 01--This is an antiaircraft gun site. Above-ground structures were removed with the exception of the well structure. Some disposal trenches are on site. (11)
- PSN 04--This is an antiaircraft gun site. Above-ground structures were removed with the exception of the well structure. Several disposal trenches are on site. The well structure has been spray painted with the warning, "Danger Contaminated." Several blue plastic 55-gal drums were found in a gully near the site. The drums apparently have been used for stock watering. The drums were tracked to their origin, and investigation indicated that they contained photographic fixative, primarily acetic acid. (4)
- PSN 07/10--This is an antiaircraft site, used also as a barracks area for a NIKE missile site. The site had a motor pool and an unconfirmed potential for the disposal of used oil and solvent. The well structure has been removed. This is the site where practice land mines were found. (18)
- PSN 12/14--This is an antiaircraft gun site. A few small disposal pits have been identified, and a large landfill is also nearby. The Construction Dump, an area of disposed wooden structures and general trash (27), is near this site. (26)
- **PSN 72/82--**This site is an antiaircraft gun site. Small disposal areas are identified. A firing range for 22-caliber target practice is nearby. (1)
- PSN 80--The function of this site is not known. The layout is similar to the H-12R and Radar sites. The site is roughly oval and is surrounded by a gravel road. Three sets of small concrete pads served as anchors for towers or large guns. (5)
- PSN 90--This site is an antiaircraft site. The well structure has been removed but motor pool maintenance pits are in place. Used oil and solvents may have been disposed of at this site. A concrete ramp remains on site, apparently used for vehicle maintenance. This structure has been used recently for changing vehicle oil. (8)
- Radar Site--This site is not included on military maps. It is similar to the PSN 80 and H-12R sites. The site is roughly oval, approximately 1/4 mi long by 400 yd wide, and surrounded by a gravel road. The site includes three underground rooms (two are intact, one destroyed) approximately 10 by 10 by 10 ft. Near the rooms are concrete pads with exposed bolts. The pads apparently served as a foundation for towers (radar?) or large guns. (15)

Shrapnel Site--Shrapnel has been found in three areas. At two of the areas, only two pieces of shrapnel have been found. In one area, over 100 lb of shrapnel reportedly have been found. It is not certain what type of shells are responsible for the shrapnel. During the investigation it was speculated that the area was a demolition area where out-of-date or unusable shells were destroyed by detonation. However, findings in the field do not rule out this site as a possible area of fallout from antiaircraft rounds exploding in the air. (22)

Underground Warehouse--A report was received of a person claiming to have been inside a "huge, underground warehouse filled with military weapons, ammunition, and jeeps." The time frame was reported to have been after the military had left their positions on the North Slope.

Follow-up on this report was unsuccessful. The report was at least 15 yr old, and the nearest source of information was unable to recall who actually claimed to have seen the structure.

Available military records did not document an underground warehouse. However, three storage igloos (earth-covered rooms) were present. These have been destroyed and removed but may be the source of this report.

#### 5.2 HOMESTEAD SITES

12-3 Cistern--This cistern is approximately 5 ft in diameter by 8 ft deep. It is located near power pole 12-3. No obvious disposal pits remain from the homestead. (33)

Clay Pit Cistern--This cistern is approximately 4 ft in diameter. Trash and weeds in the cistern do not allow the depth to be determined. It is located near a pit that was used to obtain clay for lining irrigation canals. No obvious disposal pits remain from the homestead. (19)

Cow Camp Cistern--This cistern is approximately 4 ft in diameter. Trash in the bottom does not allow depth to be determined. This cistern contains several empty bottles of livestock antibiotic and pesticide for delousing cattle. No obvious disposal pits remain from the homestead. (20)

Homestead Cistern--This cistern is approximately 5 to 6 ft in diameter. Old fencing material is stacked around the perimeter of cistern. (21)

Overlook Cistern--This cistern is approximately 10 ft in diameter by 14 ft deep and is located near bluffs overlooking the Columbia River. Small disposal pits remain from the homestead. (36)

Power Line Cistern--This cistern is approximately 4 ft in diameter by 6 ft deep. It is located near power line. No obvious disposal pits remain from the homestead. (31)

Stock Tank Cistern--The stock tank is approximately 12 by 12 ft by 5 ft deep. No obvious disposal pits remain from the homestead. A well with an approximate 8-in.-dia casing is nearby. (32)

Wagon Road Cistern--This cistern is approximately 8 ft in diameter by 8 ft deep. The site has been fenced by Washington Department of Wildlife personnel. Some small disposal pits remain from the homestead. (30)

Wasteway Cistern--This cistern is approximately 8 ft in diameter by 3 ft deep. It has been mostly filled in, and the walls are partially collapsed. No obvious disposal pits remain from the homestead. (16)

Dune Homestead--This homestead is near a small series of sand dunes. Some disposal sites from the homestead are in the area. (34)

Lonetree Homestead--At this homestead area, a single cherry tree remains alive. Some small disposal areas remain. (38)

#### 5.3 OTHER SITES

**2,4-D Burial Site--**This site was used for disposal of 2,4-D contaminated soil and four leaking tanks. The site is documented in WIDS (Appendix A) and is part of the 100-IU-3 operable unit. (29)

Asbestos Pipe Site--Pieces of concrete and asbestos pipe are exposed in a sand blowout at this site. The origin of the pipe is unknown; however, a NIKE missile site is nearby. (24)

Asphalt Batch Plant--This area appears to have been used as a temporary batch plant for mixing asphalt for paving operations. The original users of the area are unknown. (9)

Coyote Bait Can--At this site, a large military ammunition box is partially buried. The lid is marked with paint "BAIT CAN." Evidence in the area suggests that it was once used to store bait for coyote trapping. (35)

Coyote Bait Station--At this location, over 50 coyote skulls were counted. Large animal bones in the area indicate that a poisoned carcass was used. Reports from past residents of the area tell of a trapper who would frequently poison a horse carcass to kill coyotes for the pelts. Bones at this location were old and may predate government control of the land. (37)

Gravel Pit #47--This gravel pit has a pile of trash disposed in it. Much of the trash appears to be of military origin. Many bottles and beverage cans make up the pile, along with fencing wire. Two paint cans are also at the site. (6)

Gravel Pit #56--This gravel pit was investigated, and no evidence was found of dumping or other hazards. (10)

Hanford Firing Range--This range was used by the original Hanford Site security force for target practice. Numerous 30- and 50-caliber bullets were found near the target area. Investigation with EOD personnel produced a few 37-mm nonexplosive rounds. (39)

Wahluke Schoolhouse--Only the front steps remain to this old schoolhouse. This site is not at the townsite of Wahluke. No evidence of hazards were found in the area. (7)

#### 6.0 CONCLUSIONS

During this investigation, no environmental hazards have been identified that require immediate corrective action. The potentially hazardous cisterns have been reported and will be fenced according to an agreement between those permitted to use the land and DOE-RL. Three sites were identified in which military ordnance may have been located. These sites have been investigated by EOD and COE. No unexploded ordnance has been found, and COE concludes that nothing observed so far can be regarded as a significant public hazard.

#### 7.0 RECOMMENDATIONS

Interim corrective action has been taken regarding some sites on the North Slope. These sites are the large, unfenced cisterns and the sites potentially containing military ordnance. Additional characterization work may be appropriate on the North Slope. However, immediate characterization or remediation is not warranted at the remaining sites. This work will be planned as part of the environmental cleanup of the entire Hanford Site.

Topographic relief, vegetation, and the passage of time all serve to obscure sites of potential interest. Sites may exist on the North Slope that were not observed during this investigation. Changing vegetation and erosional patterns may expose additional sites such as homesteads or military bivouacs that should be investigated as areas of potential concern.

Evidence in the field and interviews with persons present at the time indicate that antiaircraft batteries were fired at least once. This firing leaves a potential for unexploded rounds on the North Slope. No dud rounds have been found on the North Slope, but the possibility cannot be dismissed. Areas known to contain shrapnel should be investigated periodically to detect duds exposed by erosion.

The recent inventory effort has adequately investigated available information. As additional information is discovered, and, as erosional and ecological patterns change the North Slope, additional sites may be encountered. New sites will be documented and added to the body of information available for planning and implementing characterization and cleanup of this area.

## APPENDIX A

WASTE INFORMATION DATA SYSTEM ON THE NORTH SLOPE

#### Waste Information Data System General Summary Report April 13, 1990

SITE NAME:

USBR 2.4-D Burial Site

ALIAS NAMES:

None

SITE TYPE:

Landfill

OPERABLE UNIT: 100-IU-3

WASTE CATEGORY:

Hazardous Waste

REGULATORY AUTHORITY: Undefined

STATUS:

Inactive

SERVICE DATES:

From 1966 to 1967

COORDINATES:

N75000 W10000

LOCATION:

600 Area.

REFERENCE DRAWINGS: H-3-57210, M-6000 #1

SITE AREA:

4,800.00 square feet

**ELEVATIONS** and **DEPTHS**:

Ground:

700.00 feet above MSL

Water Table:

350.00 feet below grade

Site Depth:

4.00 feet below grade

WASTE VOLUME RECEIVED: CONTAMINATED SOIL VOLUME: OVERBURDEN SOIL VOLUME:

cubic meters cubic meters cubic meters

#### SITE DESCRIPTIONS:

Burial ground, 400 ft long trench, 12 ft wide by 4 ft deep, covered with 4 ft of soil.

#### WASTE DESCRIPTION:

In 1966, 2.4-D contaminated soil was generated from leaking storage tanks at a USBR Station in Eltopia, WA. The burial consisted of 900 gal of 2.4-D that had leaked into 50 yd of soil. A second burial in 1967 consisted of the ten leaking tanks themselves, which were flattened and buried in the same location.

#### Waste Information Data System General Summary Report April 13, 1990

SITE NAME:

Wahluke Slope Nike Missile Base

ALIAS NAMES:

None

SITE TYPE:

Test Treatment or Support Facility

WASTE CATEGORY: Non

Nonhazardous/Nonradiation

OPERABLE UNIT: 100-IU-3
REGULATORY AUTHORITY: Undefined

STATUS:

Inactive

SERVICE DATES:

COORDINATES:

N515000 W20000

LOCATION:

SITE AREA:

**ELEVATIONS and DEPTHS:** 

Ground:

Water Table:

feet above MSL

feet below grade feet below grade

Site Depth:

WASTE VOLUME RECEIVED: CONTAMINATED SOIL VOLUME: OVERBURDEN SOIL VOLUME: cubic meters
cubic meters
cubic meters

## APPENDIX B

NOTES ON INDIVIDUAL NORTH SLOPE SITES

Site Name MIL - Construction Dump

Investigators:	RCR DSL			1 / 25 / 90 1049		
	Area near corner sect 9, T 14N R 28E. Abo					
Coordinates:	186° from Ob 313° from H-	servatory Peak (Rat 06C	tles	nake)		
Pipes in Ground	oblem:Plant Stres X_Old Building Si X_Trash Pile _ _Other	te Soil Depress	ration	on		
Site Narrative: Site is an area of demolished wooden military buildings. Considerable debris from building structures is present. The greatest amount of debris is concentrated within a 2 acre area, however, some building remains and trash are found over a large are extending roughly east-west. Many 1-gal and 5-gal oil cans are in the area. Lubricant cans and automobile parts suggest that trash may have come in part from a military motor pool. No specific areas of environmental concern were identified in the preliminary investigation. General construction debris such as boards with nails may pose a hazard to persons or animals.						
Documentation:	XNone Contact:	Attache	d –			
Recommendations: of area may be app	No specific haz propriate.	ards were identifie	d. (	General cleanup		

Site Name MIL - H-06C

Investigators:	RCR ARJ				1 / 5 / 90 1115
Site Location: summit of Saddle				R 27E.	End of road at
Indications of Property in Ground Soil Disturband Road Terminus	d <u>X</u> 01d BuceTrash	uilding Site Pile <u>X</u> Do	X_Soil De		
Site Narrative: Remaining on site north side of the Little trash remains few 5- and 55-ga	e is a few co e access road ains around f	oncrete found d may indicat the area. O	dation pads. te the dispos ver the cliff	A levelal area, in the	ed area on the for the site. "saddle" are a
Documentation:	<u>_x</u>	_ None Contact:	U.S. Army Co	ached rps of E	ngineers Maps
Recommendations: investigation.					

Site Name MIL - H-06L

#### NORTH SLOPE Suspect Site Field Data Sheet

Investigators: RCR Date 1 / 24 / 90 JGL Time 1504

Site Location: NW 1/4 Section 34, T 14N R 27E. 1 mi north of Hwy 24 at mile marker 62 1/2. Access through PSN 07/10.

Coordinates:

327° from H-06C

178° from Observatory Peak (Rattlesnake Mtn)

169° from Radio Peak (Gable Mtn)

Indications of Problem: X\_Plant Stress \_\_\_Soil Discoloration \_ Pipes in Ground X\_Old Building Site \_\_Soil Depression X\_Soil Disturbance \_\_Trash Pile X\_Documentation X\_Road Terminus \_\_Other \_\_

Site Narrative: Site is the launch location for "Battery A" NIKE missile installation. All structures have been leveled to the ground. Foundations remain as well as roadways, parking areas, and drainage structures.

The entrance to the underground structure (filled with soil to prevent entrance) has been partially excavated. It does not appear, however, that entry is possible at this time. Potential hazard from the opening appear to be from tripping and the exposed reinforcing steel. This location is fenced and posted.

Similar sites contain an acid pit used for disposal of acids used in maintenance operations. Concern has been raised by the lack of vegetative growth on soil berms at another missile site. Soil at H-O6L is also largely barren; this appears to be due to the fact that only a relatively thin layer of soil overlays asphalt and concrete pads. Insufficient soil may exist to support plant growth during the hot, dry summer. Report from personnel stationed at the site indicates that removal of vegetation from soil berms was a major activity. This may indicate that persistent herbicides may not have been used.

One underground storage tank was located at this site. Approximate location is known; however, no evidence remains of the tank. Removal during excess operations is likely.

A 55-gal barrel is buried to the rim at the perimeter of the site. Function is unknown.

## WHC-EP-0359

	or H-O6L is at the site r nder the heading PSN 07/1		he barracks
Documentation:	None Contact:U.S.	Attached . Army Corps of Eng	ineers maps
Recommendations:	No significant hazards would be appropriate to m		

Site Name MIL - H-06L Dump

Investigators: RCR RMM		Date Time	2 / 2 / 1205	90
	SE 1/4 Section 34, T 14N R , 200 yd east of White Bluffs			
Coordinates:	318° from H-06C 244° from H-06L (southern tree 179° from Observatory Peak (Re 171° from Radio Peak (Gable M	attlesr	nake)	
Pipes in GroundOld	Plant StressSoil Disco Building SiteSoil Depres Trash PileDocumentation r	loratio sion	on	
of the soil is apparent. exposed at the surface:	s approximately 2 to 3 acres in Inspection of the site shows a paint cans, construction mater he site was used by the military ations for disposal.	a varie ials, a	ety of ma asbestos	iterials siding,
Documentation:	None Attack X Contact: KWK	hed —		
	her characterization may be apported or environmental threat was ol			

Investigators: RC	CR PH		Date Time	12 / 22 / 89 1310
Site Location: NW corner of sections 1 about 3 mi east of W	13, 14, 23, 24. A	t road terminus wes		
Indications of Problem Pipes in Ground Soil Disturbance X Road Terminus	l <b>em:</b> Plant Stre <u>X</u> Old Building S Trash Pile <u>X</u> _Other	ssSoil Discol iteSoil Depres Documentation	oration ssion	n
Site Narrative: missile site. No er One 5-gal can of mil contents, but bodies free product remaine locations.	nvironmental conce litary lubricant w s of beetles had l	rns of a serious na as found containing argely soaked up th	iture w j a sma ne liqu	were observed. Il amount of aid so that no
Communication wire 1 A trench was bulldoz evidence of buried n lubricant cans were	zed to the north o naterials in the t	f the site. Observ	ation	indicated no
The U.S. Army Corps radar station associcontrol center H-120	ated with this NI	KE position is coll	ocated	with the
Some reinforcing bar pose a physical haza				n. This may
Documentation:	None XContact	Attach Attach	ed <u>y acti</u>	vity
Recommendations: appropriate to more be cut off near grou	completely invest	igate the area. Re	inforc	

3	CR MM		1 / 5 / 90 0925
Site Location: SW 1/2 mi east of inter	1/4 of NW 1/4 Section 23, T 14N Frsection to White Bluffs landing.	₹ 27E.	Approximately
Pipes in Ground	lem:Plant StressSoil Disco XOld Building SiteSoil Depre Trash Pile XDocumentation _Other	oloration ession	on
site. Buildings have remain. The undergo to 1975 cleanup effor partially excavated 4 ft. This site is	Site is the launch area for "Battery we been removed so that only concret round storage area was filled with s ort. The entrance to the undergroun . Another area has been excavated to apparently an electrical access por o vehicular traffic in the area. No	te found soil dur nd area to a dep rt. The	dation pads ring the 1974 has been oth of 3 to ese excavations
	age tank was probably on site during known, but no evidence of the tank		
	sion is at the northwest corner of t s that this depression may have beer		
Documentation:	None Attac Contact: <u>U.S. Army Cor</u>	:hed os of Er	ngineer maps
characterization may	The excavations should be fenced or be appropriate at potential disposit confirm absence of underground sto	sal area	as. GPR or

Investigators:	RCR DSL			te 02 / 08 / 90 ne 1039		
Site Location:	S 1/2 Section	23, T 14N	R 27E			
Coordinates:	34°	from H-06C from H-12C from Observa	atory Peak (Ratt	esnake)		
Soil Disturbance	<pre>Indications of Problem:Plant StressSoil DiscolorationPipes in Ground X_Old Building SiteSoil DepressionSoil Disturbance X_Trash PileDocumentation X_Road TerminusOther</pre>					
to H-12C and PSN intersection of re	Site Narrative: Site is a gravel road intersecting the paved access road to H-12C and PSN 12/14. Gravel road intersects access road opposite intersection of road to H-12L. In other words, this position is south of H-12L and directly beneath the White Bluffs power lines.					
A gravel road forms a perimeter of the site. Remains are present of several wood frame structures. Many piles of domestic garbage can be found. Several 5-gal oil cans and some 55-gal drums are present. Automobile parts are also at the site. I have called the site H-12R because concrete footings approximately 18 by 10 in. are present at the east and west ends of the site. The arrangement of the footings suggest some sort of tower may have been bolted in place at these locations. Some doubt exists whether this is indeed a radar site. Generally, radar was placed in a high location, and this is in a low spot. Also, military maps show H-12R to be nearer PSN 12/14.						
The site is approximately $1/3$ mi long by 300 yd wide, is underneath the power line, and the axis runs east-west. General layout of this site is similar to Radar and PSN 80 sites. No evidence was found of underground structures at this site.						
Documentation:	Cc	None ontact:	Attached			
Recommendations: lumber. A more thappropriate.				nd paint cans and however, be		

Investigators:	RCR JGL				3 / 21 / 90 1521
Site Location:	N 1/2 of SW	1/4 Section	23, T 14N R	25E.	
Indications of Pr Pipes in Ground XSoil Disturban XRoad Terminus	l <u>X</u> 01d Bu iceTrash	ilding Site PileDo	Ooil Depr	ession	
Site Narrative: present. A large the disposal area contains some ref	e disturbed a a. A small s	nea on th <mark>e v</mark> oil berm <b>ne</b> a	west side of t ar the south-e	he site	may indicate
A 55-gal drum is north west end of but function is u snakes.	buried so the the site.	31	is flush with en referred to f the interior	the grou as a "s of the	und near the snake trap," drum shows no
Documentation:		Mone  Contact:	U.S. Army Cor	ched ps of Er	ngineers maps
Recommendations:	Furt	weedigatio	on may be appr	opriate	at this site.

Investigators:	RCR CEH			3 / 15 / 90 1152
	SW 1/4 of NW 1/4 Section access road, near top		R 25E.	1/4 mi north
Pipes in Ground Soil Disturband	oblem:Plant Stress X_Old Building Site e X_Trash Pile X X_Other _U.S. Army_0	<pre>eSoil Depro Documentation</pre>	ession	
site. A well str with soil. A sma several hundred r	Site is the control of cucture remains on the sill pit was found (approunds of fired 30/06 bid automatic weapons.	site, but it ha oximately 4 by lank ammunition	s been 1.5 ft) along	mostly filled containing with steel
A small trench we	st to the site may ind	icate a disposa	l area.	
Documentation:	None Contact:	COE maps		
Recommendations:	Additional characte	erization may be	e appro	priate at this

Investigators:	RCR KJK		Date Time	3 / 27 / 90 1005
Site Location: paved access road	SW 1/4 Section 6,	T 14N R 25E.	Site is at	the end of
Pipes in Ground	roblem:Plant Str L_X_Old Building eTrash Pile Other	Site Soil D	epression	on
by approximately removed. Undergr well structure. large disposal ar appears to contai actual burial tre	Actual launch sit 1/4 mi. Buildings ound structures have some possible disposed ea exists north of a materials from prenches were identifications amount of the structure of the	and above-grounge been filled work was areas exist the site. The ractice maneuver ied to the north	d structure ith the exc west of the area north is from the	es have been ception of a ne site, and a of the site 1960's. No of approximately
Documentation:		t: <u>U.S. Army</u>		ngineers maps
Recommendations: military disposal	Further investi areas are found to	igation may be a o contain hazard		

Investigators:	RCR KJK		02 / 09 / 90 1308
	SE 1/4 of NW 1/4 Sed Hwy 24 at about mile	ction 35 T 15N R 26E. S marker 57 1/2.	ite is approx.
Coordinates:		Radio Peak Observatory Peak (Rattle: 100B Reactor	snake)
Indications of Pr Pipes in Ground Soil Disturband XRoad Terminus	d <u>X</u> Old Building S ceTrash Pile _	essSoil Discolorate SiteSoil Depression _Documentation	ion
	y clean with exception	site shows no indication on of several broken boxe	
Documentation:	None _XContact	t:Attached t:U.S. Army Corps of	f Engineers maps
	No hazards wer oriate grass species	re identified at this sin	te. Site may be

Investigators:	RCR KJK		2 / 14 / 90 1534	
Site Location:     mi north of Hwy	W 1/2 of SW 1/4 Section 28, T 15N R 24 at mile marker 56.	27E.	Approximately	
Indications of Pro Pipes in Ground Soil Disturband Road Terminus	oblem:Plant StressSoil Disco X_Old Building SiteSoil Deprece COLUMN COLUMN	olorati ession	on	
and could pose an	Site is an antiaircraft site. Well attractive nuisance. Several areas a, south, and north of the main area wi	appear	to be disposal	
Documentation:	None Attac Contact:U. S. Army corp	:hed os of E	ngineer maps	
	Disposal areas may be investigated otential physical hazard.	i. Wel	1 structure mag	y

Investigators: RCR DSL			02 / 08 / 90 1355
Site Location: SE 1/	4 of NW 1/4 Section 32,	T 15N R 27E	
Coordinates:	2° from H-06C 174° from H-12C (pop 184° from Observator		nake)
Pipes in Ground $X_{\perp}$	:Plant StressS _Old Building SiteS _Trash PileDocument ther	oil Depression	on
are located north of t the tree complex indic	ite is an old AAA site. ree and well complex. C ate possibility of buried n the gully to the south	at scars north d disposal site	and south of s. Construction
the well is contaminat are present around sit possible pesticide con	aminated. A report has ed with pesticide. At lee. Bright yellow color tainers. Origin is unknown of the investigation.	east four 5-gal	containers
several blue plastic 5 cut in the top approxi This general type of d	ll gully. In the gully 5-gal drums. Six drums mately 8 by 10 in. Threword is often used to mak pear empty. These appea	are complete an e drums have be e animal feed a	d have a hole en cut in half. nd water
indicated that barrels	rling Imaging Inc, Pasco probably contained phot listed as: ammonia diot	ographic fixati	ve, primarily
Documentation:	None X Contact: Stirl	Attached ing Imaging	
Recommendations: this site.	More thorough character	ization may be	appropriate at

Investigators: RCR JGL

Site Location: NE 1/4 of of HWY 24 at mile marker 62

Coordinates:

1

Indications of Problem:

X Pipes in Ground X Old
X Soil Disturbance X Tr
X Road Terminus \_\_Other

Site Narrative: Site is location. It also served a locations of some significa Sites associated with PSN 0

French drain, made by make a cylinder approx the top at ground leve through the side, abou the barrels could not northwestern-most locu southwestern-most locu

A motor pool grease pi facility. Potential e site.

Wooden underground str soil. Walls are made ft by 18 in. deep. It beyond 18 in. and has northwestern-most locu Structure is about 75 07/10.

Concrete lined pit. P 3 ft deep. It is near a nonsymetrical pentag locust tree, 40° from from observatory peak, stage 1 / FR

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Esta cara cas Cerpecani

indicate and in the control of the c

Fire the chart of the control of the model of the chart of the chart of the chart of the chart of the fraction of the chart of the char

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food or understructed some two two tracts as the property of the some terms to the control of the some terms to the some terms as the some terms as the some terms as the some terms are the some terms as the some terms are the some terms are

To the letter of the market approximation of the machine of the ma

A mess hall is located near the east side of the complex. A grease trap and drain to the soil is associated with this structure.

Practice land mines have been found near this location. This is described as Land Mine Site.

A homestead cistern is located north west of the site. The cistern is mostly caved in, consequently poses little real hazard.

Documentation: None Attached X Contact: KWK, U.S. Army Corps of Engineers maps.

**Recommendations:** French Drain should be fenced, sampled, and dispositioned. Mess hall grease pit should be sampled. Pit and underground wooden structure should be filled. Additional characterization of the site may be appropriate.

Investigators	RCR CBG			11 / 1000	16 /	89
	About 300 yd North o 250 yd west of access	f Highway 24, at about road to PSN 07/10.	mil	le mar	rker	
Pipes in Grou Soil Disturba	Problem:Plant Structure		atio n	on		
surrounded by s were found on t witness at that	short posts about 18 i the ground surface on time that a nearby a	ield. Area is about 1 n. tall. Two practice 14 September 1989. It rea appeared to be a m D and no evidence of m	ant was iine	itank note field	c mine d by I. Th	a e
September, they the condition o	did not appear to ha	n the mines were recov ve been in place for m that they had been on	any	years	s. A1	
Documentation:	None Contact					
	ropriate action has b	n have been cleared by een taken, and further				

Date 12 / 22 / 89 Time 1433

#### NORTH SLOPE Suspect Site Field Data Sheet

RCR RPH

Investigators:

landing. Range 27E, T14N, northern 1/2 of section 24, and small southern portion of section 13.
Indications of Problem: X Plant StressSoil DiscolorationPipes in Ground X Old Building SiteSoil DepressionSoil Disturbance X Trash Pile X Documentation X Road TerminusOther
<b>Site Narrative:</b> Antiaircraft gun site associated with NIKE missile position 12. No significant environmental or health threats were observed. No indications of underground storage tanks were found.
Indications were found of one small burial site with some metal scraps, and old paint-type cans. The area was on the southern edge of the position and appeared to be less than 8 ft in diameter. A large dump site is located southeast of PSN 12/14 a few hundred yards. Most trash is apparent in large sand blowouts. This consists mainly of commissary type garbage: food cans, condiment and beer bottles. Miscellaneous items are present including pieces of a wringer washing machine, water tank and water heater, some solvent-type cans about 1-gal size. In a shallow gully near the east end of the garbage area are some packing boxes for big gun shells. Markings on packing tube lids were "120 M." Size was consistent with objects approximately 120 mm in diameter and 1/2 m long. All boxes and packing tubes were previously destroyed and can be confirmed empty.
The well at this position is open and may present an attractive nuisance due to the underground structure accessible. A small room about 8 by 8 ft is open underground.
Documentation:  None X Contact: Maps of military activities
<b>Recommendations:</b> No serious safety or environmental threats were observed during this site investigation. The open well may pose a concern as a liability due to the accessible underground structure. It may be appropriate to characterize the area more completely.

Investigators:	RCR CEH		3 / 13 / 90 1049
both sides of the	SW 1/4 Section 31, T 14N R 25E. small highway heading north from of trees at the top of the hill	Vernita Br	idge. Location
Pipes in Ground	coblem:Plant StressSoil   X_Old Building SiteSoil   Colored	Depression	on
the road. Some 5	A few small disposal pits are log- i-gal and l-quart oil cans are four piles around the area. Packing on n one pit.	nd both in	the disposal
buried approximat	are at this site. Boxes are appeal of the learn and are appealed and the learn are are appealed and the learn are appealed and th	box is flus	h with the
	corner of the site is a small fir g 22-caliber firearms.	ing range t	hat was used
Gun emplacements removed.	and all above ground structures h	ave been le	veled and
Documentation:	None Contact:U. S. Army	Attached Corps of E	ngineer maps
Recommendations: disposal areas ma	Additional characterization of by be appropriate.	f the site,	especially the

	CR JK	Date Ti <b>me</b>	3 / 22 / 90 1258
	1/4 of SE $1/4$ , and SE $1/4$ of SW $1/4$ ximately 600 yd east of H-83L, and note.		
<pre>Pipes in Ground</pre>	lem:Plant StressSoil Discol X_Old Building SiteSoil Depres Trash Pile X_Documentation _Other	oration	on
sites. Site is app At two locations, a	Site is similar in general layout to roximately 1/3 mi by 400 yd and bound set of four small concrete pads were g something onto. A third set of corocated.	ded by e found	a gravel road. d with bolts
	tions were identified, but only one obvious disposal pits were identified		te foundation
	ides with army location maps identify position does not coincide with other		
Documentation:	None Attach Contact:U. S. Army Corps	ed of Er	ngineer maps
this site. After ex	No hazards were identified during taxperience is gained from more intensi litary sites, this site may be reinve	ve cha	aracterization

Investigators:	RCR JGL				3 / 27 / 9 1005	90
Site Location:	NW 1/4	of Section 1,	T 14N R 25E	. Just no	rth of HWY	24.
Indications of Pipes in Grou Soil Disturba XRoad Terminu	ind <u>X</u> 0	ld Building Si rash Pile X	teSoil D	epression	on	
Site Narrative: A grease pit an used oil and so small quantity and the site is for some field	nd oil rac olvents. of oil sp s reported	k are at the s The oil rack h illed on the g to be used by	ite. Potenti as been used round. A wel	al exists in recent lat the s	for disposa years, and ite is usab	al of a ble,
Several concret this position m			n in the area	. The dis	posal site	for
Documentation:		None XContact:	_U.S. Army	ttached <u>Corps of E</u>	ngineers ma	<u> 20</u> 5
Re <b>commendati</b> ons investigation.						<b>3.</b>

Investigators:	RCR JGL					3 / 27 1005	/ 90
Site Location: PSN 90.	W1/2 of	Section 1,	T 14N	R 25E. So	outh of	HWY 24,	opposite
Indications ofPipes in Grou XSoil Disturb XRoad Terminu	nd <u> </u>	d Building S _Tr <b>a</b> sh Pile	ite <u>X</u>	Soil Depi	colorat ression	ion	
Site Narrative: such as tent pa parts. Several excavation, app around the peri	rts an ele small pit roximately	ectronic par ts are on si	ts. Als	so at this e with tras	location that	on are a hem. On	utomobile e
Documentation:		X None Contact	:	Atta	ached ——		
Recommendations investigation m				re located.	. Addii	tional	

Investigators:

RCR DSL

Site Location:

NE 1/4 (

Coordinates:

Indications of Problem:

\_\_Pipes in Ground X\_0
\_\_Soil Disturbance \_\_Ti
\_\_Road Terminus \_\_Other

Site Narrative: Site a separate locations. Room 12 in. Observation through 10 ft. An excavation is indicates location of a spartially buried wooden wide by 18 in. deep.

To the north west of each 10 by 18 in. Bolts proteradar towers or large guildring two sites do not contain

Documentation:

Recommendations: Un may be filled to prevent fence onto the top. Company carton of the Company

Side Location:

Coor linates:

Codicerions or \_\_Pices in God

since variancings: Linux (1. Linux (2. Linux (

To display the wear of eyest and the magnetic strains of the equal of the strains of the strains

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Pacomment Instrumer or organists and starting the filter to one has the content of the lift at the

Investigators RCR CBG Date 11 / 16 / 89 Time 1200

Site Location NW 1/4 of Section 22, T 14N R 27E. Sand dunes 1/2 mi north of White Bluffs boat landing road, west of old highway.

Indications of Problem: \_\_Plant Stress \_\_\_Soil Discoloration
\_\_Pipes in Ground \_\_Old Building Site \_\_Soil Depression
\_\_Soil Disturbance \_\_Trash Pile \_\_Documentation
Road Terminus X Other Report of shrappel in the area.

Site Description Shrapnel was originally reported by a person visiting the recreation area. Location of findings is in an area of active sand dune and blowout activity. Report of shrapnel was confirmed, and area investigated by U.S. Army Explosive Ordnance Division (EOD) from the Yakima Firing Center. The EOD was assisted by personnel from Westinghouse Hanford Patrol and Environmental Engineering Group.

Shrapnel found by EOD personnel was thought to be from 175-mm rounds. This assumption is based upon the length of the rotating ring. The EOD personnel indicated that the area did not appear consistent with an impact zone. Indications that the area was not an impact zone include:

- no explosion craters were found
- relatively little shrapnel is found
- · only relatively small pieces have been found
- no targets are in the area (artillery personnel like to shoot at targets)
- given the frequent recreational use of the area, nobody has found a shell, or a large piece of a shell.

The EOD personnel suggested that the area may be a demolition area, where old or dud rounds were disposed of by blowing them up.

Additional field investigations and reports from persons familiar with the antiaircraft batteries indicate that shrapnel may result from test firing at the batteries. An area of shrapnel may be found in the vicinity of each antiaircraft site. Although confirmation is not available, persons familiar with the antiaircraft batteries indicate that dud rounds would have been located and removed.

Documentation:	Contact: _	ACTACH	<b>-</b>	
Recommendations: areas to locate unexpontinued erosion.	Periodic investigated poloded rounds (if poloded)			

Investigators:	RCR SGW				01 / 12 / 9 1032	0
Site Location:	E 1/2 Section	n 7, T 14N	R 28E			
Coordinates:	193	<ul> <li>from Obse</li> </ul>	rvatory Pe	3 (approxim ak - (Rattl ll - metal		)
Indications ofPipes in GrouSoil DisturbaRoad Terminus	undOld Bui anceTrash	lding Sit <b>e</b> Pile <u> </u> Do	Soil D cumentatio	epressio <b>n</b> n	on	
Site Narrative: this area. One piece is not sp with parts of m has been found by vegetation, by erosion.	e piece is a se pecifically ide nunitions found near this loca	ction of no ntified, bu in shrapne tion. Howe	se cone from t metal ty lareas. ver, soil	om a projec pe and gaug No iron or in this are	tile. The o e is consist steel shrapn a is stabili	ther ent el zed
Documentation:		_ None Contact:				

Recommendations: The small number of pieces found do not indicate an impact area for a large amount of ordnance. A brief search of the area with a metal detector may be appropriate to determine if a great deal of shrapnel is buried, but surface indications suggest a single round was fired into the area and exploded as planned.

Investigators:	RCR MRC	Date 1 / 12 Time 1123	/ 90
Site Location:	N1/2 of SW 1/4 Secti	on 2, T 14N R 26E	
Pipes in Groun Soil Disturban	Problem:Plant StrendOld Building SinceTrash Pile _ X Other scattered		
this area. Soil	l in this area is gene small area of sand dun	on or steel shrapnel have been frally stabilized by vegetation. e activity. This area is south,	Shrapne
Documentation:	<u>X</u> None Contact:		

Recommendations: The small number of pieces found do not indicate an impact area for a large amount of ordnance. A brief search of the area with a metal detector may be appropriate to determine if a great deal of shrapnel is buried, but surface indications suggest a single round or a few rounds were fired into the area and exploded as planned, or this may be the fringe of a shrapnel area.

Investigators:	RCR CEH		3 / 13 / 90 1049
top of the hill no	SE 1/4 of SW 1/4 Section 31, Ti orth of Vernita Bridge. Area of Valley runs directly toward brid	f concern is	Site is at the at the dead of
Indications of Pro Pipes in Ground Soil Disturbance Road Terminus	o <b>blem:</b> Plant StressSoi Old Building SiteSoil e <u>X_</u> Trash PileDocumenta Other	l Discolorati Depression tion	on
dump site for demo origin is from the	It is unclear if this site is olished building structures. It military of homestead activity area from the military.	t is also not	clear if the
metal roofing mate structural lumber. military origin. bottles, and cans	are remains of three or four wooderial is present, window screen, and also at the site is general to trash includes personal items (and the control of the c	, railroad ti trash that ap (tooth brushe e. It could	es and pears to be of s, razors), not be
Documentation:	None Contact:	_ Attached 	
Recommendations: Lumber and building it may be investig	No specific hazards were ideng materials may be removed. If	entified at t f a disposal	his site. pit is located

Investigators:	RCR CDK	<b>Date</b> Time	02 / 06 / 90 1211
Site Location: E	1/2 Section 7, T 14N R 28E		
Coordinates:	196° from Observatory 318° from H-06C 319° from pole #12-2-I 204° from pole #12-3-I	L	nake)
Pipes in Ground	oblem:Plant StressSo X_Old Building SiteSo eTrash PileDocumentat Other	il Depression	on
and partially cover broken hoe, cans,	Cistern is approximately 6 for ered with wood. Some household barrel hoops. The cistern is at the land was not cleared for	d items are nea in an area of	rby such as
the second piece	r an explosive projectile was for aluminum shrapnel found at follower road, but to the state of	this general ar	rea. Piece was
Documentation:	None Contact:	Attached	
Recommendations:	Cistern should be fenced	or filled.	

Investigators:	RCR CEH		02 / 20 / 90 11: <b>4</b> 8
	O yd south and west o	tion 27, Tl <b>5N</b> R 27E. f the clay pit used for	
Pipes in Groun		ssSoil DiscoloratiteSoil Depression _ Documentation	ion
	d, approximately 4 ft	ocated southwest of clay in diameter and filled	
Documentation:	<u>X</u> None Contact:	Attached	
Recommendations:	Site poses minir	mal hazard. Cistern may	, be fenced or

Investigators:	RCR RMM			2 / 2 / 90 2 1023
Site Location: east of the clay	SE 1/4 OF NE 1 pit, 1/4 mi so	l/4 OF Section outh of the ca	26 T 15N R 27 nal.	'E. About 1 mi
Coordinates:	212*	from Radio Pe from 105-N from Wahluke	ak (Gable Mtn) Relay	
Indications of Pr Pipes in Ground Soil Disturbanc Road Terminus	Old Build e <u>X_</u> Trash R	ding Site X	_Soil Depression	ion I
Site Narrative: cistern. Cistern lined. It is fil an unknown number pesticide for del Bottles were apprairestock antibio	is round, app led with trash of empty 1-ga ousing cattle oximately 200	proximately 4 n to within 12 al "Warbex" ca . Several sma ml, with a na	ft in diameter, in. of the top. ns, an externall ll, clear bottle rrow neck, and a	and concrete Trash includes y applied es were present. appear to be
Documentation:		None ontact:	Attached	
Recommendations:	Cistern sh	nould be clean	ed out and fence	ed or filled.

Investigators:	RCR RPH			ate 12 / 22 / 89 ime 1524
Site Location:	SW 1/4 OF	SW 1/4 OF Secti	on 20 T 14N R	28 E
Coordinates:	21	'4° from Radio P '2° from 105 Bld '2° from Wahluke	g. 100N	
Indications of FPipes in GrounSoil DisturbarRoad Terminus	id <u>X</u> 01d iceTras	Building Site sh PileDocu	Soil Depressi	
west) from white	tersection bluffs. C ep. An old	of power line ( istern is in ve I wire fence is	north-south) wit ry good shape, 5	road, at second th power lines (east- 5 to 6 ft in diameter the cistern, making
Documentation:	Ξ	X Non <b>e</b> Contact:	Attached	l
Recommendations:	Trash sho	uld be cleared	and cistern fend	ed and posted.

Investigators:	RCR RMM			1 / 16 / 90 1327
of wood pole power	er line between	er of section 18, T 28 pole 13 - 10 and 13 - 13 e location that the lind	1. Si	te is
Coordinates:		rom H-12C rom Observatory <b>Peak</b> (Ra	attles	nake)
Pipes in Ground	l <u>X</u> 01d Build ce <u>X</u> Trash Pi	StressSoil Discoing Site <u>X</u> _Soil Deprolementation	lorati ession	on
cistern is approx	cimately 8 ft ac few cans and pi	ead site with two unfend ross by 14 ft deep; the eces of metal trash ind	other	is 3.5 ft across
Documentation:		one Attacl	hed —	
Recommendations:	Cisterns sh	ould be fenced and post	ed.	

Investigators:	RCR RPH			12 / 22 / 89 1524
power line road	SW 1/4 of section at second pole so st power line (freery.	uth of intersect	ion of north	-south power
Indications of PPipes in GrounSoil DisturbanRoad Terminus	ce <u>X</u> _Trash Pil	ng SiteSoil	Depression	on
4 to 5 ft deep. about 1 in. thic cans. There are area around the wire. It is lik	Cistern is in The sides of the k. The cistern i many cans and br cistern has been ely that homestea tructures remain	e cistern are con s partially fill coken bottles are fenced-off with d buildings were	crete, which ed with old e in the area old fencing	appears to be metal food . The immediate wire and bailing
Documentation:	X	ne act:	Attached	
Recommendations: falling or drivi signs should be				

Investigators:	RCR JGL			e 1 / 10 / 90 e 1544
Site Location: Nends at the Wahluk east of the road.	e Branch Waste	way. Near end	of road, a la	
Indications of Pro Pipes in Ground Soil Disturbance Road Terminus	X_Old Build X_Trash Pi	ing SiteS	oil Depression	
Site Narrative: At the southwest of 12 by 12 by 4 ft of ground surface, ma north of the stock	corner of the c leep. The top aking accidenta	orral is a conc of the tank is	crete stock ta approximately	ank approximately  7 2 ft above the
Many metal cans ar fencing and corral				timbers used for
Documentation:	X N	one _ tact:	Attached	e.
Recommendations: appropriate to rem				

Investigators:	RCR CDK					02 / 1036		90
Site Location:	NW 1/4 S	Section 6	T 13N R	28E				
Coordinates:		318° from 299° from 193° from 65° from	Wahluke Observa	tory Peal	k (Rattles	nake)		
Indications of PPipes in GrounSoil DisturbanRoad Terminus	d <u>X</u> 01 ceTr	d Building ash Pile	Site	Soil De	iscoloration epression	on		
Site Narrative: wire, etc. The filled in to app have blown away. mately 30 yd eas approximately 80	cistern r roximatel A possi t of cist	remains and y 6 ft dee ble dispos ern. Cist	is appr p. The al pit o ern is i	oximately site is i r outhous n an area	y 9 ft in of fenced, bu se location a of once-o	diamet t warn n is a cleare	er. ing s pprox	It is signs <i-< td=""></i-<>
Documentation:		X None Contac	t:	A1	ttached			
Recommendations:	Warnin	ng signs sh	ould be	reposted				

Investigators:	RCR DSL		01 / 25 / 89 1111
Site Location:	SW 1/4 Section 22, T	15N R 27E	
Coordinates:		06C servatory Peak (Rattles steway Block Building (	
Pipes in Groun	d <u>X</u> 01d Building Si ceTrash Pile	sSoil Discolorati te <u>X</u> _Soil Depression Documentation	
approximately 4		estroyed and filled in. a hazard to vehicles. site.	
Documentation:	<u>X</u> None Contact:	Attached	
Recommendations:	Cistern may be	completely filled	

Investigators:	RCR JGL		te 02 / 21 / 90 ne 1345
Coordinates:		-06C bservatory Peak (Rattl uarter section marker 26/35 T 15N R 27E	esnake)
Pipes in Ground	X_Old Building S eTrash Pile _	ssSoil Discolora iteSoil Depressio _Documentation	ition on
Site Narrative: with soil and tra		mately 5 ft in diamete	er, mostly filled
Documentation:	<u>X</u> None Contact:	Attached	
Recommendations:	No significant	physical hazard is pr	esent.

Investigators:	RCR JGL	Date Time	02 / 21 / 90
Coordinates:		06C servatory Peak (Rattlesn arter section marker 26/35 T 15N R 27E	ake)
Pipes in Ground	d <u>X</u> 01d Building S ceTrash Pile _	ssSoil Discolorati iteSoil Depression _Documentation	on
		mately 5 ft wide and mos a indicated homestead.	tly filled with
Documentation:	X None Contact:	Attached	
Recommendations:	Cistern may be	fenced or filled.	

Investigators:	RCR CDK				2 / 6 / 90 1432
Site Location:	SW 1/4 of N	E 1/4 Section 3	2, T 14N	R 28E	
Coordinates:	214	from Observat from Radio Pe from H-06C		attlesn	ake)
Indications of I Pipes in Groun Soil Disturbar Road Terminus	nd <u>X</u> 01d Bu nce <u>X</u> Trash	uilding Site	Soil Depr	olorati essi <b>o</b> n	on
Site Narrative: shed location 50 of a carriage to	00 yd SW of ti	rees. Parts of	a flour mi	ll foun	d. Also parts
Documentation:	<u>_x</u>	None _Contact:	Atta	ched —	
Recommendations:					

Investigators:	RCR CDK		Date 1 Time 1	/ 30 / 90 144
		Section 20, T13 N Full of the section post on azimut		
Coordinates:		m H-06C m Observatory Peak (Ra rom Savage Corner Post		ke)
Pipes in Grou	und <u>X</u> Old Buildin ance <u>X</u> Trash Pile	tressSoil Discol g SiteSoil Depres Documentation	oration ssion	
homestead. No on the site, ar	above-ground struct nd several metal can:	cherry tree indicates ures remain. Three sm s and some broken glas wagon road runs just	nall dea ss indic	d trees are ate the
Documentation:		e Attach ct:	ied —	
		re identified at the s		homestead

Investigators:	RCR KAW			12 / 1 1028	9 / 89
	SE 1/4 of NW 1/4 Sectors of Secto		27E.	Site i	s at the
Pipes in Ground	roblem:Plant Strest dOld Building Site ceTrash Pile X	t <b>e</b> Soil Depres	oloration ssion	on	
site. No evidend	Signs at the nort ce of the site is four rea. Surface of site	nd on the surface.	Vege	tation	
Documentation:	None Contact:	Attac	hed —		
	Site is included d possible cleanup wil				

Investigators:	RCR RPH		12 / 22 / 89 1158
Pipes in Ground	oblem:Plant Stress Old Building Site e <u>X_</u> Trash Pile[ Other	Soil Depression	ion
several pieces of construction tras locations are app this site is the	Site is a sand blowou concrete/asbestos pipe h is present such as pi arent at this location. NIKE missile site H-12L ly origin of the pipe m	e. A small amount of ieces of concrete. No Approximately 1/4 in Demolition activi	other o building mi north of ties at H-12L
Documentation:	<u>X</u> None Contact:	Attached	
Recommendations:	Pine nieces should	be removed and dispos	sed.

Investigators:	RCR JGL			Date :	3 / 30 / 90 1215	
Site Location: 1/4 mi south of			, T 14N R 2	26E. A	oproximatel	у
Indications of P Pipes in Groun Soil Disturban XRoad Terminus	Problem:PlandOld Build ce X_TrashOther	nt Stress ding Site <u>X</u> Pile <u></u> Docum	_Soil Discol _Soil Depres mentation	oration ssion	n	
<b>Site Marrative:</b> Several small pi 15 by 15 ft wher 25 by 5 by 3 ft	les of asphalt e concrete was	and gravel ar dumped for di	re present on isposal. Two	site. pits a	Also an a are on site	rea !,
The area has the asphalt for pavi			a temporary	locati	ion for mix	ing
Documentation:	X C	None ontact:	Attach	ned —		
Recommendations: investigation ma			e identified	I. Addi	itional	

Investigators:	RCR RMM			Date Time	1 / 16 / 1245	90
Site Location: 3 and 13-8, about 10 3/4 mi north of the	00 yd west of t	he Hanford S	Site power li	ne. /	Approximat	tely
Coordinates:	239° 1	rom H-12C rom Radio Pe rom Observat	eak (Gable Mt cory Peak (Ra	n) ittlesr	nake)	
Indications of Pro Pipes in Ground Soil Disturbance Road Terminus	Old Buildi eTrash Pil	ng Site 🔃	Soil Depress	oration	on	
Site Narrative: gauge, rust-resist 18 in. deep. Top top in indelible one-third buried and some insect be	tant metal. Ca has a vault ty marker. Contai in the ground.	n is square pe closure, ner is stamp Bottom of t	shaped, appr and has "BAI ed "40 mm MK he can is fi	oximat T CAN' 1 MOD	tely 12 by handwrii handwrii 8". Can with plani	y 12 by tten on n is
An anchor stake for probably in place military origin. and rusted.	as part of a c	oyote trappi	ng operation	, and	not of d	irect
Documentation:	Cor	one tact:	Attach	ed —		
Recommendations:	No hazard a	ppears to be	associated	with 1	this site	•

Investigators:	RCR SGW				1 / 12 / 90 1445	
Site Location: perimeter of Ha overlooking the	nford site					
Indications ofPipes in GrouSoil DisturbaRoad Terminus	nd01d nceTr	Building Sit ash Pile	e <u></u> Soil Dep _Documentation	iscolorati oression	on	
Site Narrative: approximately 1 large animals w bait station.	O acres in ere also p	size. Fifty resent. Indi	coyote skulls cations are the	s were cou	nted. Bones of	
Reports from pa trapper would c by the poison b with these repo	ommonly po ait would	ison the card	ass of a horse	e. Pelts	of coyotes kil	lled t
Documentation:	:	X None Contact:	A1	ttached		
Recommendations recent animal d					is present of	f

Investigators:	RCR JGL		e 3 / 30 / 90 e 0932
	South of HWY 24 about miles east of Vernita	t 1/4 mile, at mile ma Bridge.	rker 47.
Indications of I Pipes in Groun Soil Disturbar Road Terminus	Problem:Plant StrendOld Building Since X_Trash PileOther	ssSoil Discolora te <u>X</u> _Soil Depressio Documentation	tion n
apparently still of trash in it.	I in use. The smaller Trash includes many	e present at this site of the two pits (east cans and bottles, fencry paint cans, and a o	side) has a pile ing wire, and
Documentation:	<u>X</u> None Contact:	Attached	
Recommendations:	: No hazards were	identified at this loc	ation. No action

Investigators:	RCR KJK			Date 0 Time 1	02 / 09 / 1416	90
Site Location: at mile marker	SW 1/4 Section 56.	33, T 15N	R 26E. 200	yd nort	ch of Hwy	24
Pipes in Grou	Problem:PlanundOld Build anceTrash Pi Other	ling Site X	Soil Depres	loration ss <b>i</b> on	1	
strands of insumilitary commun	No evidence llated wires were nication. Some p trash or dumping	present, bu its are pres	t appeared to ent that look	be ass	sociated	with
Documentation:	<u>XC</u> o	None ntact:	Attack	ned —		
Recommendations	: No indic	ation of haz	ards were loc	cated du	ring thi	S

I <b>nve</b> sti <b>gator</b> s	RCR CBG			Date Ti <b>me</b>	11 / 16 / 1100	' 89
Site Location against bluff.				st of the	Columbia	River
Indications of Pipes in Grou X_Soil Disturb Road Terminus	Problem:P ndOld Bu ance X_TraOther	lant Stress ilding Site sh PileC	Soil Di Soil Dep Occumentation	scoloration ression n	on	

Site Description A bench has been cut out of the bluff about 100 yd long. Some 55-gal drums have been placed along the base of the bluff and along the bench. The barrels served as targets for 30- and 50-caliber and 37-mm rounds. This site served as a small arms firing range for Dupont and General Electric security forces until early 1950's. A burial trench several hundred yards west of the range contained metal boxes for 55-caliber rounds, 50-caliber brass, links from 50-caliber machine gun belts, and packing tubes for 37-mm rounds.

Several 30- and 50-caliber bullets had been found at the site. A few practice (nonexplosive) 37-mm projectiles have also been found. Reports indicate that two 37-mm rounds were found in the bullet impact area. One was determined by the finder to be a solid round (nonexplosive). The other one appeared different and was feared to be high explosive. The questionable round was reportedly reburied under the pile of soil excavated from the hill.

The soil pile described was excavated by U.S. Army Explosive Ordnance Division (EOD) personnel; however, no 37-mm round was found. Shallow excavation into the bullet impact zone produced three, 37-mm rounds. All three were confirmed by EOD to be nonexplosive solid rounds.

The EOD personnel found no evidence to suggest that the range had been used as a target for explosive rounds. Indications were:

- lack of impact craters
- lack of shrapnel
- Targets had not been blown apart, only holes punctured in them.

A second target area approximately 1/4 mi south of the main area was investigated by Westinghouse Hanford and U.S. Army Corps of Engineers personnel. Small pieces of shrapnel were located, indicating possible impact of explosive rounds. Persons familiar with the 37-mm rounds used at this time indicate that a nonexplosive round would fragment upon impact with a hard object such as a rock. It is unknown if fragments result from explosion or impact.

Documentation:	None	Attached		
	X_Contact:	BJR		

Recommendations: No imminent hazards were observed; however, it would be appropriate to more completely investigate the area. An area that deserves particular attention is the second, or southern target area. Although relatively few rounds appear to be fired at this location, small shrapnel fragments found on site may indicate explosive 37-mm rounds were fired at this location.

Investigators:	RCR RW				12 / 2 0933	27 / 8	39
Site Location: Columbia River,			, T 13N R	25E.	North o	of	
Coordinates:	96 <b>°</b>	from Stack a water i from Table R from K-East	nlet struct ock - Gable	ure on	river)	of	
Indications of Property in Ground Soil Disturband Road Terminus	d <u>X  </u> 01d Bui <sup>°</sup> ce <u> </u>	ldina Site	Soil Depr	olorati ession	ion		
Site Narrative: steps. Steps have imbedded in the spot 50 yd north second building.	ve been preser top step. Mar and east of t	ved apparentl ker indicates	y because o 469 ft abo	f a USG ve sea	S surve level.	ey mar A le	rker evel
A survey of the health, safety,			thing that	appeare	ed hazar	dous	to
Documentation:	<u>_x</u>	None _Contact:	Atta RW or DW	ched —			
Recommendations:	No action	•					

# EP-0359

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