

Nevada  
Environmental  
Restoration  
Project

DOE/NV--813



Streamlined Approach for  
Environmental Restoration Plan  
for Corrective Action Unit 425:  
Area 9 Main Lake Construction  
Debris Disposal Area,  
Tonopah Test Range, Nevada

Controlled Copy No.: \_\_\_\_\_

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Environmental Restoration  
Division

U.S. Department of Energy  
National Nuclear Security Administration  
Nevada Operations Office

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**STREAMLINED APPROACH FOR ENVIRONMENTAL  
RESTORATION PLAN FOR  
CORRECTIVE ACTION UNIT 425: AREA 9 MAIN LAKE  
CONSTRUCTION DEBRIS DISPOSAL AREA,  
TONOPAH TEST RANGE, NEVADA**

**Prepared for:**  
U.S. Department of Energy  
National Nuclear Security Administration  
Nevada Operations Office  
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CORRECTIVE ACTION UNIT 425: AREA 9 MAIN LAKE  
CONSTRUCTION DEBRIS DISPOSAL AREA,  
TONOPAH TEST RANGE, NEVADA**

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DOCUMENT COMMENT RESOLUTION ROM

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## **ACRONYMS AND ABBREVIATIONS**

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BN	Bechtel Nevada
CAS	Corrective Action Site
CAU	Corrective Action Unit
cm <sup>3</sup>	cubic centimeters
COPC	Contaminant(s) of Potential Concern
CR	Closure Report
DOE/NV	U.S. Department of Energy, Nevada Operations Office
dpm	disintegrations per minute
DQI	Data Quality Indicator
DQO	Data Quality Objective
DU	Depleted uranium
EPA	U.S. Environmental Protection Agency
FFACO	Federal Facility Agreement and Consent Order
ft	foot (feet)
FMP	Field Management Plan
gal	gallon(s)
IT	International Technology Corporation
l	liter(s)
lbs	Pound(s)
m	meter(s)
m <sup>3</sup>	cubic meter(s)
NDEP	Nevada Division of Environmental Protection

## **ACRONYMS AND ABBREVIATIONS (continued)**

NNSA/NV	U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office
NTS	Nevada Test Site
PPE	personal protective equipment
QA	Quality Assurance
QC	Quality Control
RCT	Radiological Control Technician
REOP	Real Estate/Operations Permit
REC	recognizable environmental condition
ROTC	Record of Technical Change
SAFER	Streamlined Approach for Environmental Restoration
SSHASP	Site-Specific Health and Safety Plan
TTR	Tonopah Test Range
UXO	Uncexploded Ordnance
yd <sup>3</sup>	cubic yard(s)

## **EXECUTIVE SUMMARY**

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This plan addresses closure of Corrective Action Unit (CAU) 425 Area 9 Main Lake Construction Debris Disposal Area as identified in Appendix III of the Federal Facility Agreement and Consent Order (FFACO, 1996). CAU 425 is located at the Tonopah Test Range (TTR) in Nevada and consists of one Corrective Action Site (CAS): CAS 09-08-001-TA09, Construction Debris Disposal Area. CAU 425 consists of approximately 2,280 cubic meters ( $m^3$ ) (3,000 cubic yards [ $yd^3$ ]) of concrete and construction debris with no contaminants or environmental impact expected to be present. This site will be closed under the Streamlined Approach for Environmental Restoration (SAFER) process.

CAS 09-08-001-TA09 was used to collect construction debris from various projects in and around Area 9. The site is located 81 meters (265 feet) north of Edwards Freeway northeast of Main Lake on the TTR. The site was identified on July 14, 1993, during a review of aerial photographs. The original area was generally flat; however, the area is currently covered with piles of construction debris, leaving a hummocky terrain. The area covers about an 0.4 hectares (1 acre) and is composed of concrete slabs with metal infrastructure, metal rebar, wooden telephone poles, and concrete rubble from the Hard Target and early Tornado Rocket sled tests. Other items such as wood scraps, plastic pipes, soil, and miscellaneous nonhazardous items have also been identified in the debris pile.

CAU 425 (CAS 09-08-001-TA09: Construction Debris Disposal Area) will be closed as a SAFER site by housekeeping activities. There are not expected to be any contaminants of potential concern (COPC) present at this site. Closure for this site will be completed by removing all the construction debris present. The debris from the site will be placed into end dumps and transported to the Air Force TTR Construction Landfill. Although there is no evidence to suggest that radiological contamination is present, uranium was used during tests on the Hard Target. Therefore, radiological field screening will be conducted during debris removal activities. For safety purposes, constant visual inspection of the debris during removal will be conducted to ensure that no COPC are present at the site.

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## 1.0 INTRODUCTION

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This Streamlined Approach for Environmental Restoration (SAFER) Plan addresses the action necessary for the closure of Corrective Action Unit (CAU) 425, Area 9 Main Lake Construction Debris Disposal Area. This CAU is currently listed in Appendix III of the Federal Facility Agreement and Consent Order (FFACO, 1996). This site will be cleaned up under the SAFER process since the volume of waste exceeds the 23 cubic meters ( $m^3$ ) (30 cubic yards [ $yd^3$ ]) limit established for housekeeping sites. CAU 425 is located on the Tonopah Test Range (TTR) and consists of one Corrective Action Site (CAS) 09-08-001-TA09, Construction Debris Disposal Area (Figure 1).

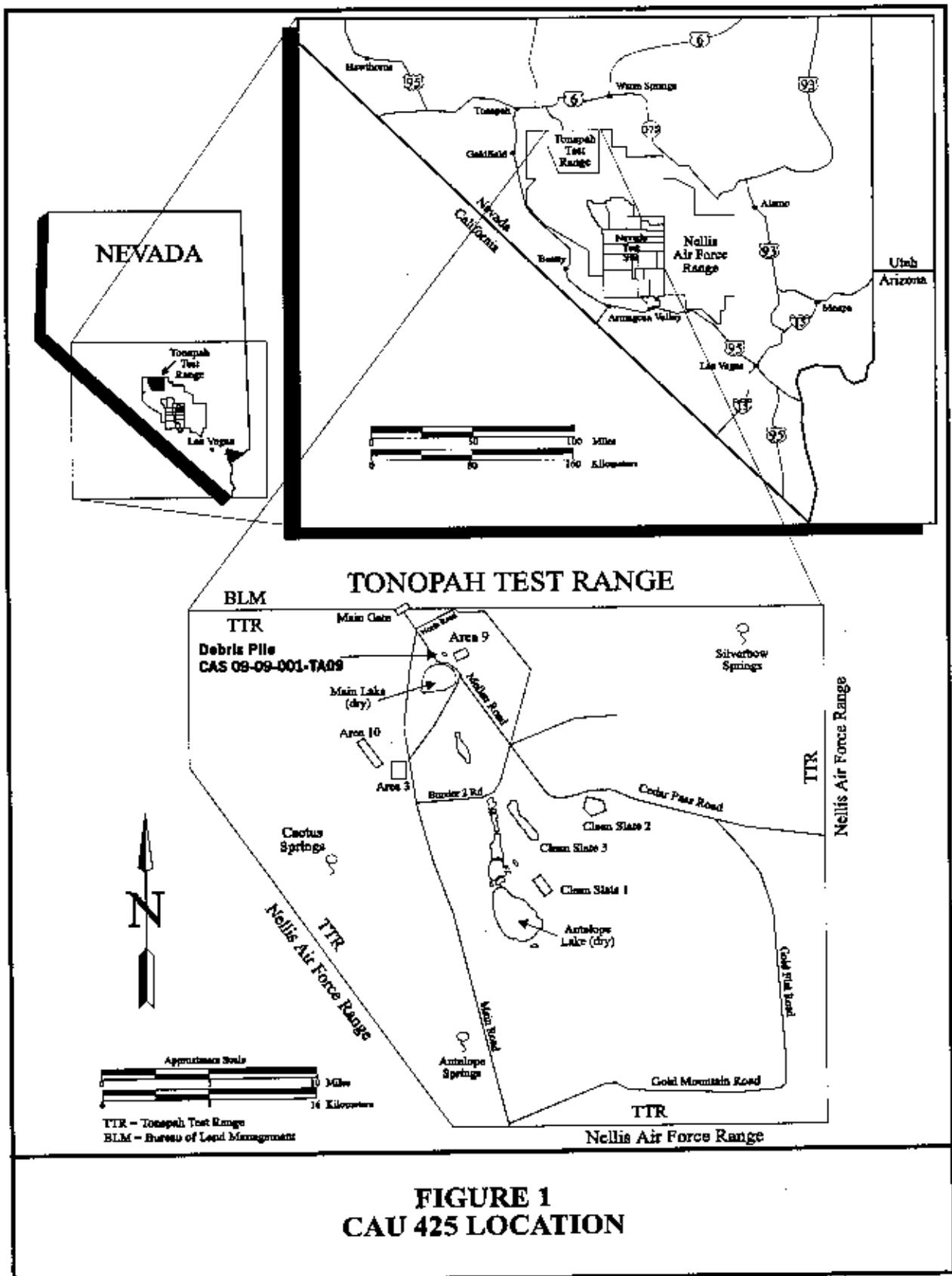
CAS 09-08-001-TA09 is an area that was used to collect debris from various projects in and around Area 9. The site is located approximately 81 meters (m) (265 feet [ft]) north of Edwards Freeway northeast of Main Lake on the TTR. The site is composed of concrete slabs with metal infrastructure, metal rebar, wooden telephone poles, and concrete rubble from the Hard Target and early Tornado Rocket sled tests. Other items such as wood scraps, plastic pipes, soil, and miscellaneous nonhazardous items have also been identified in the debris pile. It is estimated that this site contains approximately 2,280  $m^3$  (3,000  $yd^3$ ) of construction-related debris.

### 1.1 STREAMLINED APPROACH for ENVIRONMENTAL RESTORATION PROCESS

The SAFER process combines elements of the data quality objectives (DQO) process and the observational approach to help plan and conduct corrective actions. DQOs are used to identify the problem and define the type and quality of data needed to complete the investigation phase of the process. The observational approach provides a framework for managing uncertainty and planning decision making. The purpose of the investigation in the SAFER process is to verify the adequacy of existing information to implement the corrective action.

Use of the SAFER process allows for technical decisions to be made based on incomplete but sufficient information and the experience of the decision maker. Any uncertainties are addressed by documented assumptions that are verified by sampling and analyses, data evaluation, and on-site observations as planned activities progress and by contingency plans as necessary. The remediation and closure may proceed simultaneously with site characterization as sufficient data are gathered to confirm or disprove the assumptions made in selecting the closure method. If at any time during the site closure, new information is developed that indicates that the closure method should be revised, the closure activities will be modified to implement the revised closure method.

Closure of CAU 425 will consist primarily of housekeeping activities to remove debris. Existing documentation, data, and process knowledge are adequate to close CAS 09-08-001-TA09 without collecting additional data. No contaminants of potential concern (COPC) are expected at this site. For this site, existing data will be referenced in the SAFER Plan and documented in the Closure Report (CR) to demonstrate adequate closure of the site. The construction debris at this site will be removed and transported to the Air Force TTR Construction Landfill for disposal.



## 1.2 SUMMARY OF PROPOSED CORRECTIVE ACTION

Closure for CAU 425 (CAS 09-08-001-TA09: Construction Debris Disposal Area) will be clean closed by removing all of the debris present at the site. Clean closure will be achieved primarily through housekeeping activities. Site activities will include removal of the construction debris piles from the site using a front-end loader(s) and end dumps. After the end dumps are loaded, they will be weighed and the debris transported to the Air Force TTR Construction Landfill where the debris will be disposed. After all of the debris has been removed, any remaining soil piles will be graded to the surrounding elevation.

No COPC or elevated levels of radiation are expected at this site, but because much of the debris at this site originated from the Hard Target, where depleted uranium (DU) was used in testing, a radiological control technician (RCT) will be on-site during the entire debris removal process. Before each load of debris is picked up by the loader, an RCT will screen the debris for radioactivity. If screening results are less than the free release criteria as specified in Table 4-2 of the NV/YMP Radiological Control Manual (U.S. Department of Energy, Nevada Operations Office [DOE/NV], 2000), the material will be disposed of in the Air Force TTR Construction Landfill. The debris and the ground beneath the debris will be continuously inspected visually for any evidence of COPCs or staining that indicates the presence of COPCs or other environmental impact. Visual inspections of the debris and ground beneath the debris will be done before the debris is placed into an end dump. Field screening results, visual observations, and waste volume/weight information will be documented on prepared field forms and in a field logbook.

## 1.3 HOLD/DECISION POINTS

During closure activities, certain conditions affecting the project schedule and budget may require decisions to be made prior to continuing work. Work stoppage conditions may include:

- Finding any unsafe condition or work practice that poses a threat to personnel, equipment, or the environment that was not originally documented with plans for its control in the Site-Specific Health and Safety Plan (SSHASP).
- Equipment access, operation, and mobility around Area 9 can be affected by TTR site operations and security restraints.
- Out-of-scope work activities such as the detection of COPCs or other technical factors requiring the preparation of a Record of Technical Change (ROTC) to this SAFER Plan.

If any of these conditions occur, work will stop and the U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office (NNSA/NV) and the Nevada Division of Environmental Protection (NDEP) will be notified. Work will continue when a resolution has been agreed upon and a ROTC has been approved.

## 1.4 STREAMLINED APPROACH for ENVIRONMENTAL RESTORATION PLAN CONTENTS

This SAFER Plan has been developed to support the proposed characterization and closure of CAU 425. The format of the plan is:

- Introduction (Section 1.0)
- Unit Description (Section 2.0)
- Field Activities and Closure Objectives (Section 3.0)
- Reports and Records Availability (Section 4.0)
- Investigation/Remediation Waste Management (Section 5.0)
- Quality Assurance/Quality Control (Section 6.0)
- References (Section 7.0)

This plan was developed using information and guidance provided from the following:

Federal Facility Agreement and Consent Order (FFACO) of 1996 as amended. Agreed to by the Nevada Division of Environmental Protection, U.S. Department of Energy, and U.S. Department of Defense.

Occupational Safety and Health Administration, 2001, Title 29 Code of Federal Regulations 1910.120, "Hazardous Waste Operations and Emergency Response," Washington, D.C.

U.S. Department of Energy, Nevada Operations Office. 1994. Nevada Environmental Restoration Project, Project Management Plan, Rev. 0.

U.S. Department of Energy, Nevada Operations Office. 1995. Voluntary Corrective Action Work Plan for Ordinance Removal from Five Disposal Sites at the Tonopah Test Range, January. DOE/NV--386. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1996. Corrective Action Unit Work Plan Tonopah Test Range, Nevada, July. DOE/NV--443. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office. 2002. Industrial Sites Quality Assurance Project Plan, Nevada Test Site, Nevada, Rev. 3, July. DOE/NV--372-Rev. 3.

## **2.0 UNIT DESCRIPTION**

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CAU 425 includes one CAS located at the TTR in Area 9 (Figure 1). CAS 09-08-001-TA09, Construction Debris Disposal Area, is located northeast of Main Lake and approximately 81 m (265 ft) north of Edwards Freeway on the TTR.

### **2.1 HISTORY**

#### **2.1.1 09-08-001-TA09: Construction Debris Disposal Area**

CAS 09-08-001-TA09, Construction Debris Disposal Area (Figure 2), was used to collect debris from various projects in and around Area 9. This included concrete from the previously existing Hard Target and early Tornado Rocket sled tests, starting in the early 1960s and continuing until approximately 1989 (Elliston, 1998; Kluesner, 2001). The former Hard Target was a concrete target used for air drops and was located along the southern portion of Main Lake. The target was 30 centimeters (12 inches) thick with an approximate radius of 914 m (3,000 ft) and created concrete debris due to constant detonations from bombing and rebuilding. This debris was removed and disposed of at the debris area (DOE/NV, 1994; Galvin, 2001; Kluesner, 2001). The Tornado Rocket sled tests were designed to simulate flying debris from a tornado. The tests consisted of telephone poles, portions of cars, and other nonhazardous materials being slammed into concrete (West, 1993). The site was identified on July 14, 1993, during a review of aerial photographs. The original area is generally flat, but is currently covered with piles of construction debris, metal rebar, wooden telephone poles, and other debris, leaving a hummocky terrain (International Technology Corporation [IT], 2001).

Work began on February 6, 1995, to remove unexploded ordnance (UXO) from various TTR sites, including the construction debris pile. Historical documentation obtained for this effort states that UXO was removed from the surface of the debris pile between March 15 and 17, 1995, and included the removal of an inert 2,000 pound (lbs) MK 84 practice bomb, 2 MK 117 practice bombs, a World War II vintage inert practice bomb, three inert MK 76 practice bombs, and approximately 80-lbs of scrap metal/fragments including empty propellant canisters. There was no evidence of any UXO buried within the debris pile. All of the ordnance that was removed from the site was inert or unfused. The inert bombs were taken to the Bomblet Pit UXO processing area (Dubiskas, 1995).

On February 21, 2001, an IT field visit established that CAS 09-08-001-TA09 contains only one recognizable environmental condition (REC). The REC was identified as a construction debris pile. A radiological survey of the debris disposal area was completed on the same day by the IT field crew. Radiologic surveys were done at four different points at various locations around the site (Table 1). The results of the survey showed no elevated radioactive levels (IT, 2001).

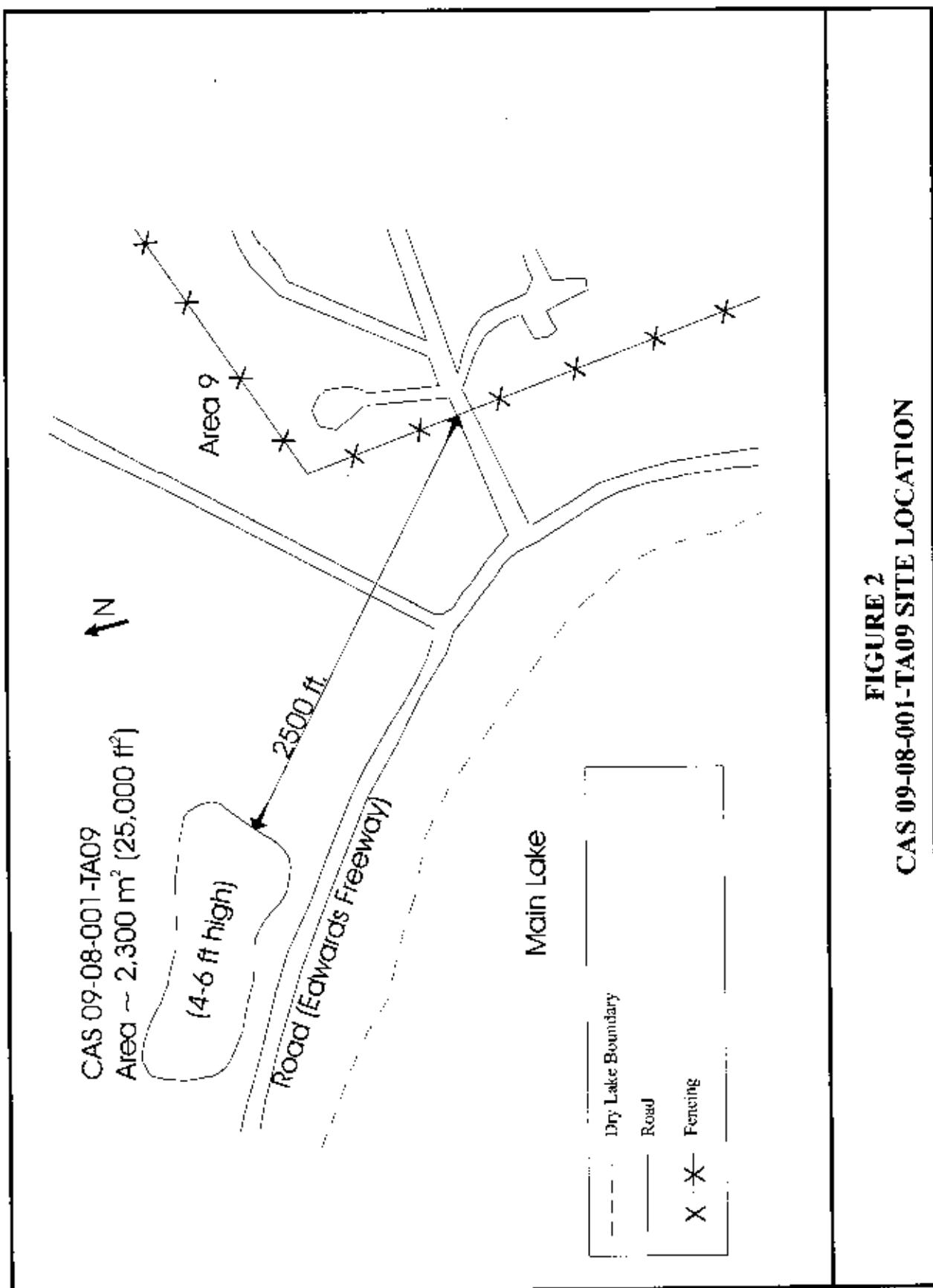


FIGURE 2  
CAS 09-08-001-TA09 SITE LOCATION

**TABLE 1 - RADIOLOGICAL SURVEY RESULTS FROM CAS 09-08-001-TA09**

Survey Point	Beta/Gamma (dpm <sup>a</sup> /100 cm <sup>3b</sup> )	Alpha (dpm/100 cm <sup>3</sup> )	Location
9	500	0	North side of CAS 09-08-001-TA09
10	-121	16	East side of CAS 09-08-001-TA09
11	700	0	South side of CAS 09-08-001-TA09
12	70	5	West side of CAS 09-08-001-TA09

a - disintegrations per minute.

b - cubic centimeters.

## **2.2 SITE LOCATION AND DESCRIPTION**

### **2.2.1 CAS 09-08-001-TA09: Construction Debris Disposal Area**

CAS 09-08-001-TA09 is located in Area 9 northeast of Main Lake. Area 9 of the TTR is located in Cactus Flat. Cactus Flat is an intermontane basin, made up of Quaternary-aged alluvium eroded from the surrounding volcanic highlands. The depth to groundwater beneath Area 9 is approximately 40 m (131 ft) below the surface (DOE/NV, 1994; 1996).

CAS 09-08-001-TA09 consists of the construction debris pile and any potentially impacted soil beneath it. The actual debris pile has an approximate area of 2,323 square meters (25,000 square feet) and an approximate volume of 2,280 m<sup>3</sup> (3,000 yd<sup>3</sup>). The site contains concrete slabs with metal infrastructure and concrete rubble from the Hard Target and early Tornado Rocket sled tests. Other items such as wood scraps, plastic pipes, soil, and miscellaneous nonhazardous items have also been identified in the debris pile. The site trends east to west, with debris reaching a height of 1.2 m (4 ft) on the eastern portion of the pile and 1.5 m (5 ft) on the southwestern side.

## **2.3 PROCESS KNOWLEDGE**

This information was generated by the IT Preliminary Assessments Team and was prepared based on interviews of personnel, review of historical records, and logs of field activities. This information can be obtained from IT Las Vegas Office project files.

### **2.3.1 CAS 09-08-001-TA09: Construction Debris Disposal Area**

The construction debris pile has been identified as the only REC at this site. Based on information obtained from site investigations, personal interviews, and historical documentation, the site was used to collect debris from various projects in and around Area 9. According to information obtained by IT through historical documents and interviews, DU was used during drop tests on the Hard Target. Clean-up activities did take place after testing, but it is unknown how stringent these clean-up activities were. For safety reasons, radiological field screening for

DU will take place during closure activities. Based on a visual inspection of the site, interviews, and historical documentation, there does not appear to be any waste buried in the soil below the ground surface at this site.

## **2.4 CLOSURE STANDARDS**

The clean closure standard for the purposes of closure verification for this SAFER Plan is removal of all construction debris from the site.

## **3.0 FIELD ACTIVITIES AND CLOSURE OBJECTIVES**

This section provides the framework and rationale for characterization, removal, closure verification, site restoration, and waste disposal. The SAFER process is discussed in detail in the following subsections.

Before field activities begin, the following activities will be completed:

- Preparation of a NNSA/NV Real Estate/Operations Permit (REOP).
- Preparation of a Field Management Plan (FMP).
- Preparation of National Environmental Policy Act documentation.
- Preparation of a SSHASP.
- Preparation of Work Packages.
- Perform a site Biological Survey.

### **3.1 CONTAMINANTS OF POTENTIAL CONCERN**

Based on process knowledge, no COPC are expected during closure of CAS 08-09-001-TA09.

### **3.2 REMEDIATION**

Remedial activities associated with the closure of CAU 425 are given below.

#### **3.2.1 CAS 09-08-001-TA09: Construction Debris Disposal Area**

CAS 09-08-001-TA09 will be closed by removal of all construction debris by housekeeping activities. Before an area of debris is removed, a visual inspection survey of the immediate area will be made. No COPC or elevated levels of radiation are expected at this site, but because much of the debris at this site originated from the former Hard Target where tests involving DU were conducted, an RCT will be on-site during the entire debris removal process. Before the loader picks up each bucket of debris, the RCT will screen the debris for elevated levels of radiation using a NE Electra portable survey instrument. After it has been determined that there is no staining or levels of radiation above free release criteria (Table 4-2 [DOE/NV, 2000]) in or under the debris, a front-end loader will be used to place the debris into an end dump. The debris and the ground beneath the debris will be continuously inspected visually for any evidence of COPC or staining that indicates the presence of COPC or other environmental impact. Visual inspections of the debris and ground beneath the debris will be done before loading the debris into an end dump. Once each end dump is loaded to capacity, it will be weighed and the weight

and visual observations will be recorded in a field logbook. The debris will then be transported to the Air Force TTR Construction Landfill for disposal. This process will be repeated until all of the debris has been removed from the site. If no forms of environmental impact are detected and all of the debris has been removed, the site will be documented as being clean closed.

The alternative closure methods for CAU 425 will be completed by the following:

- If field screening for radiation indicates debris/material having radiation levels greater than the free release criteria (Table 4-2 of DOE/NV, 2000), debris removal activities will cease in the immediate area. Radiological screening will be used to determine the extent of the contaminated area. Work will resume when a resolution has been agreed upon and a ROTC to this SAFER Plan has been approved by the NNSA/NV and NDEP. Closure activities will continue in areas that meet the radiological free release criteria (DOE/NV, 2000).
- If other indications of contaminated debris/soil are observed within the debris pile (e.g., presence of asbestos-containing material, stained debris, stained soil beneath debris piles, etc.), the debris will be containerized, labeled, and transported to an appropriate disposal facility. Closure activities will then continue using field screening and visual observation until all of the debris has been removed from the site.

### **3.3 VERIFICATION**

CAU 425 will be closed by housekeeping activities. No COPC are expected to be present at this site. Therefore, no verification samples will be collected from soil beneath the debris piles unless there is visual evidence of staining or the presence of COPC. For this site, verification of closure will consist of visual inspection to determine that all debris has been removed from the site and there is no sign of visible staining on the soil or other indications of environmental impact. Also, photographs of the site before and after remediation will be taken to document the closure of the site.

### **3.4 DATA QUALITY OBJECTIVES**

The DQOs are qualitative and quantitative statements that specify the quality of the data required to support potential closure alternatives for CAU 425. The DQOs were developed to clearly define the purposes for which environmental data will be used and to design a data collection program that will satisfy these purposes. The formulation of a conceptual model is an aid to the development of DQOs for the site.

Details of the DQO process are presented in Appendix A-1. During the DQO discussions for CAU 425, the information or data needed to resolve problem statements and decision statements were identified. Criteria for data collection and analysis were defined and agreed upon, and the appropriate quality assurance (QA)/quality control (QC) required for particular data collection activities were assigned. The analytical methods and reporting limits prescribed through the DQO process, and the data quality indicators (DQI) for laboratory analysis such as a precision

and accuracy requirements, are provided in more detail in Section 6.0 of this SAFER Plan. At the end of the investigation, resulting laboratory data (if any) will be evaluated to confirm or refute the conceptual site model and determine if the DQOs were met by using the DQIs of

precision, accuracy, representativeness, completeness, and comparability. Other DQIs may be used, such as sensitivity.

## 3.5 CLOSURE

Hold points and conditions that are outside of the assumptions of this report may impact the requirements for closure. The proposed activities for closure of CAU 425 are provided below.

### 3.5.1 CAS 09-08-001-TA09

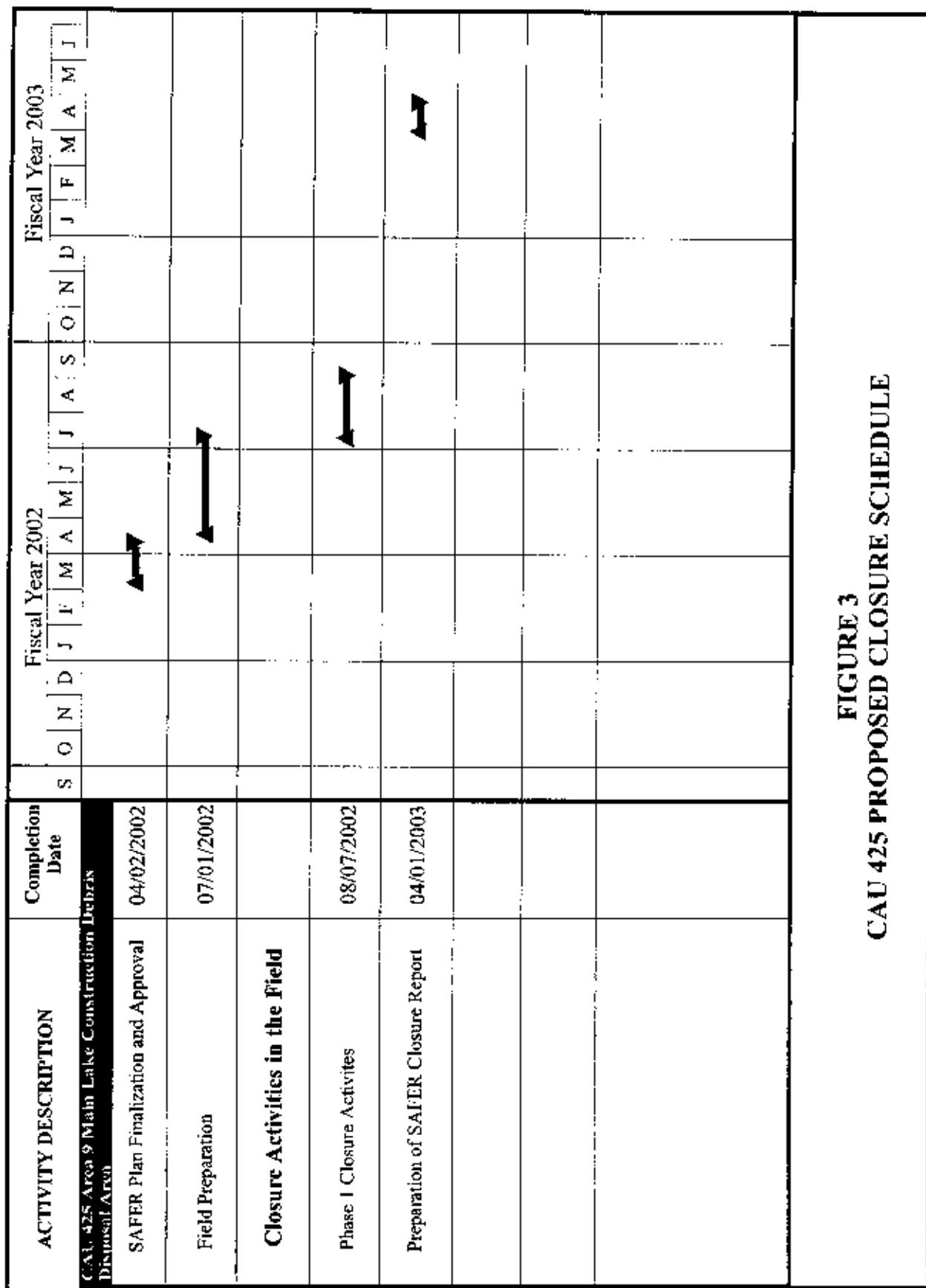
- Safety-basis and work-authorization documentation (e.g., Work Packages, SSHASP, and FMP) have been prepared and reviewed.
- A REOP for planned work activities has been prepared and approved.
- A readiness review and pre-field briefing has been conducted, and a crew has been mobilized to the TTR.
- All debris has been loaded and transported to the Air Force TTR Construction Landfill for disposal.
- The CR has been approved by the NDEP.

## 3.6 DURATION

The schedule will require modifications if conditions exist that are outside the assumptions on which the schedule was developed. Flexibility has been placed in the project schedule to account for minor difficulties (weather, equipment breakdowns, personnel availability, TTR operational and security constraints, operation and mobility around Area 9, etc.) NNSA/NV will keep the NDEP apprized of any condition that may impact the project schedule. A proposed schedule for the closure of CAU 425 is provided in Figure 3.

#### Note

- Field Preparation activities include development and approval of a SSHASP, FMP, work packages, and other required field planning documents and preparation activities.
- Field closure activities include removing, transporting, and dumping all visible construction debris from CAS 09-08-001-TA09 into the Air Force TTR Construction Landfill. Field activities will be considered complete once all equipment and labor have been demobilized from TTR.



**FIGURE 3**  
**CAU 425 PROPOSED CLOSURE SCHEDULE**

## **4.0 REPORTS AND RECORDS AVAILABILITY**

A daily report will be prepared once field activities have started. The report will summarize the daily activities, site visitors, health and safety issues, and any issues or problems that may have been experienced. The report will be provided to the NNSA/NV Task Manager for submittal to the NDEP.

Upon completion of closure activities, a CR will be prepared in accordance with the NDEP-approved document outline, and will include the following:

- Introduction (Purpose and Scope)
- Closure Activities (Description of corrective action activities, deviation from the SAFER Plan as approved, corrective action schedule as completed, site plan/survey plan)
- Waste Disposition
- Closure Verification Results (Data Quality Assessment, Use Restrictions), if any
- References
- Supporting Documentation (Analytical results, "as-built" drawings, waste disposition documentation, any modifications to the SAFER Plan)

The final CR will be submitted to NNSA/NV and NDEP for review and approval. This SAFER Plan and the subsequent CR will be available in the NNSA/NV Public Reading Facility located in Las Vegas and Carson City, Nevada, or by contacting the NNSA/NV Project Manager. The NDEP maintains the official administrative record for all activities conducted under the auspices of the FFACO (FFACO, 1996).

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## **5.0 INVESTIGATION/REMEDIATION WASTE MANAGEMENT**

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Wastes from CAU 425 will be managed in accordance with all state and federal regulations, Department Of Energy orders, Bechtel Nevada (BN) procedures, and the Resource Conservation and Recovery Act Operational Permit. Known waste types will include nonhazardous (sanitary/construction debris) waste only.

### **5.1 WASTE MINIMIZATION**

Waste generation will be minimized by limiting the number of people in the work area. For the duration of the project, site workers will adhere to the principles of the BN Waste Minimization and Pollution Prevention Program. Care will be taken to segregate waste from nonwaste materials, if at all possible, and avoid cross contamination.

### **5.2 POTENTIAL WASTE STREAMS**

Waste streams anticipated during the closure of CAU 425 include sanitary waste (e.g., paper, personal protective equipment, etc.) and, construction debris (e.g., concrete, wood, metal, trash, etc.). All sanitary waste will be disposed of in approved TTR dumpsters. All construction debris will be transported to the Air Force TTR Construction Landfill for disposal.

If any COPC are encountered during closure activities, decontamination of heavy equipment may be required. If it is, all decontamination rinsate will be placed in 208-liter (l) (55-gallon [gal]) drums, solidified and, transported to the NTS for disposal in an appropriate landfill.

### **5.3 CONTAINER MANAGEMENT**

All containers must be in good condition. If the container begins to leak, the contents must be transferred to a container that is in good condition without dents or significant rust. The containers must always be closed while stored unless waste is being added or removed. They must be handled in such a manner that will not jeopardize the integrity of the container.

Some 208-l (55-gal) drums may be used during this project. Containers will not be filled above their specified weight capacity. Compactable waste will then be placed in 208-l (55-gal) drums. After a container has been filled, it will be locked. If a container is not completely filled to capacity at the end of a workday, it will be locked and tamper-resistant tape will be placed over the container's hinge. Additional precautions include not filling 208-l (55-gal) drums more than 7/8 full and not mixing waste types (such as PPE and decontamination water).

Because the majority of the waste produced during this project is anticipated to be construction debris and sanitary waste, secondary containment will not be required. If, however, free liquids

such as decontamination water are placed in containers, the containers will be placed on spill containment pallets or within a plastic-lined bermed area.

Appropriate labels and relevant information will be marked on each container with an indelible marker and must be legible and clearly visible for inspections. Pertinent data shall be written on the container or on an adhesive label that is affixed to the side of the container. The following information will be included:

- Waste-tracking label.
- Type of waste in the container (e.g., it must be marked "Nonhazardous Waste" or as "Hazardous Waste").
- Location waste was derived from.
- Date accumulation of waste begins and ends.
- If sampling is required, a "This Container On Hold Pending Analysis" sticker after sampling has been completed.

## **6.0 QUALITY ASSURANCE/QUALITY CONTROL**

Closure of CAU 425 will be accomplished by removing all construction debris from the site. No COPC are expected to be present, and therefore, no soil/debris samples will be collected for laboratory analysis and/or QA/QC purposes. QA/QC activities during site closure will include field screening for radiological contamination and visual inspection of the debris and the soil under the debris for staining and evidence of COPC. If field screening indicates the presence of COPC, a ROTC to this SAFER Plan will be prepared detailing the sampling and analysis plan for site characterization, closure verification, and waste characterization.

### **6.1 PROPOSED FIELD SAMPLE COLLECTION ACTIVITIES**

No soil/debris samples are expected to be collected during site closure. If COPC are detected during site closure a ROTC to this SAFER Plan will prepared and detail the required sampling and analysis activities.

### **6.2 PROPOSED LABORATORY/ANALYTICAL DATA QUALITY INDICATORS**

No laboratory QA/OC samples will be analyzed as no field samples are anticipated to be collected. If field samples are required standard laboratory QA/QC sample preparation and analysis will be requested, and will be detailed in the prepared ROTC to this SAFER Plan.

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## 7.0 REFERENCES

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**APPENDIX A-1**  
**DATA QUALITY OBJECTIVES**

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## ACRONYMS AND ABBREVIATIONS

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BN	Bechtel Nevada
CAS	Corrective Action Site
CAU	Corrective Action Unit
COPC	Contaminant(s) of potential concern
DOE/NV	U.S. Department of Energy, Nevada Operations Office
DQO	Data Quality Objective(s)
DU	Depleted uranium
EPA	U.S. Environmental Protection Agency
FFACO	Federal Facility Agreement and Consent Order
ft	foot (feet)
ft <sup>2</sup>	square feet
ft <sup>3</sup>	cubic feet
IT	International Technology
m	meter(s)
m <sup>2</sup>	square meters
m <sup>3</sup>	cubic meters
NNSA/NV	U.S. Department of Energy, National Nuclear Security Administration Nevada Operations office
NDEP	Nevada Division of Environmental Protection
SAFER	Streamlined Approach for Environmental Restoration
TTR	Tonopah Test Range
UXO	Unexploded ordnance

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**DATA QUALITY OBJECTIVES WORKSHEETS FOR THE  
CORRECTIVE ACTION UNIT 425 AREA 9 TONOPAH TEST RANGE MAIN LAKE  
CONSTRUCTION DEBRIS DISPOSAL AREA**

**Presentation of Known Data Related to Corrective Action Unit 425**

The information presented in this worksheet is based on historical data generated from preliminary assessment activities for Corrective Action Unit (CAU) 425 at the Tonopah Test Range (TTR). Data quality objective (DQO) worksheets follow the U.S. Environmental Protection Agency (EPA) DQO guidance outline (EPA, 1994). The steps systematically build on the data acquired during preliminary assessment work and background research. Copies of the preliminary assessment work are retained in the project files.

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Kevin Cabble
2. Bechtel Nevada (BN)  
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Primary Decision Makers

Janet Appenzeller-Wing (NNSA/NV)  
Kevin Cabble (NNSA/NV)

## 1.0 PROBLEM STATEMENT

### 1.1 State the problem.

CAU 425 is comprised of one Corrective Action Site (CAS): CAS 09-08-001-TA09, Construction Debris Disposal Area, TTR. In order to properly close this site, it must be determined if there is sufficient information to close this site under the Streamlined Approach to Environmental Restoration (SAFER) process.

### 1.2 Summarize the problem - combine the relevant background information into a concise description of the problem to be resolved.

#### 1.2.1 CAS 09-08-001-TA09, Construction Debris Disposal Area (TTR)

CAS 09-08-001-TA09, Construction Debris Disposal, is located northeast of Main Lake approximately 81 meters (m) (265 feet [ft]) north of Edwards Freeway on the TTR. Based on information obtained from site investigations, personal interviews and historical documentation, the site was used to collect debris from various projects in and around Area 9. This included concrete from the Hard Target and early Tornado Rocket sled tests from the early 1960s until approximately 1989 (Elliston, 1998; Kluesner, 2001). The Hard Target was a circular target used for weapon air drops. It was 30 centimeters (12 inches) thick and was composed of approximately 2,280 cubic meters (m<sup>3</sup>) (3,000 cubic yards [yd<sup>3</sup>]) of concrete. The Hard Target was rebuilt in the 1970s and the debris from the original was disposed at the waste dump. The Tornado Rocket sled tests were performed in the early to mid 1970s. The tests were designed to simulate flying debris from a tornado. The tests consisted of telephone poles, portions of cars, and other nonhazardous materials, being slammed into concrete (West, 1993). The debris pile covers an area of approximately 2,323 square meters (m<sup>2</sup>) (2,778 square feet [ft<sup>2</sup>]). The surface debris consists primarily of concrete slabs with metal infrastructures and other concrete rubble. Wood scraps, plastic pipes, and other miscellaneous items have also been identified in the debris pile. (CAU 425 CAS 09-08-001-TA09 File [IT, 20001]; CAU 425 CAS 09-08-008-TA09 File - [IT, 2001]; U. S. Department of Energy, Nevada Operations Office [DOE/NV], 1996a; Kluesner, 2001). The site was identified on July 14, 1993 by an IT Corporation, Las Vegas Office field crew during a review of aerial photographs. It is unknown if anything of concern is buried within the piles of debris that are not visible at the surface.

Based on historical documents and interviews there may have been depleted uranium (DU) released onto the Hard Target during weapon drops. Process knowledge indicates that any released DU was removed from the pad after tests were completed. A radiological survey of the site was conducted in 2001 since most of the debris originated from the Hard Target. The results of the survey indicated no radiation levels above background (IT, 2001). Historical documentation also indicates that a small pile of inert Unexploded Ordnance (UXO) was removed from this site in March of 1995. All UXO that was visible appeared in one location of the debris pile and was placed on top of the debris pile or to the side of it. All UXO that was observed at the site was removed. UXO waste included several inert bombs and scrap metal/fragments. All UXO removed was determined to be inert or unfused (IT, 1995).

The CAU 425 site is located in Cactus Flat. Cactus Flat is an intermontane basin, typical of the Basin and Range Physiographic Province, surrounded by the Cactus Range to the southwest, the northern portion of Kawich Range to the east, and the Monitor Range to the North (DOE/NV, 1994). Cactus Flat is made up of Quaternary-aged alluvium eroded from the surrounding volcanic highlands. The depth of the alluvium is unknown but exploratory drilling discovered the thickness to exceed 300 m (1,000 ft) (DOE/NV, 1996b). The alluvium layer is underlain by genetically related tuffs and lavas of the Thirsty Canyon Tuff unit, which can have a depth up to 152 m (500 ft) (DOE/NV, 1994). Beneath the Thirsty Canyon Tuff unit lies the rhyolitic tuffs of the Timber Mountain Tuff unit and the rhyolitic ash-fall and lavas of the Paintbrush Tuff unit. The Paintbrush unit is underlain by various layers of Miocene-aged volcanic lavas and tuffs and various-aged limestone and dolomite layers (U.S. Geological Survey, 1971). The depth to groundwater beneath Area 9 is estimated to be at a depth of 40 m (131 ft) below the ground surface and the groundwater flow direction is generally to the southwest (DOE/NV, 1996a).

## 2.0 DEVELOP/REFINE THE CONCEPTUAL MODEL

Available information from which the conceptual model is based was derived from site process knowledge, historical background information, site analysis, and personnel interviews relative to the activities related to the debris site.

### 2.1 Primary Model for CAS 09-08-001-TA09, Construction Debris Disposal Area (TTR)

The primary model is considered the most probable scenario for current conditions at the CAU 425 site. The proposed activities are based on the assumption that there are no contaminants of potential concern (COPC) and no elevated levels of radiation present above free release criteria within the debris pile. Radiological surveys, site inspections, and process knowledge support this model. Almost all debris at the site is expected to be from the Hard Target since the approximate volumes at each are nearly identical.

### 2.2 Alternate Model

The conditions under the alternate model are considered less likely than the conditions outlined in the primary model. No information suggests that conditions outside the primary model are present. The alternate conceptual site model for CAS RG-24-001-RD24 is similar to the primary model with one or more of the following exceptions:

- Conditions outside the scope of work are encountered.
- Staining indicating the presence of COPCs on any debris in piles or in soil beneath piles is observed.
- Radiological screening yields results in excess of background.
- Non-construction-related debris is observed.

### **3.0 IDENTIFY THE DECISION (Select the appropriate decision for the current phase of the site assessment process)**

Development of a SAFER Plan will be prepared based on the currently available process knowledge, historical data, and survey data. The most probable closure decisions are identified below.

#### **3.1 CAS 09-08-001-TA09, Construction Debris Disposal Area (TTR)**

If no staining or other indications of the presence of COPC are visibly detected on any debris or in soil beneath debris piles, and no elevated levels of radioactivity are identified during closure activities, the site can be clean closed by excavation of the debris pile.

If any conditions outside of the scope of work are observed, then work will stop until an appropriate change of scope is identified and approved.

### **4.0 IDENTIFY THE INPUTS TO THE DECISION**

#### **4.1 Identify the information inputs needed and resolve the decision.**

- Are forms of contamination present within the debris pile?

Process knowledge and data generated from previous characterization activities are adequate to verify that the primary model has no forms of contamination present within the debris pile. Constant visual inspection of the site during excavation will also be used to assure that no forms of contamination are present at the debris pile.

- Is depleted uranium present within the debris pile?

Process knowledge and data generated from previous characterization activities are adequate to verify the primary model, that there are no areas of radiation in excess of free release criteria are present within the debris pile. A radiological technician will be on site during the excavation process and will systematically screen, as described within the SAFER Plan, the debris before it is removed from the site to verify that there are no elevated levels of radiation.

- Is UXO present?

Process knowledge and data gathered from previous characterization activities are adequate to verify that all UXO in the primary model has been removed from the debris pile and all was unfused or inert. Constant visual inspection of the site will be conducted to assure that no UXO is present within the debris pile.

#### **4.2 List types of contaminants of potential concern and affected media.**

There are no COPC expected to be present at this site.

#### **4.3 Identify potential sampling approaches and appropriate analytical methods.**

- Use existing characterization data and process knowledge to confirm or refute the conceptual model for the site.
- As part of DOE/NV's interim action, a pile of inert UXO was removed from the site in 1995.
- There are not expected to be any forms of contamination found within the debris pile. For safety purposes constant visual inspection will be used to detect any forms of contamination during excavation activities.
- A radiological technician will be on-site during the excavation process and will systematically screen, as described in detail within the SAFER Plan, the debris before it is removed from the site to verify that levels of radiation do not exceed free release criteria.

### **5.0 DEFINE THE BOUNDARIES OF THE STUDY**

#### **5.1 Define the geographic areas of the field investigation.**

##### **5.1.1 Define the geographic area within which all decisions must apply (in some cases this may be defined by the Corrective Action Unit).**

CAU 425 has been defined as the Area 9 Main Lake Construction Debris Disposal Area at the TTR. The study area specifically concerns the entire debris pile. The debris pile has an approximate area of 2,323 (m<sup>2</sup>) (2,778 yd<sup>2</sup>) and an approximate volume of 2,280 m<sup>3</sup> (3,000 yd<sup>3</sup>). The site trends mostly east to west, with debris piling to a height of 1.2 m (4 ft) on the eastern portion of the pile and 1.5 m (5 ft) on the southwestern portion of the pile.

##### **5.1.2 Specify the characteristics that define the population of interest.**

The population of interest is the entire construction debris pile and is well defined. The debris has been placed on the ground surface and is defined by the boundary between the concrete debris and the native ground interface.

#### **5.2 Define the time frame of the decision.**

##### **5.2.1 Determine the time frame to which the study data apply.**

The study data should be relevant with the length of time allowed for by the SAFER process under the Federal Facility Agreement and Consent Order (FFACO) agreement.

##### **5.2.2 Determine when to collect data.**

Field activities (data collection) are scheduled to take place in fiscal year 2002 after approval of the final SAFER Plan. Data will be collected at times that meet the security and safety

constraints of the TTR site, and at times when weather conditions that allow adequate site access and safe working conditions.

Radiological screening will be used to detect radiation above free release criteria before the debris is removed off-site. There will be no other data collection, unless staining or other evidence of the presence of COPC or potential environmental impact is visibly detected.

### **5.2.3 Define relevant time constraints.**

- The final SAFER Plan is due to NNSA/NV by April 30, 2002.
- Fieldwork is scheduled for late summer 2002.

### **5.3 Identify any practical constraints on data collection.**

1. Approval of the SAFER Plan and the DQO process by the NDEP.
2. Equipment access and mobility at the TTR.
3. Meteorological events that may impact fieldwork activities.
4. Health and safety of workers.
5. Operational/Security issues at the TTR.

## **6.0 DEVELOP A DECISION RULE - DEFINE A LOGICAL BASIS FOR CHOOSING AMONG ALTERNATIVE ACTIONS**

### **6.1 Specify the action level or preliminary action level for the decision.**

Sufficient process knowledge and site surveys exist to support the conceptual model. No forms of contamination are expected at this site. There will be continuous visual inspection of the site to ensure site safety. If any conditions outside the scope of work are observed, then work will stop until an appropriate change of scope is completed.

The site will be cleaned through the removal of all construction debris. Debris will be screened, loaded onto trucks, and transported to the U.S. Air Force TTR Construction Debris Landfill near Area 10. Each load will be weighed to document volume of debris removed.

**7.0 OPTIMIZE THE DESIGN - OUTLINE A SAMPLING DESIGN, SPECIFYING THE OPERATIONAL DETAILS OF THE SAMPLING PLAN WHICH FALLS WITHIN THE PROJECTS CONSTRAINTS**

**7.1 Develop general sampling and analysis design alternatives.**

Material removed from the site will be screened for radioactivity above free release criteria. The work area will be continuously visually inspected for staining indicating the presence of COPCs and/or areas of environmental impact.

**7.2 Select the most resource-effective design that satisfies all of the DQOs.**

Excavate the debris in a manner that allows for constant visual inspection and radiation field screening of the debris pile in a systematic method, as described in detail within the SAFER Plan.

**7.3 Document the operational details and theoretical assumptions of the selected design in the sampling and analysis plan.**

There will be no sampling activities conducted at this site since no forms of contamination are expected. The radiological screening process for this site will be discussed in detail within the SAFER Plan.

## REFERENCES

---

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**APPENDIX A-2**  
**PROJECT ORGANIZATION**

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## **PROJECT ORGANIZATION**

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The U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office (NNSA/NV) Project Manager or Task Manager will serve as the primary point of contact for all activities conducted for this project. The NNSA/NV Project Manager is responsible for seeing that all activities conducted during the project fulfill the obligations of NNSA/NV, as described in the Federal Facility Agreement and Consent Order and the Nevada Division of Environmental Protection-approved work plan. The NNSA/NV Project Manager will plan, authorize and control project work so that activities are completed in accordance with the work plan on schedule and within budget. The NNSA/NV Project Manager will be the primary point of contact with the Nevada Division of Environmental Protection. The NNSA/NV points of contact for this project are as follows:

**NNSA/NV Project Manager:** Janet Appenzeller-Wing  
**Telephone Number:** (702) 295-0461

**NNSA/NV Task Manager:** Kevin Cabble  
**Telephone Number:** (702) 295-5000

The identification of the project Health and Safety Officer and other project personnel can be found in the appropriate plan (the Field Management Plan and the Site-Specific Health and Safety Plan). However, personnel are subject to change and it is suggested that the NNSA/NV Project Manager be contacted for further information.

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## **APPENDIX A-3**

### **NEVADA DIVISION OF ENVIRONMENTAL PROTECTION DOCUMENT COMMENT RESOLUTION FROM**

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## NEVADA ENVIRONMENTAL RESTORATION PROJECT

### DOCUMENT REVIEW SHEET

1. Document Title/Number <u>Draft Streamlined Approach for Environmental Restoration Plan for Corrective Action Unit 425: Area 9 Mail Lake Construction Debris Disposal Area, Tonopah Test Range, Nevada</u>	2. Document Date <u>March 2002</u>			
3. Revision Number <u>0</u>	4. Originator/Organization <u>Bechtel Nevada</u>			
5. Responsible DOE/NV LRP Project Mgr. <u>Janet Appenzeller-Wing</u>	6. Date Comments Due <u>April 3, 2002</u>			
7. Review Criteria <u>Federal Facility Agreement and Consent Order</u>	8. Reviewer/Organization/Phone No. <u>Clemens Coewert / Nevada Division of Environmental Protection / (702) 486-2850</u>			
9. Reviewer's Signature _____				
10. Comment Number/ Location	11. Type <sup>a</sup>	12. Comment	13. Comment Response	14. Accept
General	M	The document refers to "staining" as an indicator to stop or revise the activities. The definition of "staining" should be defined better and limited in context.	Text has been added throughout the document to better define the term staining. For example the following statements were added to Section 1.2 of the Plan. "The debris and the ground beneath the debris will be continuously inspected visually for any evidence of COPCs or staining that indicates the presence of COPCs or other environmental impacts. Visual inspections of the debris and ground beneath the debris will be done before the debris is placed into an end dump." Similar statements clarifying the term "staining" have been added to the text where applicable.	Yes
Appendix A Section 2.2 Pg. A-4	M	Page A-4 refers to "soil staining" as being an exception to the alternative model. The debris pile includes multiple components, staining of any of these components is an exception to the conceptual model. The staining should be redefined to include staining from a COPC of any materials in the pile and any soils beneath the pile.	Text has been added to clarify that if staining that indicates the presence of COPCs is observed on debris or soil beneath debris piles then the alternative conceptual model discussed in the DQO applies.	Yes

<sup>a</sup>Comment Types: M = Mandatory, S = Suggested.

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