Corrective Action Investigation Plan for Corrective Action Unit 565: Stored Samples Nevada Test Site, Nevada

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August 2006

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CORRECTIVE ACTION INVESTIGATION PLAN FOR
CORRECTIVE ACTION UNIT 565: STORED SAMPLES
NEVADA TEST SITE, NEVADA

U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office
Las Vegas, Nevada

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CORRECTIVE ACTION INVESTIGATION PLAN FOR CORRECTIVE ACTION UNIT 565: STORED SAMPLES NEVADA TEST SITE, NEVADA

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# Table of Contents

List of Figures ................................................................. v
List of Tables ................................................................ vi
List of Acronyms and Abbreviations ...................................... vii
Executive Summary .............................................................. ES-1

1.0 Introduction ................................................................. 1
  1.1 Purpose ................................................................. 1
      1.1.1 Corrective Action Unit 565 History and Description ........ 1
      1.1.2 Data Quality Objectives Summary ............................... 3
  1.2 Scope ................................................................. 4
  1.3 Corrective Action Investigation Plan Contents ..................... 4

2.0 Facility Description .......................................................... 5
  2.1 Physical Setting ......................................................... 5
      2.1.1 Climate .......................................................... 5
      2.1.2 Geology .......................................................... 5
      2.1.3 Hydrology ........................................................ 6
  2.2 Operational History ..................................................... 6
  2.3 Waste Inventory .......................................................... 7
  2.4 Release Information ..................................................... 7
  2.5 Investigative Background ............................................... 8
      2.5.1 National Environmental Policy Act ............................... 8

3.0 Objectives ................................................................ 9
  3.1 Conceptual Site Model .................................................... 10
      3.1.1 Land Use and Exposure Scenarios .............................. 10
      3.1.2 Contaminant Sources ............................................ 11
      3.1.3 Release Mechanisms ............................................. 11
      3.1.4 Migration Pathways .............................................. 11
      3.1.5 Exposure Points .................................................. 11
      3.1.6 Exposure Routes .................................................. 11
      3.1.7 Additional Information .......................................... 11
  3.2 Contaminants of Potential Concern .................................. 12
  3.3 Preliminary Action Levels .............................................. 12
  3.4 Data Quality Objective Process Discussion ....................... 12

4.0 Field Investigation .......................................................... 15
  4.1 Technical Approach ..................................................... 15
  4.2 Field Activities .......................................................... 15
      4.2.1 Site Preparation Activities .................................... 15

List of Figures ................................................................. v
List of Tables ................................................................ vi
List of Acronyms and Abbreviations ...................................... vii
Executive Summary .............................................................. ES-1
# Table of Contents (Continued)

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.2.2 Removal of Potentially Contaminated Materials</td>
<td>16</td>
</tr>
<tr>
<td>4.2.3 Sample Location Selection</td>
<td>16</td>
</tr>
<tr>
<td>4.2.4 Sample Collection</td>
<td>16</td>
</tr>
<tr>
<td>4.2.5 Sample Management</td>
<td>16</td>
</tr>
<tr>
<td>4.3 Safety</td>
<td>17</td>
</tr>
<tr>
<td>4.4 Site Restoration</td>
<td>18</td>
</tr>
<tr>
<td>5.0 Waste Management</td>
<td>19</td>
</tr>
<tr>
<td>5.1 Waste Minimization</td>
<td>20</td>
</tr>
<tr>
<td>5.2 Potential Waste Streams</td>
<td>20</td>
</tr>
<tr>
<td>5.2.1 Personal Protective Equipment</td>
<td>20</td>
</tr>
<tr>
<td>5.2.2 Management of Decontamination Rinsate</td>
<td>21</td>
</tr>
<tr>
<td>5.2.3 Management of Soil</td>
<td>22</td>
</tr>
<tr>
<td>5.2.4 Management of Debris</td>
<td>22</td>
</tr>
<tr>
<td>5.2.5 Field-Screening Waste</td>
<td>23</td>
</tr>
<tr>
<td>5.3 Investigation-Derived Waste Management</td>
<td>23</td>
</tr>
<tr>
<td>5.3.1 Sanitary Waste</td>
<td>23</td>
</tr>
<tr>
<td>5.3.2 Low-Level Radioactive Waste</td>
<td>25</td>
</tr>
<tr>
<td>5.3.3 Hazardous Waste</td>
<td>25</td>
</tr>
<tr>
<td>5.3.4 Hydrocarbon Waste</td>
<td>26</td>
</tr>
<tr>
<td>5.3.5 Mixed Low-Level Waste</td>
<td>26</td>
</tr>
<tr>
<td>5.3.6 Polychlorinated Biphenyls</td>
<td>27</td>
</tr>
<tr>
<td>6.0 Quality Assurance/Quality Control</td>
<td>28</td>
</tr>
<tr>
<td>6.1 Quality Assurance Samples</td>
<td>28</td>
</tr>
<tr>
<td>6.2 Data Quality Indicators</td>
<td>28</td>
</tr>
<tr>
<td>7.0 Duration and Records Availability</td>
<td>29</td>
</tr>
<tr>
<td>7.1 Duration</td>
<td>29</td>
</tr>
<tr>
<td>7.2 Records Availability</td>
<td>29</td>
</tr>
<tr>
<td>8.0 References</td>
<td>30</td>
</tr>
</tbody>
</table>

## Appendix A - Data Quality Objectives

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1.0 Introduction</td>
<td>A-1</td>
</tr>
<tr>
<td>A.2.0 Background Information</td>
<td>A-2</td>
</tr>
<tr>
<td>A.2.1 Corrective Action Site 26-99-04, Ground Zero Soil Samples</td>
<td>A-2</td>
</tr>
<tr>
<td>A.3.0 Step 1 - State the Problem</td>
<td>A-8</td>
</tr>
</tbody>
</table>
Table of Contents (Continued)

A.3.1 Planning Team Members .................................................. A-8
A.3.2 Conceptual Site Model .................................................... A-8
A.3.2.1 Contaminant Release .................................................. A-9
A.3.2.2 Potential Contaminants .............................................. A-9
A.3.2.3 Contaminant Characteristics ...................................... A-11
A.3.2.4 Site Characteristics .................................................. A-12
A.3.2.5 Migration Pathways And Transport Mechanisms .............. A-12
A.3.2.6 Exposure Scenarios ................................................... A-12

A.4.0 Step 2 - Identify the Decisions ........................................ A-13
A.4.1 Decision Statement ....................................................... A-13
A.4.2 Alternative Actions to DQO Decision ................................ A-13

A.5.0 Step 3 - Identify the Inputs to the Decision ..................... A-14
A.5.1 Information Needs ........................................................ A-14
A.5.2 Sources of Information .................................................. A-14
A.5.2.1 Sample Locations .................................................... A-14
A.5.2.2 Analytical Methods .................................................. A-14

A.6.0 Step 4 - Define the Boundaries of the Study ................... A-15
A.6.1 Populations of Interest ................................................... A-15
A.6.2 Spatial Boundaries ........................................................ A-15
A.6.3 Practical Constraints .................................................... A-15
A.6.4 Define the Scale of Decision Making ............................... A-15

A.7.0 Step 5 - Develop a Decision Rule .................................... A-16
A.7.1 Population Parameters ................................................... A-16
A.7.2 Decision Rules ............................................................ A-16
A.7.3 Action Levels ............................................................... A-16
A.7.4 Measurement and Analysis Sensitivity ............................ A-17

A.8.0 Step 6 - Tolerable Limits on Decision Errors ................. A-18
A.8.1 False Negative Decision Error ........................................ A-18
A.8.2 False Positive Decision Error ......................................... A-19

A.9.0 Step 7 - Optimize the Design for Obtaining Data ............. A-20

A.10.0 References ................................................................. A-21
Table of Contents (Continued)

Appendix B - Project Organization

B.1.0 Project Organization ................................................................. B-1

Appendix C - Nevada Division of Environmental Protection Comments
## List of Figures

<table>
<thead>
<tr>
<th>Number</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>CAU 565 Site Map</td>
<td>2</td>
</tr>
<tr>
<td>A.2-1</td>
<td>Building Sketch of CAS 565, Stored Samples</td>
<td>A-4</td>
</tr>
<tr>
<td>A.2-3</td>
<td>Photograph of Building 26-2106</td>
<td>A-6</td>
</tr>
<tr>
<td>A.2-4</td>
<td>Photograph of Building 26-2106 Interior</td>
<td>A-7</td>
</tr>
</tbody>
</table>
# List of Tables

<table>
<thead>
<tr>
<th>Number</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-1</td>
<td>Conceptual Site Model Description of Elements for CAU 565</td>
<td>9</td>
</tr>
<tr>
<td>3-2</td>
<td>Analytical Program (Includes Waste Characterization Analyses)</td>
<td>13</td>
</tr>
<tr>
<td>5-1</td>
<td>Waste Management Regulations and Requirements</td>
<td>24</td>
</tr>
<tr>
<td>7-1</td>
<td>Corrective Action Investigation Activity Durations</td>
<td>29</td>
</tr>
<tr>
<td>A.3-1</td>
<td>Conceptual Site Model Description of Elements for CAU 565</td>
<td>A-10</td>
</tr>
<tr>
<td>A.3-2</td>
<td>Analytical Program (Includes Waste Characterization Analyses)</td>
<td>A-11</td>
</tr>
</tbody>
</table>
# List of Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL</td>
<td>Action Level</td>
</tr>
<tr>
<td>Am</td>
<td>Americium</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>bgs</td>
<td>Below ground surface</td>
</tr>
<tr>
<td>BN</td>
<td>Bechtel Nevada</td>
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<tr>
<td>CAI</td>
<td>Corrective Action Investigation</td>
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<tr>
<td>CAIP</td>
<td>Corrective Action Investigation Plan</td>
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<tr>
<td>CAS</td>
<td>Corrective Action Site</td>
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<td>CAU</td>
<td>Corrective Action Unit</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
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<tr>
<td>Co</td>
<td>Cobalt</td>
</tr>
<tr>
<td>COC</td>
<td>Contaminant of concern</td>
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<tr>
<td>COPC</td>
<td>Contaminant of potential concern</td>
</tr>
<tr>
<td>cps</td>
<td>Counts per second</td>
</tr>
<tr>
<td>Cs</td>
<td>Cesium</td>
</tr>
<tr>
<td>CSM</td>
<td>Conceptual site model</td>
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<tr>
<td>DoD</td>
<td>U.S. Department of Defense</td>
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<tr>
<td>DOE</td>
<td>U.S. Department of Energy</td>
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<tr>
<td>DOT</td>
<td>U.S. Department of Transportation</td>
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<tr>
<td>DQO</td>
<td>Data quality objective</td>
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<tr>
<td>DRI</td>
<td>Desert Research Institute</td>
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<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
</tr>
</tbody>
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Acronyms and Abbreviations (Continued)

EQL Estimated quantitation limit
ERDA U.S. Energy Research and Development Administration
Eu Europium
FAL Final action level
FFACO Federal Facility Agreement and Consent Order
°F Degrees Fahrenheit
ft Foot
FWP Field Work Permit
gal Gallon
HWAA Hazardous waste accumulation area
IDW Investigation-derived waste
in. Inch
IS HASP Industrial Sites Health and Safety Plan
ISMS Integrated Safety Management System
LCSD Laboratory control sample duplicate
m² Square meter
mg/kg Milligrams per kilogram
mg/L Milligrams per liter
mL Milliliter
mi Mile
N/A Not applicable
NAC Nevada Administrative Code
NAEG Nevada Applied Ecology Group
### Acronyms and Abbreviations (Continued)

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCRP</td>
<td>National Council on Radiation Protection and Measurement</td>
</tr>
<tr>
<td>NDEP</td>
<td>Nevada Division of Environmental Protection</td>
</tr>
<tr>
<td>NEPA</td>
<td><em>National Environmental Policy Act</em></td>
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<tr>
<td>NNSA/NSO</td>
<td>U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office</td>
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<tr>
<td>NRS</td>
<td><em>Nevada Revised Statutes</em></td>
</tr>
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<td>NTS</td>
<td>Nevada Test Site</td>
</tr>
<tr>
<td>NTSWAC</td>
<td>Nevada Test Site Waste Acceptance Criteria</td>
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<tr>
<td>NV/YMP</td>
<td>Nevada Yucca Mountain Project</td>
</tr>
<tr>
<td>PAL</td>
<td>Preliminary action level</td>
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<tr>
<td>PCB</td>
<td>Polychlorinated biphenyl</td>
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<tr>
<td>POC</td>
<td>Performance Objective for the Certification of Nonradioactive Hazardous Waste</td>
</tr>
<tr>
<td>PPE</td>
<td>Personal protective equipment</td>
</tr>
<tr>
<td>Pu</td>
<td>Plutonium</td>
</tr>
<tr>
<td>QA</td>
<td>Quality assurance</td>
</tr>
<tr>
<td>QAPP</td>
<td>Quality Assurance Project Plan</td>
</tr>
<tr>
<td>QC</td>
<td>Quality control</td>
</tr>
<tr>
<td>RadCon</td>
<td>Radiological control</td>
</tr>
<tr>
<td>RCRA</td>
<td><em>Resource Conservation and Recovery Act</em></td>
</tr>
<tr>
<td>SDWS</td>
<td><em>Safe Drinking Water Standards</em></td>
</tr>
<tr>
<td>SNJV</td>
<td>Stoller-Navarro Joint Venture</td>
</tr>
<tr>
<td>Sr</td>
<td>Strontium</td>
</tr>
<tr>
<td>TSCA</td>
<td><em>Toxic Substance Control Act</em></td>
</tr>
<tr>
<td>U</td>
<td>Uranium</td>
</tr>
</tbody>
</table>
Acronyms and Abbreviations (Continued)

UCLA  University of California, Los Angeles
USGS  U.S. Geological Survey
UW    University of Washington
Corrective Action Unit (CAU) 565 is located in Area 26 of the Nevada Test Site, which is 65 miles northwest of Las Vegas, Nevada. Corrective Action Unit 565 is comprised of one corrective action site (CAS) listed below:

- CAS 26-99-04, Ground Zero Soil Samples

This site is being investigated because existing information on the nature and extent of potential contamination is insufficient to evaluate and recommend closure of CAU 565. Additional information will be obtained by conducting a corrective action investigation before evaluating closure objectives and selecting the appropriate corrective action. The results of the field investigation will support closure and waste management decisions that will be presented in the Corrective Action Decision Document/Closure Report.

The site will be investigated based on the data quality objectives (DQOs) developed on June 1, 2006, by representatives of the Nevada Division of Environmental Protection; U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office; Stoller-Navarro Joint Venture; and Bechtel Nevada. The DQO process was utilized to identify and define the type, amount, and quality of data needed to develop and evaluate closure for CAU 565.

Appendix A provides a detailed discussion of the DQO methodology and the DQOs specific to this CAS.

The scope of the corrective action investigation for CAU 565 includes the following activities:

- Remove stored samples, shelves, and debris from the interior of Building 26-2106.
- Perform field screening on stored samples, shelves, and debris.
- Dispose of stored samples, shelves, and debris.
- Collect samples of investigation-derived waste, as needed, for waste management purposes.
- Conduct radiological surveys of Building 26-2106 in accordance with the requirements in the NV/YMP Radiological Control Manual to determine if there is residual radiological contamination that would prevent the release of the building for unrestricted use.
This Corrective Action Investigation has been developed in accordance with the Federal Facility Agreement and Consent Order that was agreed to by the State of Nevada, the U.S. Department of Energy, and the U.S. Department of Defense. Under the Federal Facility Agreement and Consent Order, this Corrective Action Investigation Plan will be submitted to the Nevada Division of Environmental Protection for approval. Field work will be conducted following approval of the plan.
1.0 Introduction

This Corrective Action Investigation Plan (CAIP) contains project-specific information including facility descriptions, environmental sample collection objectives, and criteria for conducting site investigation activities at Corrective Action Unit (CAU) 565: Stored Samples, Nevada Test Site (NTS), Nevada.

This CAIP has been developed in accordance with the Federal Facility Agreement and Consent Order (FFACO) (1996) that was agreed to by the State of Nevada, the U.S. Department of Energy (DOE), and the U.S. Department of Defense (DoD).

Corrective Action Unit 565 is located in Area 26 of the NTS, which is approximately 65 miles (mi) northwest of Las Vegas, Nevada (Figure 1-1). Corrective Action Unit 565 is comprised of one corrective action site (CAS) shown on Figure 1-1 and listed below:

- CAS 26-99-04, Ground Zero Soil Samples

The Corrective Action Investigation (CAI) will include field inspections, removal of stored samples, shelving, and debris from Building 26-2106, sampling, analysis, and disposal of stored samples, radiological surveys of Building 26-2106, and assessment of investigation results, where appropriate. Data will be obtained to support closure objectives and waste management decisions.

1.1 Purpose

CAU 565 is being investigated because hazardous and/or radioactive constituents may be present in concentrations that could potentially pose a threat to human health and the environment. Existing information on the nature and extent of potential contamination is insufficient to evaluate and recommend if closure objectives have been met at CAU 565. Additional information will be generated by conducting a CAI before evaluating closure.

1.1.1 Corrective Action Unit 565 History and Description

Corrective Action Unit 565, Stored Samples, consists of one inactive site located in the southern portion of Area 26. The one CAU 565 site consists of stored samples in Building 26-2106. The
Figure 1-1
CAU 565 Site Map
CAU 565 site was used to store samples from investigations to determine the effect of nuclear testing. An operational history for CAU 565 is detailed in Section 2.2.

1.1.2 Data Quality Objectives Summary

The site will be investigated based on data quality objectives (DQOs) developed by representatives of the Nevada Division of Environmental Protection (NDEP); DOE, National Nuclear Security Administration Nevada Site Office (NNSA/NSO); Stoller-Navarro Joint Venture (SNJV); and Bechtel Nevada (BN). The DQOs were used to identify and define the type, amount, and quality of data needed to develop and evaluate appropriate corrective actions for CAU 565. This CAIP describes the investigative approach developed to satisfy the data needs identified in the DQO process. While a detailed discussion of the DQO methodology and the DQOs specific to CAS 26-99-04 are presented in Appendix A of this document, a summary of the DQO process is provided below.

The DQO problem statement for CAU 565 is: “Existing information on the nature and extent of potential contamination is insufficient to evaluate and recommend closure of CAU 565.” To address this question, the resolution of one DQO decision statement is required:

- “Does radiological contamination remain within Building 26-2106 at activities above posting criteria as defined in the NV/YMP Radiological Control Manual?”

The informational inputs and data needs to resolve the problem statement and the decision statement were generated as part of the DQO process for this CAU and are documented in Appendix A. To resolve the DQO Decision (Does radiological contamination remain within the building at activities above posting criteria?), all the potential source material must be removed and samples need to be collected and analyzed following the criteria as defined in the NV/YMP Radiological Control Manual:

- Samples (both swipe and direct readings) must be collected in accordance with the requirements in the NV/YMP Radiological Control Manual.
- The analytical suite selected must be sufficient to identify any radiological contamination present in the samples.

If radiological contamination is in the building above the allowable removable and/or fixed values as defined in the NV/YMP Radiological Control Manual then corrective measures will be implemented (decontamination or radiological postings).
1.2 **Scope**

To generate information needed to resolve the decision statement identified in the DQO processes, the scope of the CAI for CAU 565 includes the following activities:

- Remove stored samples, shelves, and debris from the interior of Building 26-2106.
- Perform field screening on stored samples, shelves, and debris to make waste management decisions.
- Dispose of stored samples, shelves, and debris.
- Collect samples of investigation-derived waste (IDW), as needed, for waste management and minimization purposes.
- Conduct radiological surveys of Building 26-2106 in accordance with the requirements in the *NV/YMP Radiological Control Manual* to determine if there is residual radiological contamination that would prevent the release of the building for unrestricted use.

Contamination of environmental media originating from activities not identified in the conceptual site model (CSM) will not be considered as part of this CAU unless the CSM and the DQOs are modified to include the release. As such, contamination originating from these other sources will not be considered for sample location selection, and/or will not be considered contaminants of concern (COCs).

1.3 **Corrective Action Investigation Plan Contents**

Section 1.0 presents the purpose and scope of this CAIP, while Section 2.0 provides background information about CAU 565. Objectives of the investigation, including CSMs, are presented in Section 3.0. Field investigation and sampling activities are discussed in Section 4.0, and waste management issues for this project are discussed in Section 5.0. General field and laboratory quality assurance (QA) (including collection of QA samples) are presented in Section 6.0 and in the Industrial Sites Quality Assurance Project Plan (QAPP) (NNSA/NV, 2002). The project schedule and records availability are discussed in Section 7.0. Section 8.0 provides a list of references.

Appendix A provides a detailed discussion of the DQO methodology, and the DQOs, while Appendix B contains information on the project organization.
2.0 Facility Description

Corrective Action Unit 565 is comprised of CAS 26-99-04 which is located in the southern portion of Area 26.

2.1 Physical Setting

The following sections describe the general physical settings of Area 26 of the NTS. General background information pertaining to topography, geology, hydrogeology, and climatology are provided for these specific areas of the NTS region in the Geologic Map of the Nevada Test Site, Southern Nevada (USGS, 1990); CERCLA Preliminary Assessment for DOE’s Nevada Operations Office Nuclear Weapons Testing Areas (DRI, 1988); Final Environmental Impact Statement, Nevada Test Site, Nye County, Nevada (ERDA, 1977); and the Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada (DOE/NV, 1996).

2.1.1 Climate

Area average annual precipitation measured at Cane Spring, (about 4 mi to the southeast) was 8 inches (in.) from 1965 to 1992 (WRCC, 2002). From 1984 to 2000, the weather station at Mercury, Nevada, recorded average maximum temperatures ranging from 55 to 98 degrees Fahrenheit (°F); average minimum temperatures from 32 to 70°F; and total annual snowfall at 3 in. Evaporation rates for the NTS/Yucca Mountain region are approximately 66 in. per year (DOE/OCRWM, 2002). The high potential evaporation and low precipitation rates create a negative water balance for the area.

2.1.2 Geology

The geology of the CAU 565 area is typified by early Tertiary intrusives, largely monzonite porphyry, and later basalt flows within the Wahmonie Formation. The principal lithology of the Wahmonie Formation is hydrothermally altered calc-alkaline volcanic rocks including andesite, latite, and dacite volcanic breccia (lava and nonwelded tuff).

Most of the surface soils at the NTS have developed on alluvial deposits under conditions of high temperatures and low precipitation. They exhibit characteristics of desert soils including coarse
texture, an accumulation of carbonates within a few feet of the surface contributing to formation of a caliche layer, and low organic matter content (REECo, 1980).

### 2.1.3 Hydrology

Generally, water movement in the Wahmonie Formation is characterized as being in poorly connected fractures. Interstitial porosity and permeability are negligible, and the coefficient of transmissibility is estimated at less than 500 gallons (gal) per day per foot. Minor perched water was detected in the foothills between Frenchman Flat and Jackass Flats during studies completed in the 1960s (Winograd and Thordarson, 1975). The Wahmonie Formation includes a tuff confining unit that contains perched water near Cane Spring and Pavits Spring (Laczniak et al., 1996). Perched groundwater was found sporadically (ranging from 77 to 182 ft below ground surface [bgs]) in some, but not all, of the Pluto wells drilled approximately 3 mi to the east of the CAU 565 (Johnson and Ege, 1964).

The nearest surface water is 4 mi to the southeast at Cane Spring (Kral, 1951). The closest groundwater monitoring well is Well J-11 WW, which is 7 mi to the southwest of CAU 565. Well J-11 WW shows groundwater at 1,037.5 ft bgs in volcanic rock (USGS, 2002; Walker et al., 1961). Well USGS “F” is 5 mi to the southeast of CAU 565 and groundwater was found from 1,560 to 1,871 ft bgs (West and Garber, 1961). Well Ue5m is 8 mi to the southeast and groundwater was found at 660 and 1,100 ft bgs (Healey et al., 1967).

### 2.2 Operational History

The following sections provide a description of the use and history of the CAS in CAU 565. The CAS summary is designed to describe the current definition of each CAS and illustrate all significant, known activities.

Corrective Action Site 26-99-04, Ground Zero Soil Samples, consists of the potential release associated with stored soil, vegetative and possible animal samples in Building 26-2106. Building 26-2106 was built as a pre-fabricated metal warehouse in the late 1950s to support nuclear testing in the Port Gaston Area. The warehouse has been used as a sample storage facility since the mid 1970s. The building currently has no water, power, or support utilities. The building dimensions are
approximately 80 x 50 x 14 ft, and there is a mezzanine level within the northwest corner of the building.

### 2.3 Waste Inventory

Available documentation, interviews with former site employees, process knowledge, and general historical NTS practices were used to identify wastes that may be present. Historical information and site visits indicate that the building contains stored samples, shelving, and other miscellaneous debris.

The samples stored in Building 26-2106 came from a variety of sources from nuclear testing activities conducted at NTS and islands in the Pacific Ocean. The sources of the stored samples are from studies performed by the University of California, Los Angeles (UCLA), University of Washington (UW), and the Nevada Applied Ecology Group (NAEG). The UCLA samples are fallout samples taken from within a 500-mi radius of the NTS. Samples were collected from the Bikini and Rongelap Atolls. Lawrence Livermore National Laboratory in conjunction with the UW performed research on the Pacific Island samples. The NAEG took thousands of samples during the 1970s and 1980s to support transuranics studies. Figure A.2-1 shows a sketch of the building interior. The sample containers are either metal cans (1 pint to 1 gal), nalgene bottles (500 milliliter [mL] to 1 liter), or large 5-gal metal buckets. Many of the samples are in cardboard boxes that are in deteriorating condition.

### 2.4 Release Information

The most likely location of contamination from releases is inside Building 26-2106 due to leakage or breakage of sample containers. Potentially affected media include the building interior surfaces and floor. There has been no known migration of contamination at CAU 565 beyond the Building 26-2106 interior. Building 26-2106 was designed as a warehouse, and there are no floor drains or other piping leading to the outside environment; therefore, no migration pathways exist to the outside of Building 26-2106.

Exposure routes to building occupants or visitors include ingestion, inhalation, and/or dermal contact (absorption) from disturbance of residue and debris, and/or structures within the building. Site
workers may also be exposed to radiation by performing activities in proximity to radiologically contaminated materials.

### 2.5 Investigative Background

The following sections summarize the investigations conducted at CAU 565. More detailed discussions of these investigations are found in Appendix A.

Radiological analyses of the samples stored inside the building were performed on the samples during the time of collection (1970 to 1980s), and some of the results are available; however, a complete data set is not available, and it is unclear if results could be matched to specific containers. Therefore, the data will not be used but is available in project files.

A surface radiological survey of the area around the building and site visit was performed on May 18, 2006 (Figure A.2-2). Survey results indicated no elevated (i.e., greater than 2 times background) radiological readings outside of Building 26-2106, except for two locations along the north wall of the building. Although these locations had elevated readings, their presence is believed to be attributed to shine from the samples inside Building 26-2106 and not to any release from the building. Site photographs (Figure A.2-3 and Figure A.2-4) were taken and observations made on the building integrity. No migration pathways were identified leading from Building 26-2106 into the surrounding soils outside the building.

#### 2.5.1 National Environmental Policy Act

The *Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada* (DOE/NV, 1996) includes site investigation activities such as those proposed for CAU 565.

In accordance with the NNSA/NSO *Nevada Environmental Policy Act* (NEPA) Compliance Program, a NEPA checklist will be completed before beginning site investigation activities at CAU 565. This checklist requires NNSA/NSO project personnel to evaluate their proposed project activities against a list of potential impacts that include, but are not limited to: air quality, chemical use, waste generation, noise level, and land use. Completion of the checklist results in a determination of the appropriate level of NEPA documentation by the NNSA/NSO NEPA Compliance Officer. This will be accomplished before mobilization for the field investigation.
3.0 Objectives

This section presents an overview of the DQOs for CAU 565 and formulation of the CSM. Also presented is a summary listing of the contaminants reasonably suspected to be present at the CAS, the contaminants of potential concern (COPCs), the preliminary action levels (PALs) for the investigation, and the process used to establish final action levels (FALs). The CSM for CAU 565 is illustrated in Table 3-1 and additional details are located in Appendix A.

Table 3-1
Conceptual Site Model
Description of Elements for CAU 565

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS Identifier</td>
<td>26-99-04</td>
</tr>
<tr>
<td>CAS Description</td>
<td>Ground Zero Soil Samples</td>
</tr>
<tr>
<td>Site Status</td>
<td>Site is inactive and/or abandoned</td>
</tr>
<tr>
<td>Exposure Scenario</td>
<td>Industrial</td>
</tr>
<tr>
<td>Sources of Potential Contamination</td>
<td>Leaking or broken containers</td>
</tr>
<tr>
<td>Location of Contamination/Release Point</td>
<td>Inside Building near location(s) of stored samples</td>
</tr>
<tr>
<td>Amount Released</td>
<td>Unknown</td>
</tr>
<tr>
<td>Affected Media</td>
<td>Building interior surfaces, such as concrete floor</td>
</tr>
<tr>
<td>Potential Contaminants</td>
<td>Radiological</td>
</tr>
<tr>
<td>Transport Mechanisms</td>
<td>Precipitation and wind serves as a potential driving force for migration of contaminants inside building</td>
</tr>
<tr>
<td>Migration Pathways</td>
<td>Leakage from sample containers to the building floor. No migrations pathways exist to the outside of the building</td>
</tr>
<tr>
<td>Lateral and Vertical Extent of Contamination</td>
<td>Contamination, if present, is expected to remain inside building. Lateral and vertical extent of contamination is assumed to be within the spatial boundaries of the building walls and floor which provide an effective barrier to lateral and vertical migration.</td>
</tr>
<tr>
<td>Exposure Pathways</td>
<td>The potential for contamination exposure is limited to industrial and construction workers, and military personnel conducting training inside building. These human receptors may be exposed to COPCs through oral ingestion, inhalation, dermal contact (absorption) of soil and/or debris due to inadvertent disturbance of these materials or irradiation by radioactive materials.</td>
</tr>
</tbody>
</table>

COPC = Contaminant of potential concern
3.1 Conceptual Site Model

The CSM describes the most probable scenario for current conditions at the site and defines the assumptions that are the basis for identifying the future land use, contaminant sources, release mechanisms, migration pathways, exposure points, and exposure routes. The CSM is also used to support appropriate sampling strategies and data collection methods. The CSM has been developed for CAU 565 using information from the physical setting, potential contaminant sources, release information, historical background information, knowledge from similar sites, and physical and chemical properties of the potentially affected media and COPCs. If evidence of contamination that is not consistent with the presented CSM is identified during investigation activities, the situation will be reviewed, the CSM revised, the DQOs re-assessed, and a recommendation made as to how best to proceed. In such cases, decision makers listed in Section A.3.1 will be notified and given the opportunity to comment on and/or concur with the recommendation.

The following sections discuss future land use and the identification of exposure pathways (i.e., combination of source, release, migration, exposure point, and receptor exposure route) for the CAU.

3.1.1 Land Use and Exposure Scenarios

Corrective Action Site 26-99-04 is located in the land-use zone described as the “Research, Test, and Experiment Zone.” This area is designated for small-scale research and development projects and demonstrations, pilot projects, outdoor tests; and experiments for the development, quality assurance, or reliability of material and equipment under controlled conditions. This zone includes compatible defense and nondefense research, development and testing projects and activities (DOE/NV, 1998).

All land-use zones dictate future land use, and restrict current and future land use to nonresidential (i.e., industrial) activities.

The exposure scenario for CAU 565 is based on current and projected future land uses. This exposure scenario assumes industrial use of the site. This scenario addresses exposure to industrial workers continuously exposed to contaminants in soil during each workday for their entire career (225 days per year, 8 hours per day for 25 years).
3.1.2 Contaminant Sources

The contamination sources for the CSM are:

- Archived samples in Building 26-2106

3.1.3 Release Mechanisms

Release mechanisms for the CSM are spills and leaks onto building interior surfaces from stored sample media. Materials stored in containers may have leaked or spilled.

3.1.4 Migration Pathways

Migration pathways at the CAS are expected to be predominately vertical from spills or leaks from the stored samples to the concrete floor. Lateral migration pathways, including movement along the concrete floor, are not expected. Migration pathways at the CAS are expected to be confined to the building interior. Current knowledge indicates that no migration pathways exist to the outside of Building 26-2106 or to the surrounding soils.

3.1.5 Exposure Points

Exposure points are expected to be areas of surface contamination in Building 26-2106 where visitors and site workers could come in contact with remaining residue and debris. Site workers may also be exposed to radiological contamination by performing activities in proximity to radiologically contaminated materials.

3.1.6 Exposure Routes

Exposure routes to site workers include exposure to radiation fields, ingestion, inhalation, and/or dermal contact (absorption) from disturbance of, or direct contact with, contaminated media.

3.1.7 Additional Information

Information concerning topography, geology, climatic conditions, hydrogeology, floodplains, and infrastructure at CAU 565 are available and are presented in Section 2.1, though this information does not directly pertain to the investigation. This information has been addressed in the CSM and will be
considered during the evaluation of corrective action alternatives, as applicable. Site conditions (e.g., building interior descriptions) as well as specific structure descriptions will be recorded during the CAI.

### 3.2 Contaminants of Potential Concern

The COPCs for CAU 565 are defined as the list of constituents represented by the analytical methods identified in Table 3-2 for DQO decision samples. Radiological COPCs include americium (Am)-241, plutonium (Pu)-238/239/240, cobalt (Co)-60, cesium (Cs)-134,137, strontium (Sr)-90, europium (Eu)-152/154/155, and uranium (U)-234/235/238.

The list of COPCs is intended to encompass all of the contaminants that could potentially be present. These COPCs were identified during the planning process through the review of site history, process knowledge, personal interviews, past investigation efforts (where available), and inferred activities.

During the review of site history documentation, process knowledge information, personal interviews, and inferred activities associated with the CAS, some of the COPCs were identified as targeted contaminants. Targeted contaminants for CAU 565 are identified in the NV/YMP Radiological Control Manual (Table 2-2) and include Sr-90 and U-235/238.

Non-radiological COPCs are not anticipated, however, analysis will be conducted for constituents such as metals to meet waste acceptance criteria.

### 3.3 Preliminary Action Levels

The Action Levels (ALs) presented in this section are to be used to conduct the radiological survey of Building 26-2106. The ALs for radiological contaminants are based on the values listed in Table 2-2 of the NV/YMP Radiological Control Manual.

### 3.4 Data Quality Objective Process Discussion

This section contains a summary of the DQO process presented in Appendix A. The DQO process is a strategic planning approach based on the scientific method designed to ensure that the data collected
will provide sufficient and reliable information to identify, evaluate, and technically defend the recommendation of acceptable closure options.

The DQO strategy for CAU 565 was developed at a meeting on June 1, 2006, with a planning team of representatives from NDEP, NNSA/NSO, SNJV, and BN. The DQOs were developed to identify data needs, clearly define the intended use of the environmental data, and to design a data collection program that will satisfy these purposes. During the DQO discussions for this CAU, the informational inputs or data needs to resolve problem statements and decision statements were documented.
The problem statement for CAU 565 is: “Existing information on the nature and extent of potential contamination is insufficient to evaluate and recommend closure of CAU 565.” To address this question, the resolution of a decision statement is required:

- The DQO Decision statement is: “Does radiological contamination remain within the building at activities above posting criteria as defined in the NV/YMP Radiological Control Manual?”

The presence of radiological contamination inside the building would require a corrective action of either decontamination or radiological posting and controls. A corrective action may also be necessary if wastes present at the site could impose COCs into site environmental media if the wastes were to be released. To address this issue, the stored samples and potentially contaminated materials (e.g., shelves and debris) will be removed from the building for disposal in an appropriate landfill.

The DQO Decision will be made by collecting swipe and direct reading samples or other appropriate sampling methods. These samples will be analyzed using appropriate instruments to satisfy the requirements in the NV/YMP Radiological Control Manual. Sample collection and handling activities will follow standard procedures.

The measurement and analysis methods proposed are capable of measuring contaminant concentrations at or below the values listed in Table 2-2 of the NV/YMP Radiological Control Manual. The instruments will have current calibrations and will be used according to applicable procedures.
4.0 Field Investigation

This section contains a description of the activities to be conducted to gather and document information from the CAU 565 field investigation.

4.1 Technical Approach

The information necessary to satisfy the DQO data needs will be generated for CAU 565 by collecting and analyzing samples generated during a field investigation. The presence and nature of contamination within Building 26-2106 will be evaluated by taking direct reading and swipe surveys of the building interior in accordance with the requirements in the NV/YMP Radiological Control Manual. If radiological contamination is detected, then corrective action measures will be implemented (decontamination or radiological posting).

Because the stored samples in Building 26-2106 have the potential to release contamination into site environmental media in the future, the stored samples will be removed from the building for disposition in the appropriate landfill prior to conducting the radiological surveys of the building.

Modifications to the investigative strategy may be required should unexpected field conditions be encountered. Significant modifications shall be justified and documented on a Record of Technical Change before implementation. If an unexpected condition indicates that conditions are significantly different than the corresponding CSM, the activity will be rescoped and the identified decision-makers notified.

4.2 Field Activities

Field activities at CAU 565 include site preparation, removal and disposal of stored samples and debris, sample location selection, and sample collection activities.

4.2.1 Site Preparation Activities

Site preparation activities conducted by the NTS Performance Based Management Contractor before the investigation may include, but not be limited to: relocation or removal of debris, equipment, and structures; construction of hazardous waste accumulation areas (HWAA)s and site exclusion zones,
providing sanitary facilities, treating for Hantavirus, construction of decontamination facilities; and moving and relocating staged equipment.

### 4.2.2 Removal of Potentially Contaminated Materials

Prior to performing the radiological survey of Building 26-2106, the potentially contaminated materials (e.g., the stored samples, shelving, and debris) will be removed from the building for disposal.

### 4.2.3 Sample Location Selection

Sampling schemes prescribed in the *NV/YMP Radiological Control Manual* will be implemented to select sample locations and evaluate analytical results for CAU 565.

### 4.2.4 Sample Collection

The CAU 565 sampling program will consist of the following activities:

- Collect and analyze samples from locations as described in the *NV/YMP Radiological Control Manual*.
- Collect waste management samples.
- Perform radiological characterization surveys of the removed potentially-contaminated materials as necessary for disposal purposes.

### 4.2.5 Sample Management

Samples will be analyzed in-house. The analytical methods used include direct readings (using an Electra or equivalent instrument) and analysis of swipe (removable) samples using a swipe counter (gas slope perportional counter or equivalent instrument). The analytical program is presented in Table 3-2. All sampling activities will be conducted in compliance with the *NV/YMP Radiological Control Manual* and other applicable, approved procedures.
4.3 Safety

A current version of the Environmental Services Architect-Engineer Contractor’s Health and Safety documentation will accompany the field documents. As required by the DOE Integrated Safety Management System (ISMS) (DOE/NV, 1997), these documents outline the requirements for protecting the health and safety of the workers and the public, and the procedures for protecting the environment. The ISMS program requires that site personnel will reduce or eliminate the possibility of injury, illness, or accidents, and to protect the environment during all project activities. The following safety issues will be taken into consideration when evaluating the hazards and associated control procedures for field activities discussed in the IS HASP and FWP:

- Potential hazards to site personnel and the public include, but are not limited to: radionuclides, adverse and rapidly changing weather, remote location, and motor vehicle and heavy equipment operations.

- Proper training of all site personnel to recognize and mitigate the anticipated hazards.

- Work controls to reduce or eliminate the hazards including engineering controls, substitution of less hazardous materials, and use of appropriate personal protective equipment (PPE).

- Occupational exposure monitoring to prevent overexposures to hazards such as radionuclides, chemicals, and physical agents (e.g., heat, cold, and high wind).

- Radiological surveying for alpha/beta and gamma emitters to minimize and/or control personnel exposures; use of the “as-low-as-reasonably-achievable” principle when addressing radiological hazards.

- Emergency and contingency planning to include medical care and evacuation, decontamination, spill control measures, and appropriate notification of project management. The same principles apply to emergency communications.

- If presumed asbestos-containing material is identified (CFR, 2003c; NAC, 2004a), it will be inspected and/or samples collected by trained personnel.

- Hantavirus protection measures will be used as appropriate.
4.4 **Site Restoration**

Following completion of CAI and waste management activities, the following actions will be implemented before closure of the site:

- Removal of all equipment, wastes, debris, and materials associated with the CAI
- Removal of all signage and fencing (unless part of a corrective action)
- Site will be inspected and certified that restoration activities have been completed
5.0 Waste Management

Management of IDW will be based on regulatory requirements, field observations, process knowledge, and laboratory results from CAU 565 investigation samples.

Disposable sampling equipment, PPE, and rinsate are considered potentially contaminated waste only by virtue of contact with potentially contaminated media (e.g., soil) or potentially contaminated debris (e.g., contents of stored environmental samples). Therefore, sampling and analysis of IDW, separate from analyses of site investigation samples, may not be necessary for all IDW. However, if associated investigation samples are found to contain contaminants above regulatory levels, conservative estimates of total waste contaminant concentrations may be made based on the mass of the waste, the amount of contaminated media contained in the waste, and the maximum concentration of contamination found in the media. Direct samples of IDW may also be taken to support waste characterization.

Sanitary, hazardous, radioactive, and/or mixed waste, if generated, will be managed and disposed of in accordance with applicable DOE orders, U.S. Department of Transportation (DOT) regulations, state and federal waste regulations, and agreements and permits between DOE and NDEP.

The waste management of debris (e.g. the approximately 80,000 stored environmental samples from post surface and atmospheric test locations worldwide) will be addressed in detail within a Waste Management Plan in the CAU 565 Field Instruction. The Waste Management Plan will discuss the radiological screening of the stored environmental samples, the method of identifying, segregating, and processing stored environmental samples that may contain animal carcasses; the method of identifying and segregating stored environmental samples that do not meet the profile of samples stored within the CAS footprint (i.e. soil, vegetation, and animal carcasses) based on process knowledge; the method of processing the environmental samples into their waste containers, sampling strategy to determine the proper disposition of each waste container of debris, and all waste streams that do not meet the profile of samples stored within Building 26-2106, based on process knowledge.
5.1 Waste Minimization

Investigation activities are planned to minimize IDW generation. This will be accomplished by incorporating the use of process knowledge, visual examination, and/or radiological survey and swipe results. Contained media (e.g., soil managed as waste) as well as other IDW will be segregated to the greatest extent possible to minimize generation of hazardous, radioactive, or mixed waste. Hazardous material used at the sites will be controlled in order to limit unnecessary generation of hazardous or mixed waste. Administrative controls, including decontamination procedures and waste characterization strategies, will minimize waste generated during investigations.

5.2 Potential Waste Streams

Waste generated during the investigation activities may include the following potential waste streams:

- Personal protective equipment and disposable sampling equipment (e.g., plastic, paper, sample containers, aluminum foil, spoons, bowls)
- Decontamination rinsate
- Ground zero soil samples
- Debris in investigation area (e.g., shelving units)
- Field-screening waste (e.g., disposable sampling equipment, and/or PPE contaminated by field-screening activities)

5.2.1 Personal Protective Equipment

Personal protective equipment and disposable sampling equipment will be inspected visually for stains, discoloration, and gross contamination as the waste is generated, and also evaluated for radiological contamination. Staining and discoloration will be assumed to be the result of contact with potentially contaminated media such as soil, sludge, or liquid. Gross contamination is the visible contamination of an item (e.g., clumps of soil/sludge on a sampling spoon or free liquid smeared on a glove). While gross contamination often can be removed through decontamination methods, removal of gross contamination from small items, such as gloves or booties, is not typically conducted. Any IDW that meets this description will be segregated and managed as potentially “characteristic” hazardous waste. This segregated population of waste will be either: (1) assigned the characterization
of the soil/sludge that was sampled, (2) sampled directly, or (3) undergo further evaluation using the soil/sludge sample results to determine how much soil/sludge would need to be present in the waste to exceed regulatory levels. Waste that is determined to be hazardous will be entered into an approved waste management system, where it will be managed and dispositioned according to *Resource Conservation and Recovery Act* (RCRA) requirements or subject to agreements between NNSA/NSO and the State of Nevada. The PPE and equipment that is not visibly stained, discolored, or grossly contaminated and that is within the radiological free-release criteria will be managed as nonhazardous sanitary waste.

### 5.2.2 Management of Decontamination Rinsate

Rinsate at CAU 565 will not be considered hazardous waste unless there is evidence that the rinsate may display a RCRA characteristic. Evidence may include such things as the presence of a visible sheen, pH, or association with equipment/materials used to respond to a release/spill of a hazardous waste/substance. Decontamination rinsate that is potentially hazardous (using associated sample results and/or process knowledge) will be managed as characteristic hazardous waste (CFR, 2003a). The regulatory status of the potentially hazardous rinsate will be determined through the application of associated sample results or through direct sampling. If the associated samples do not indicate the presence of hazardous constituents, then the rinsate will be considered to be nonhazardous.

The disposal of nonhazardous rinsate will be consistent with guidance established in current NNSA/NSO Fluid Management Plans for the NTS as follows:

- Rinsate that is determined to be nonhazardous and contaminated to less than 5 x *Safe Drinking Water Standards* (SDWS) is not restricted as to disposal. Nonhazardous rinsate which is contaminated at 5 x to 10 x SDWS will be disposed of in an established infiltration basin or solidified and disposed of as sanitary waste or low-level waste in accordance with the respective sections of this document.

- Nonhazardous rinsate contaminated at greater than 10 x SDWS will be disposed of in a lined basin or solidified and disposed of as sanitary waste or low-level waste in accordance with the respective sections of this document.
5.2.3 **Management of Soil**

This waste stream consists of soil removed for disposal during the removal of the samples from the building. This waste stream will be characterized based on laboratory analytical results from representative containers. If the soil is determined to potentially contain COCs, the material will either be managed on site or containerized for transportation to an appropriate disposal site.

On-site management of the waste soil will be allowed only if it is managed within an area of concern and it is appropriate to defer the management of the waste until the final remediation of the site. If this option is chosen, the waste soil shall be protected from run-on and run-off using appropriate protective measures based on the type of contaminant(s) (e.g., covered with plastic and bermed).

Management of soil waste for disposal consists of placing the waste in containers, labeling the containers, temporarily storing the containers until shipped, and shipping the waste to a disposal site. The containers, labels, management of stored waste, transport to the disposal site, and disposal shall be appropriate for the type of waste (e.g., hazardous, hydrocarbon, mixed).

5.2.4 **Management of Debris**

This waste stream can vary depending on site conditions. Debris that requires removal based on the posting criteria defined in the *NV/YMP Radiological Control Manual*, or that must be removed to complete the investigation activities, must be characterized for proper management and disposition. Historical site knowledge, knowledge of the waste generation process, field observations, field-monitoring/screening results, and/or radiological survey/swipe results may be used to characterized the debris. Debris will be visually inspected for stains, discoloration, and gross contamination. Debris may be deemed sanitary waste, hazardous waste, polychlorinated biphenyl (PCB) waste, or low-level waste. Waste that is not sanitary will be entered into an approved waste management system, where it will be managed and dispositioned according to federal, state requirements, and agreements between NNSA/NSO and the State of Nevada. The debris will either be managed on site by berming and covering, by placement in a container(s), or left on the footprint of the CAS and its disposition deferred until implementation of corrective action at the site. If radiological contamination (e.g., building walls, roof, and/or foundation) remains in the building,
above the allowable removable and/or fixed values as defined in the *NV/YMP Radiological Control Manual*, then corrective measures will be implemented (decontamination or radiological postings).

### 5.2.5 Field-Screening Waste

The use of field test kits and/or instruments may result in the generation of small quantities of hazardous wastes. If hazardous waste is produced by field screening, it will be segregated from other IDW and managed in accordance with the hazardous waste regulations (CFR, 2003a). For sites where field-screening samples contain radioactivity above background levels, field-screening methods that have the potential to generate hazardous waste will not be used, thus avoiding the potential to generate mixed waste. In the event a mixed waste is generated, the waste will be managed in accordance with Section 5.3.5 of this document.

### 5.3 Investigation-Derived Waste Management

The on-site management and ultimate disposition of IDW will be determined based on a determination of the waste type (e.g., sanitary, low-level, hazardous, hydrocarbon, mixed), or the combination of waste types. A determination of the waste type will be guided by several factors, including, but not limited to: the analytical results of samples either directly or indirectly associated with the waste, historical site knowledge, knowledge of the waste generation process, field observations, field-monitoring/screening results, and/or radiological survey/swipe results.

Table 4-2 of the *NV/YMP Radiological Control Manual* (NNSA/NSO, 2004) shall be used to determine whether such materials may be declared nonradioactive. On-site IDW management requirements by waste type are detailed in the following sections. Applicable waste management regulations and requirements are listed in Table 5-1.

### 5.3.1 Sanitary Waste

Sanitary IDW generated at the CAS that is shown to meet landfill disposal requirements will be collected, managed, and disposed of in accordance with the sanitary waste management regulations and the permits for operation of the NTS 10c Industrial Waste Landfill.
Office trash and lunch waste will be placed in the dumpster to be transported to the sanitary landfill for disposal. Sanitary IDW generated at the CAS will only be collected in plastic bags, sealed, labeled with the CAS number from which it was generated, initialed, and dated. The waste will then
be placed in a roll-off box located in Mercury, or other approved roll-off box location. The number of bags of sanitary IDW placed in the roll-off box will be counted as they are placed in the roll-off box, noted in a log, and documented in the Field Activity Daily Log. These logs will provide necessary tracking information for ultimate disposal in the 10c Industrial Waste Landfill.

5.3.2 Low-Level Radioactive Waste

Radiological swipe surveys and/or direct-scan surveys may be conducted on reusable sampling equipment and the PPE and disposable sampling equipment waste streams exiting a Controlled Area. This allows for the immediate segregation of radioactive waste from waste that may be unrestricted regarding radiological release. Removable contamination limits, as defined in Table 4-2 of the current version of the NV/YMP Radiological Control Manual (NNSA/NSO, 2004), will be used to determine whether such waste may be declared unrestricted regarding radiological release versus being declared radioactive waste. Direct sampling of the waste may be conducted to aid in determining whether a particular waste unit (e.g., drum of soil) contains low-level radioactive waste, as necessary. Waste that is determined to be below the values of Table 4-2, by either direct radiological survey/swipe results or through process knowledge, will not be managed as potential radioactive waste but will be managed in accordance with the appropriate section of this document. Wastes in excess of Table 4-2 values will be managed as potential radioactive waste according to this section and other applicable sections of this document.

Low-level radioactive waste, if generated, will be managed in accordance with the contractor-specific waste certification program plan, DOE orders, and the requirements of the current version of the Nevada Test Site Waste Acceptance Criteria (NTSWAC) (NNSA/NSO, 2006). Potential radioactive waste drums containing soil, PPE, disposable sampling equipment, and/or rinsate may be staged at a designated radioactive material area or a controlled area when full or at the end of an investigation phase. The waste drums will remain at the controlled area pending certification and disposal under NTSWAC requirements (NNSA/NSO, 2006).

5.3.3 Hazardous Waste

The CAU will have waste accumulation areas established according to the needs of the project. Satellite accumulation areas and HWAAAs will be managed consistent with the requirements of federal
and state regulations (CFR, 2003a; NAC, 2004b). The HWAAAs will be properly controlled for access, and will be equipped with spill kits and appropriate spill containment. Suspected hazardous wastes will be placed in DOT-compliant containers. All containerized hazardous waste will be handled, inspected, and managed in accordance with Title 40 CFR 265 Subpart I (CFR, 2003a). These provisions include managing the waste in containers compatible with the waste type, and segregating incompatible waste types so that in the event of a spill, leak, or release, incompatible wastes shall not contact one another. The HWAAAs will be covered under a site-specific emergency response and contingency action plan until such time that the waste is determined to be nonhazardous or all containers of hazardous waste have been removed from the storage area. Hazardous waste will be characterized in accordance with the requirement of Title 40 CFR 261. Resource Conservation and Recovery Act—“listed” waste has not been identified at CAU 565. Any waste determined to be hazardous will be managed and transported in accordance with RCRA and DOT requirements to a permitted treatment, storage, and disposal facility (CFR, 2003a).

### 5.3.4 Hydrocarbon Waste

Hydrocarbon soil waste containing more than 100 milligrams per kilogram of total petroleum hydrocarbons will be managed on site, in a drum, or other appropriate container until fully characterized. Hydrocarbon waste may be disposed of at a designated hydrocarbon landfill (NDEP, 1997b), an appropriate hydrocarbon waste management facility (e.g., recycling facility), or other method in accordance with the State of Nevada regulations.

### 5.3.5 Mixed Low-Level Waste

Mixed waste, if generated, shall be managed and dispositioned according to the requirements of RCRA (CFR, 2003a) or subject to agreements between NNSA/NSO and the State of Nevada, as well as DOE requirements for radioactive waste. The waste will be marked with the words “Hazardous Waste Pending Analysis and Radioactive Material Pending Analysis.” Waste characterized as mixed will not be stored for a period of time that exceeds the requirements of RCRA unless subject to agreements between NNSA/NSO and the State of Nevada. The mixed waste shall be transported via an approved hazardous waste/radioactive waste transporter to the NTS transuranic waste storage pad for storage pending treatment or disposal. Mixed waste with hazardous waste constituent concentrations below Land Disposal Restrictions may be disposed of at the NTS Area 5 Radioactive
Waste Management Site if the waste meets the requirements of the NTSWAC (NNSA/NSO, 2006), the NTS NDEP permit for a Hazardous Waste Management Facility (NEV HW0009 [NDEP, 2000]), and the RCRA Part B Permit Application for Waste Management Activities at the Nevada Test Site (DOE/NV, 1999). Mixed waste constituent concentrations exceeding Land Disposal Restrictions will require development of a treatment and disposal plan under the requirements of the Mutual Consent Agreement between the State of Nevada and U.S. Department of Energy for the Storage of Low-Level Land Disposal Restricted Mixed Waste (NDEP, 1995).

5.3.6 Polychlorinated Biphenyls

The management of PCBs is governed by the Toxic Substances Control Act (USC, 1976) and its implementing regulations at 40 CFR 761 (CFR, 2003b). Polychlorinated biphenyl contamination may be found as a sole contaminant or in combination with any of the types of waste discussed in this document. For example, PCBs may be a co-contaminant in soil that contains a RCRA “characteristic” waste (PCB/hazardous waste), or in soil that contains radioactive wastes (PCB/radioactive waste), or even in mixed waste (PCB/radioactive/hazardous waste). The IDW will initially be evaluated using analytical results for media samples from the investigation. If any type of PCB waste is generated, it will be managed according to 40 CFR 761 (CFR, 2003b) as well as State of Nevada requirements, (NAC, 2004a) guidance, and agreements with NNSA/NSO.
6.0 Quality Assurance/Quality Control

The overall objective of the characterization activities described in this CAIP is collection of accurate and defensible data to support the selection and implementation of a closure alternative for CAU 565. Samples collected during swipe surveys conducted under the NV/YMP Radiological Control Manual and for waste determination do not require quality control (QC) sample collection.

6.1 Quality Assurance Samples

Criteria for the investigation, as stated in the DQOs (Appendix A), do not require laboratory analytical quality data be used for making critical decisions. Therefore, QA/QC will not be implemented for samples including documentation, data verification and validation of analytical results, and an assessment of data quality indicators as they relate to analysis.

Information to satisfy the DQO Decision will be generated by collecting swipe and direct reading or other appropriate sampling methods. These samples will be analyzed in-house using appropriate instruments, and the data will be used to support DQO decisions. Sample collection and handling activities will follow standard procedures.

6.2 Data Quality Indicators

Criteria for the investigation, as stated in the DQOs (Appendix A) do not require data quality indicators be used for making critical decisions. Therefore, data quality indicators will not be implemented.
7.0 Duration and Records Availability

7.1 Duration

Table 7-1 is a tentative duration of activities (in calendar days) for CAI activities.

<table>
<thead>
<tr>
<th>Duration (days)</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Site Preparation</td>
</tr>
<tr>
<td>76</td>
<td>Field Work Preparation and Mobilization</td>
</tr>
<tr>
<td>80</td>
<td>Sampling/Verification Surveys</td>
</tr>
<tr>
<td>180</td>
<td>Waste Management</td>
</tr>
</tbody>
</table>

7.2 Records Availability

Historic information and documents referenced in this plan are retained in the NNSA/NSO project files in Las Vegas, Nevada, and can be obtained through written request to the NNSA/NSO project Manager. This document is available in the DOE public reading rooms located in Las Vegas and Carson City, Nevada, or by contacting the appropriate DOE Project Manager. The NDEP maintains the official Administrative Record for all activities conducted under the auspices of the FFACO.
8.0 References

ARL/SORD, see Air Resources Laboratory/Special Operations and Research Division.


BN, see Bechtel Nevada.


CFR, see Code of Federal Regulations.


DOE, see U.S. Department of Energy.


DRI, see Desert Research Institute.


ERDA, See U.S. Energy Research and Development Administration.
FFACO, see *Federal Facility Agreement and Consent Order*.


NAC, see *Nevada Administrative Code*.

NCRP, see National Council on Radiation Protection and Measurements.

NDEP, see Nevada Division of Environmental Protection.

NNSA/NSO, see U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office.


NRS, see *Nevada Revised Statutes*.


Nevada Division of Environmental Protection. 1997a. *Class II Solid Waste Disposal Site for Municipal and Solid Waste, Area 23 of the NTS, Permit SW 13-097-04.* Carson City, NV.

Nevada Division of Environmental Protection. 1997b (as amended in August 2000). *Class III Solid Waste Disposal Site for Hydrocarbon Burdened Soils, Area 6 of the NTS, Permit SW 13 097 02.* Carson City, NV.

Nevada Division of Environmental Protection. 1997c (as amended in August 2000). *Class III Solid Waste Disposal Site; UIOC, Area 9 of the NTS, Permit SW 13-097-03.* Carson City, NV.

Nevada Division of Environmental Protection. 1999. *State of Nevada Water Pollution Control General Permit*, No. GNEV93001. Carson City, NV.


PNNL, see Pacific Northwest National Laboratory.

REECo, see Reynold Electrical & Engineering Company, Inc.


USC, see *United State Code.*


USGS, see U.S. Geological Survey.


WRCC, see Western Regional Climate Center.
Western Regional Climate Center. 2002. CDR data Precipitation Data for Cane Spring, Nevada. Dataset 933, Comp 3620 contains average and end member precipitation data from 1965-1992. Mercury, NV.

Appendix A

Data Quality Objectives
A.1.0 Introduction

The DQO process described in this appendix is a seven-step systematic strategic planning process based on the scientific method that was used to plan data collection activities and define performance criteria for the CAU 565, Stored Samples, field investigation. The DQOs are designed to ensure that the data collected will provide sufficient and reliable information to identify, evaluate, and technically defend recommended corrective actions (i.e., no further action, closure in place, or clean closure). Existing information about the nature and extent of contamination at the CAS in CAU 565 is insufficient to determine if closure objectives have been met.

The CAU 565 investigation will be based on the DQOs presented in this appendix as developed by representatives of the NDEP and the NNSA/NSO. The seven steps of the DQO process presented in Section A.3.0 through Section A.9.0 were developed in accordance with U.S. Environmental Protection Agency (EPA) Guidance for the Data Quality Objectives Process (EPA, 2000b) and EPA Guidance for Quality Assurance Project Plans (EPA, 2002). The DQO process presented herein is based on the EPA Quality System Document for DQOs entitled Data Quality Objectives Process for Hazardous Waste Site Investigations, (EPA, 2000a) and the CAS-specific information presented in Section A.2.0.

The DQO process presents a judgmental sampling approach. In general, the procedures used in the DQO process provide:

- A scientific basis for making inferences about a site (or portion of a site) based on environmental data or process knowledge.

- A basis for defining decision performance criteria and assessing the achieved decision quality of the data collection design.

- Criteria for knowing when site investigators should stop data collection (i.e., when sufficient information is available to support decisions).

- A basis for demonstrating an acceptable level of confidence in the sampling approach to generate the appropriate quantity and quality of information necessary to minimize the potential for making decision errors.
A.2.0 Background Information

Only one CAS comprises CAU 565 and is located in Area 26 of the NTS, as shown in Figure 1-1:

• CAS 26-99-04, Ground Zero Soil Samples

The following section provide a CAS description, physical setting and operational history, release information, and previous investigation results for CAS 26-99-04 in CAU 565. The CAS-specific contaminants of potential concern (COPCs) are provided in the following section. Many of the COPCs are based on a conservative evaluation of possible site activities considering the incomplete history of the CAS. Targeted contaminants are defined as those contaminants that are known or that could be reasonably suspected to be present within the CAS based on previous sampling or process knowledge.

A.2.1 Corrective Action Site 26-99-04, Ground Zero Soil Samples

An estimated 80,000 samples may be stored in Building 26-2106, in Area 26 of the NTS. Corrective Action Site 26-99-04 consists of the source materials (samples) stored inside Building 26-2106, including soil and vegetative samples. There is a possibility that other media may also be present such as animal samples, however, this is not confirmed. Building 26-2106 was designed as a pre-fabricated metal warehouse. Building 26-2106 was one of the three pre-fabricated metal buildings in the Port Gaston Area constructed in 1958 to support nuclear activities being conducted. The warehouse has been used as a sample storage facility since the late 1970s.

Observations made during a recent site visit indicate the warehouse to be in good condition, however, entry was not allowed due to hantavirus and radiological concerns. Engineering drawings reflect the building to be a pre-fabricated, insulated, metal building that was designed to meet 1958 building codes. The building currently has no water, power, or support utilities. The building’s dimensions are approximately 80 x 50 x 14 ft, and there is a mezzanine level within the northwest corner of the building.

The samples stored in Building 26-2106 came from a variety of sources. The sources included studies performed by the UCLA, UW, and the NAEG. The UCLA samples are fallout samples taken...
from within a 500-mi radius of the NTS. Lawrence Livermore National Laboratories in conjunction with the UW performed research on samples collected from the Pacific Island. Samples were collected from the Bikini and Rongelap Atolls. The NAEG took thousands of samples during the 1970s and 1980s to support transuranics studies.

Approximately 60 percent of the samples have been unboxed, checked against archives, and placed on shelves; however, approximately 40 percent have not been inventoried and are still boxed and stored on the building floor. The sample containers are either metal cans (1 pint to 1 gal), nalgene bottles (500 mL to 1 liter), or large 5-gal metal buckets. Some of the samples are in deteriorating containers. Figure A.2-1 is a sketch from a 1996 REECo Operational Logbook, which depicts the layout of inventoried samples as of October 31, 1996.

*Previous Investigation Results* - Radiological analyses of the samples stored inside the building were performed on the samples during the time of collection (1970 to 1980s), and some of the results are available; however, a complete data set was not available, and it is unclear if results could be matched to specific containers. Therefore, the available data will not be used, but is retained in project files.

A surface radiological survey of the area around the building and site visit was performed on May 18, 2006 (Figure A.2-2). Survey results indicated no elevated (i.e., greater than 2 times background) radiological readings outside of Building 26-2106, except for two locations along the north wall of the building. Although these locations had elevated readings, their presence is believed to be attributed to shine from the samples inside Building 26-2106 and not to any release from the building. Site photographs (Figure A.2-3 and Figure A.2-4) were taken and observations made on the integrity of the building integrity. No migration pathways were identified from Building 26-2106 into the surrounding soils outside the building.
Figure A.2-1
Building Sketch of CAS 565, Stored Samples

Legend
A - Carlsbad Samples
B - Carlsbad Samples
C - Carlsbad Samples
D - Unknown Samples
E - Unknown Samples
F - Post Shot Samples
G - Unknown Samples

Uncontrolled When Printed
Figure A.2-2
Surface Radiological Survey of Building 26-2106 Exterior
Figure A.2-3
Photograph of Building 26-2106

Uncontrolled When Printed
Figure A.2-4
Photograph of Building 26-2106 Interior

Uncontrolled When Printed
**A.3.0 Step 1 - State the Problem**

The problem statement for CAU 565 is: “Existing information on the nature and extent of potential contamination is insufficient to evaluate and recommend closure of CAU 565.”

**A.3.1 Planning Team Members**

The DQO planning team consists of representatives from NDEP, NNSA/NSO, SNJV, and BN. The DQO planning team met on June 1, 2006, for the DQO meeting. The primary decision-makers are the NDEP and NNSA/NSO representatives.

**A.3.2 Conceptual Site Model**

The CSM is used to organize and communicate information about site characteristics. It reflects the best interpretation of available information at any point in time. The CSM is a primary vehicle for communicating assumptions about release mechanisms, potential migration pathways, or specific constraints. It provides a summary of how and where contaminants are expected to move and what impacts such movement may have. It is the basis for assessing how contaminants could reach receptors both in the present and future. The CSM describes the most probable scenario for current conditions at each site and define the assumptions that are the basis for identifying appropriate sampling strategy and data collection methods. Accurate CSMs are important as they serve as the basis for all subsequent inputs and decisions throughout the DQO process.

The CSM was developed for CAU 565 using information from the physical setting, potential contaminant sources, release information, historical background information, knowledge from similar sites, and physical and chemical properties of the potentially affected media and COPCs.

The CSM consists of:

- Potential contaminant releases including media subsequently affected.
- Release mechanisms (the conditions associated with the release).
- Potential contaminant source characteristics including contaminants suspected to be present and contaminant-specific properties.
• Site characteristics including physical, topographical, and meteorological information.

• Migration pathways and transport mechanisms that describe the potential for migration and where the contamination may be transported.

• The locations of points of exposure where individuals or populations may come in contact with a COC associated with the CAS.

• Routes of exposure where contaminants may enter the receptor.

If additional elements are identified during the investigation that are outside the scope of the CSM, the situation will be reviewed and a recommendation will be made as to how to proceed. In such cases, NDEP and NNSA/NSO will be notified and given the opportunity to comment on, and concur with, the recommendation.

The applicability of the CSM is summarized in Table A.3-1 and discussed below. Table A.3-1 provides information on CSM elements that will be used throughout the remaining steps of the DQO process.

A.3.2.1 Contaminant Release

The most likely location of contamination from releases is inside Building 26-2106 due to leakage or breakage of sample containers.

A.3.2.2 Potential Contaminants

The COPCs were identified during the planning process through the review of site history, process knowledge, personal interviews, past investigation efforts (where available), and inferred activities associated with the CASs. The list of COPCs is intended to encompass all of the contaminants that could potentially be present at this CAS. Radiological COPCs include Am-241, Pu-238, 239/240, Co-60, Cs-134,137, Sr-90, Eu-152/154/155, and U-234/235/238. The COPCs applicable to DQO decision samples for CAU 565 are defined as the constituents reported from the analytical methods stipulated in Table A.3-2.

During the review of site history documentation, process knowledge information, personal interviews, past investigation efforts (where available), and inferred activities associated with the
CAS, some of the COPCs were identified as targeted contaminants at specific CASs. Targeted contaminants are those COPCs for which evidence in the available site and process information suggests that they may be reasonably expected to be present at the CAS. The targeted contaminants are required to meet a more stringent completeness criteria than other COPCs thus providing greater protection against a decision error (see Section A.3.2). Targeted contaminants for CAU 565 are identified in the NV/YMP Radiological Control Manual (Table 2-2) and include Sr-90 and U-235/238.

<table>
<thead>
<tr>
<th>CAS Identifier</th>
<th>26-99-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS Description</td>
<td>Ground Zero Soil Samples</td>
</tr>
<tr>
<td>Site Status</td>
<td>Site is inactive and/or abandoned</td>
</tr>
<tr>
<td>Exposure Scenario</td>
<td>Industrial</td>
</tr>
<tr>
<td>Sources of Potential Contamination</td>
<td>Leaking or broken containers</td>
</tr>
<tr>
<td>Location of Contamination/Release Point</td>
<td>Inside Building near location(s) of stored samples</td>
</tr>
<tr>
<td>Amount Released</td>
<td>Unknown</td>
</tr>
<tr>
<td>Affected Media</td>
<td>Building interior surfaces, such as concrete floor</td>
</tr>
<tr>
<td>Potential Contaminants</td>
<td>Radiological</td>
</tr>
<tr>
<td>Transport Mechanisms</td>
<td>Precipitation and wind serves as a potential driving force for migration of contaminants inside building</td>
</tr>
<tr>
<td>Migration Pathways</td>
<td>Leakage from sample containers to the building floor. No migrations pathways exist to the outside of the building</td>
</tr>
<tr>
<td>Lateral and Vertical Extent of Contamination</td>
<td>Contamination, if present, is expected to remain inside building. Lateral and vertical extent of contamination is assumed to be within the spatial boundaries of the building walls and floor which provide an effective barrier to lateral and vertical migration.</td>
</tr>
<tr>
<td>Exposure Pathways</td>
<td>The potential for contamination exposure is limited to industrial and construction workers, and military personnel conducting training inside building. These human receptors may be exposed to COPCs through oral ingestion, inhalation, dermal contact (absorption) of soil and/or debris due to inadvertent disturbance of these materials or irradiation by radioactive materials.</td>
</tr>
</tbody>
</table>

COPC = Contaminant of potential concern
A.3.2.3 Contaminant Characteristics

Contaminant characteristics include, but are not limited to: solubility, density, and adsorption potential. In general, contaminants with low solubility, high affinity for media, and high density can be expected to be found relatively close to release points. Contaminants with small particle size, high solubility, low density, and/or low affinity for media are found further from release points or in low areas where evaporation of ponding will concentrate dissolved contaminants.

Table A.3-2
Analytical Program\(^a\)
(Includes Waste Characterization Analyses)

<table>
<thead>
<tr>
<th>Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiological Only</td>
</tr>
<tr>
<td>Direct readings from Electra</td>
</tr>
<tr>
<td>Swipe results for Radionuclides listed in the NV/YMP Radiological Control Manual (Table 2-2)</td>
</tr>
<tr>
<td>Waste Characterization Analyses</td>
</tr>
<tr>
<td>Total Petroleum Hydrocarbons-Diesel-Range Organics</td>
</tr>
<tr>
<td>Total Petroleum Hydrocarbons-Gasoline-Range Organics</td>
</tr>
<tr>
<td>Polychlorinated Biphenyls</td>
</tr>
<tr>
<td>TCLP Semivolatile Organic Compounds</td>
</tr>
<tr>
<td>TCLP Volatile Organic Compounds</td>
</tr>
<tr>
<td>TCLP Pesticides</td>
</tr>
<tr>
<td>Herbicides</td>
</tr>
<tr>
<td>TCLP Resource Conservation and Recovery Act Metals</td>
</tr>
<tr>
<td>Gamma Spectroscopy(^b)</td>
</tr>
<tr>
<td>Isotopic Uranium</td>
</tr>
<tr>
<td>Isotopic Plutonium</td>
</tr>
<tr>
<td>Strontium-90</td>
</tr>
<tr>
<td>Gross Alpha/Beta, and Tritium (for rinsate)</td>
</tr>
</tbody>
</table>

\(^a\)The contaminants of potential concern are the constituents reported from the analytical methods listed.

\(^b\)Results of gamma analysis will be used to determine whether further radioanalytical analysis is warranted.
A.3.2.4 Site Characteristics

Building 26-2106 is in good condition with no apparent leaks. The floor is made of concrete and shows no significant cracks.

A.3.2.5 Migration Pathways And Transport Mechanisms

Leakage from sample containers to the concrete floor inside the building is a migration pathway. Building 26-2106 was not designed to release contaminants, there are no floor drains or other piping leading to the outside environment, therefore, no migration pathways exists to the outside of Building 26-2106.

A.3.2.6 Exposure Scenarios

Human receptors may be building occupants exposed to COPCs through oral ingestion, inhalation, dermal contact (absorption) of residue and debris due to inadvertent disturbance of these materials. The land-use is in the Research, Test and Experiment Zone and the exposure scenario for the CAU is an Industrial Area. These are based on NTS current and future land use.
A.4.0 Step 2 - Identify the Decisions

Step 2 of the DQO process identifies the decision statements and defines appropriate alternative actions that may be taken, depending on the answer to the decision statements.

A.4.1 Decision Statement

The DQO Decision statement is: “Does radiological contamination remain within the building at activities above posting criteria as defined in the NV/YMP Radiological Control Manual?” Direct reading and swipe surveys of the Building 26-2106 interior will be conducted according to the requirements in the NV/YMP Radiological Control Manual. If radiological contamination is detected, then corrective action measures will be implemented (decontamination or radiological posting).

A.4.2 Alternative Actions to DQO Decision

If radiological contamination does not remain in the building above the allowable removable and/or fixed values as defined in the NV/YMP Radiological Control Manual, then the decision will be that the building does not require radiological postings and controls, no further action will be necessary, and the building can be returned to the Balance of Plant for disposition or reuse. If radiological contamination is in the building above the allowable removable and/or fixed values as defined in the NV/YMP Radiological Control Manual then corrective measures will be implemented (decontamination or radiological postings).
A.5.0 **Step 3 - Identify the Inputs to the Decision**

This step identifies the information needed, determines sources for information, and identifies sampling and analysis methods that will allow reliable comparisons with FALs.

### A.5.1 Information Needs

To resolve the DQO Decision (Does radiological contamination remain within the building at activities above posting criteria), samples need to be collected and analyzed following the criteria as defined in the *NV/YMP Radiological Control Manual*:

- Samples (both swipe and direct readings) must be collected in accordance with the *NV/YMP Radiological Control Manual*.

- The analytical suite selected must be sufficient to identify any radiological contamination present in the samples.

### A.5.2 Sources of Information

Information to satisfy the DQO Decision will be generated by collecting swipe and direct reading or other appropriate sampling methods. These samples will be analyzed in-house using appropriate instruments. These data will be used to make DQO decisions. Sample collection and handling activities will follow standard procedures.

#### A.5.2.1 Sample Locations

The sampling approach for CAU 565 will follow the criteria specified in the *NV/YMP Radiological Control Manual*.

#### A.5.2.2 Analytical Methods

Analytical methods are available to provide the data needed to resolve the decision statement. The analytical methods used include direct readings (using an Electra or equivalent instrument) and analysis of swipe (removable) samples using a swipe counter (gas slope proportional counter or equivalent instrument).
A.6.0  Step 4 - Define the Boundaries of the Study

The purpose of this step is to define the population of interest, define the spacial boundaries, determine practical constraints on data collection, and define the scale of decision making.

A.6.1  Populations of Interest

The population of interest to resolve the DQO Decision (“Does radiological contamination remain within the building at activities above posting criteria?”) is the interior of Building 26-2106 and the contents following removal of samples, shelving, and debris.

A.6.2  Spatial Boundaries

Spatial boundaries are the maximum lateral and vertical extent of expected contamination. The spatial boundaries are those within Building 26-2106 (walls, ceiling, and floor). Contamination found beyond these boundaries may indicate a flaw in the CSM and may require re-evaluation of the CSM before the investigation could continue.

A.6.3  Practical Constraints

Practical constraints such as military activities at the NTS, weather (i.e., high winds, rain, lightning, extreme heat), utilities, Hantavirus concerns, threatened or endangered animal and plants, unstable or steep terrain, and/or access restrictions may affect the ability to investigate this site.

A.6.4  Define the Scale of Decision Making

The scale of decision making in the DQO Decision is defined as the CAS. Any radiological contamination detected at any location within the CAS will cause the determination that the CAS is contaminated and needs corrective action measures.
A.7.0 Step 5 - Develop a Decision Rule

This step develops a decision rule (“If..., then...”) statement that defines the conditions under which possible alternative actions will be chosen. In this step, we specify the statistical parameters that characterizes the population of interest, specify the FALs, confirm that detection limits are capable of detecting FALs, and present decision rules.

A.7.1 Population Parameters

The population parameter is the observed radiological concentration from each individual swipe sample and direct reading location from the building and includes:

- Removable radioactive contamination
- Average total radioactivity
- Maximum total radioactivity

Each sample result will be compared to the values listed in Table 2-2 of the NV/YMP Radiological Control Manual to determine the appropriate resolution to the DQO Decision.

A.7.2 Decision Rules

The decision rules applicable to the DQO Decision are:

- If the population parameters exceed the allowable removable and/or fixed contamination as defined in Table 2-2 of the NV/YMP Radiological Control Manual, then corrective action measures will be recommended, or appropriate radiological postings and controls will be implemented.

- If the population parameters do not exceed the allowable removable and/or fixed contamination as defined in Table 2-2 of the NV/YMP Radiological Control Manual, then the decision will be that the building does not require radiological postings and controls, no further action will be necessary, and the building will be returned to the Balance of Plant.

A.7.3 Action Levels

The Action Levels (ALs) presented in this section are to be used to conduct the radiological survey of Building 26-2106. The ALs for radiological contaminants are based on the values listed in Table 2-2 of the NV/YMP Radiological Control Manual.
A.7.4 Measurement and Analysis Sensitivity

The measurement and analysis methods used are capable of measuring contaminant concentrations at or below the values listed in Table 2-2 of the NV/YMP Radiological Control Manual. The instruments will have current calibrations and will be used according to applicable procedures.
A.8.0 **Step 6 - Tolerable Limits on Decision Errors**

The purpose of this step is to specify performance criteria for the decision rule. Setting tolerable limits on decision errors requires the planning team to weigh the relative effects of threat to human health and the environment, expenditure of resources, and consequences of an incorrect decision.

This section provides an assessment of the possible outcomes of DQO decisions and the impact of those outcomes if the decisions are in error.

The baseline condition (i.e., null hypothesis) and alternative condition for the DQO Decision are:

- **Baseline condition** – Radiological contamination will remain inside Building 26-2106 after the removal of the samples and debris.
- **Alternative condition** – Radiological contamination will not remain inside Building 26-2106 after the removal of the samples and debris.

Decisions and/or criteria have false negative or false positive errors associated with their determination. The impact of these decision errors and the methods that will be used to control these errors are discussed in the following subsections. In general terms, confidence in DQO decisions based on judgmental sampling results will be established qualitatively by:

- Development of and concurrence with CSMs (based on process knowledge) by stakeholder participants during the DQO process.
- Testing the validity of conceptual site models based on investigation results.
- Ensuring the quality of the data by using calibrated instruments and following established procedures.

**A.8.1 False Negative Decision Error**

The false negative decision error indicates that radiological contamination is not present inside Building 26-2106 when it actually is. The building would not be posted for radiation and no corrective measures would be implemented; resulting in potential exposure to site workers.
The false negative decision error (where consequences are more severe) for sampling is controlled by meeting the criteria established in the *NV/YMP Radiological Control Manual*, Section 2.2 “Contamination and Control Levels.”

**A.8.2 False Positive Decision Error**

The false positive decision error indicates that radiological contamination is present inside Building 26-2106 when it actually is not. The building would be posted for radiation and corrective measures would be implemented. This would result in unnecessary expenditures of resources and restricting access to Building 26-2106.

The false positive decision error (where consequences are less severe) for sampling also is controlled by meeting the criteria established in the *NV/YMP Radiological Control Manual*, Section 2.2 “Contamination and Control Levels.”
A.9.0  Step 7 - Optimize the Design for Obtaining Data

This section provides the general approach for obtaining the information necessary to resolve the DQO Decision. Sampling schemes will be implemented to select sample locations and evaluate analytical results for CAU 565 to satisfy the requirements in the NV/YMP Radiological Control Manual.
A.10.0 References

EPA, see U.S. Environmental Protection Agency.


Appendix B

Project Organization
B.1.0 Project Organization

The NNSA/NSO Federal Sub-Project Director is Kevin Cabble. He can be contacted at (702) 295-5000. The NNSA/NSO Task Manager is Sabine Curtis. She can be contacted at (702) 295-0542.

The identification of the project Health and Safety Officer and the Quality Assurance Officer can be found in the appropriate plan. However, personnel are subject to change, and it is suggested that the appropriate DOE Project Manager be contacted for further information. The Task Manager will be identified in the FFACO Monthly Activity Report before the start of field activities.
Appendix C

Nevada Division of Environmental Protection
Comments
## NEVADA ENVIRONMENTAL RESTORATION PROJECT
### DOCUMENT REVIEW SHEET

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<td>Draft Draft Corrective Action Investigation Plan for Corrective Action Unit 565: Area 26 Ground Zero Stored Samples, Nevada Test Site, Nevada</td>
<td>3. Revision Number:</td>
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<td>4. Originator/Organization:</td>
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<td>5. Responsible NNSA/NV ERP Project Manager:</td>
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<td>6. Date Comments Due:</td>
</tr>
<tr>
<td>7. Review Criteria:</td>
<td>Full</td>
<td>8. Reviewer/Organization/Phone No:</td>
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<tr>
<td>1.) Section 3.1 Conceptual Site Model, Page 10</td>
<td>Mandatory</td>
<td>A graphical illustration of the Conceptual Site Model is called for in the Standard Outline. If it is felt that a graphical illustration is not practical for this case, the tabular illustration in Table A.3-1 of Appendix A could be used.</td>
<td>Table A.3-1 has been copied into Section 3.0 of the document and numbered Table 3-1. The last sentence in the paragraph under Section 3 revised to read: The CSM for CAU 565 is illustrated in Table 3.0 and additional details are located in Appendix A.</td>
</tr>
<tr>
<td>2.) Section 5.3.1 Sanitary Waste, Page 21</td>
<td>Mandatory</td>
<td>Note that all wastes must be shown to meet landfill disposal requirements before disposal.</td>
<td>The first sentence in Section 5.3.1. will be revised from: “Sanitary IDW generated at each CAS will be collected, managed, and disposed of in accordance with the sanitary waste regulations and the permits for operation of the NTS 10c Industrial Waste Landfill,” to read: Sanitary IDW generated at each CAS that is shown to meet landfill disposal requirements will be collected, managed, and disposed of in accordance with the sanitary waste regulations and the permits for operation of the NTS 10c Industrial Waste Landfill.</td>
</tr>
<tr>
<td>3.) Section 5.4.3 Management of Soil, Page 26</td>
<td>Mandatory</td>
<td>Soil disposal must also consider the RESRAD Computer Code parameters as agreed to between NNSA/NSO and NDEP.</td>
<td>This comment was discussed with NDEP on July 26, 2006 and it was decided this comment does not apply because radiation contaminated soil will not be left on site.</td>
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<tr>
<td>4.) Management of Debris, Page 26</td>
<td>Mandatory</td>
<td>A statement should be added here to describe the procedures to be followed in the event contamination is found in the building walls, roof, and/or foundation. (The explanation in Section A.4.2 of Appendix A is a good example).</td>
<td>The following sentence was added to the last paragraph in the Management of Debris Section, &quot;If radiological contamination (i.e., building walls, roof, and/or foundation) remains in the building above the allowable removables and/or fixed values as defined in the NV/YMP Radiological Control Manual then corrective measures will be implemented (decon or radiological postings)&quot;.</td>
</tr>
<tr>
<td>5.) Section 2.2 Operational History, Page 7</td>
<td>Mandatory</td>
<td>The last complete sentence shown on the page has a typo in the work 'the'.</td>
<td>Revised typo in last complete sentence shown on the page. Changed &quot;teh&quot;, to &quot;the&quot;.</td>
</tr>
<tr>
<td>6.) Section 2.5 Investigative Background, Page 9</td>
<td>Mandatory</td>
<td>The last paragraph, next to last sentence, should reference Figures A.2.3 and A.2.4.</td>
<td>Revised per comment.</td>
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