

Nevada
Environmental
Restoration
Project

DOE/NV--1059



Corrective Action Plan for
Corrective Action Unit 528:
Polychlorinated Biphenyls
Contamination, Nevada Test Site,
Nevada

Controlled Copy No.: _____

Revision: 0

June 2005

Environmental Restoration
Division



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

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**CORRECTIVE ACTION PLAN
FOR CORRECTIVE ACTION UNIT 528:
POLYCHLORINATED BIPHENYLS CONTAMINATION
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 PLAN
FOR CORRECTIVE ACTION UNIT 528:
POLYCHLORINATED BIPHENYLS CONTAMINATION
NEVADA TEST SITE, NEVADA**

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ACRONYMS AND ABBREVIATIONS

| | |
|-----------------|------------------------------------------------------------------------------------------|
| BN | Bechtel Nevada |
| CA | Contamination Area |
| CADD | Corrective Action Decision Document |
| CAIP | Corrective Action Investigation Plan |
| CAP | Corrective Action Plan |
| CAS | Corrective Action Site(s) |
| CAU | Corrective Action Unit |
| DOE | U.S. Department of Energy |
| DQI | Data Quality Indicator(s) |
| DQO | Data Quality Objective(s) |
| DRO | Diesel-range organics |
| EPA | U.S. Environmental Protection Agency |
| FFACO | Federal Facility Agreement and Consent Order |
| kg | kilogram(s) |
| LLW | Low-level waste |
| mg/kg | milligrams per kilogram |
| NDEP | Nevada Division of Environmental Protection |
| NEPA | National Environmental Policy Act |
| NNSA/NSO | U.S. Department of Energy National Nuclear Security Administration Nevada Site Office |
| NTS | Nevada Test Site |
| NV | Nevada |
| OI | Organization Instruction |
| PAL | Preliminary action limit(s) |
| PCB | Polychlorinated biphenyls |
| ppm | parts per million |
| QA/QC | Quality Assurance/Quality Control |
| REOP | Real Estate/Operations Permit |
| RMA | Radioactive Materials Area |
| RPD | Relative percent difference |
| RWP | Radiological Work Permit |
| TCC | Test Cell C |
| TPH | Total Petroleum Hydrocarbons |
| TSCA | Toxic Substance Control Act |
| TSD | Treatment, storage, and disposal |
| UR | use restriction |
| yd ³ | cubic yard(s) |

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EXECUTIVE SUMMARY

Corrective Action Unit (CAU) 528: Polychlorinated Biphenyls Contamination is listed in Appendix III of the *Federal Facility Agreement and Consent Order* (FFACO, 1996) and is located in Area 25 of the Nevada Test Site. CAU 528 was created to address polychlorinated biphenyl (PCB) contamination identified during the CAU 262 corrective action investigation. CAU 528 consists of one Corrective Action Site (CAS): CAS 25-27-03, Polychlorinated Biphenyls Surface Contamination.

CAU 528 corrective action investigation activities were performed from August 24, 2003, through January 8, 2004. The majority of the areas in CAS 25-27-03 are located within the Test Cell C (TCC) facility fence in an area currently posted as a radioactive material area. The purpose of the corrective action investigation was to define the nature and extent of the PCB contamination present. Process knowledge suggests that the PCB contamination is due to either the failure of an electrical transformer, or from the application of oils to control dust during the construction and operation of the TCC facility.

The results of the site characterization are reported in the *CAU 528 Corrective Action Decision Document* (CADD) (U. S. Department of Energy, National Nuclear Security Administration Nevada Site Office [NNSA/NSO], 2004). The site characterization identified total petroleum hydrocarbons (TPH) as diesel range organics (DRO) and/or PCBs present in soils at concentrations exceeding preliminary action levels (PAL) at 12 distinct areas. In addition, at Area 7A and 7B, reported PCB concentrations in soil exceeded the Toxic Substance Control Act (TSCA) action level of 50 parts per million (ppm) (NNSA/NSO, 2004).

The recommended closure alternative for CAU 528 stated in the CADD is Closure in Place with Administrative Controls (NNSA/NSO, 2004). CAU 528 closure activities will include the following:

- Implement a use restriction (UR) and post UR warning signs for each of the 12 areas identified as contaminated with PCB and/or TPH-DRO. The majority of the areas are located within the current TCC facility fence, which is locked to control site access. The current TCC facility fence will remain in place after the closure of TCC (CAU 116).
- TSCA regulations recommend removing soils with PCB concentrations greater than 50 parts per million (ppm), but allowing soils with PCB concentrations less than 25 ppm and located in low-occupancy areas to be closed in place with a UR. For this reason and based on the site characterization results presented in the CADD, up to 9.5 cubic yards of PCB-contaminated soil will be removed from Areas 7A and 7B. This is an approximate volume; the actual amount of contaminated soil removed will be determined by field screening or laboratory analysis of soil samples for PCBs. Once field screening or sample analysis indicates that the level of PCBs remaining on site is less than 25 ppm, verification soil samples will be collected and submitted for laboratory analysis. Once analytical results verify that the level of PCBs remaining is less than 25 ppm, the excavations will be backfilled with clean fill and UR warning signs posted.

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1.0 INTRODUCTION

This Corrective Action Plan (CAP) has been prepared for Corrective Action Unit (CAU) 528: Polychlorinated Biphenyls Contamination, according to the *Federal Facility Agreement and Consent Order* (FFACO, 1996). CAU 528 consists of one Corrective Action Site (CAS) 25-27-03: Polychlorinated Biphenyls Surface Contamination, located in Area 25 of the Nevada Test Site (NTS). The NTS is located approximately 65 miles northwest of Las Vegas, Nevada.

CAS 25-27-03, Polychlorinated Biphenyls Surface Contamination, is located at the Test Cell C (TCC) facility, with the majority of the CAS within the TCC facility security fence (Figure 1). The TCC is currently posted as a Radioactive Materials Area (RMA) and site access is controlled.

Polychlorinated biphenyls (PCBs) contamination exceeding the Toxic Substance Control Act (TSCA) action level of 50 parts per million (ppm) (Code of Federal Regulations, 2003) and total petroleum hydrocarbons (TPH) exceeding the Nevada State action level of 100 milligrams per kilogram (mg/kg) (Nevada Administrative Code, 2003) were identified as present in soils during the CAU 262 corrective action investigation. CAS 25-04-07, Septic System, associated with TCC Building 3210 was clean closed as part of the CAU 262 closure and is not considered a potential source of PCB or TPH contamination. CAU 528 was created to address the presence of PCBs in soil located around the TCC concrete pad.

1.1 PURPOSE

CAU 528 contains one CAS, 25-27-03: Polychlorinated Biphenyls Surface Contamination, consisting of the Substation #3 electrical transformer concrete pad and the unpaved soil areas around the TCC concrete pad. A detailed site history is presented in the CAU 528 Corrective Action Investigation Plan (CAIP) (U. S. Department of Energy, National Nuclear Security Administration Nevada Site Office [NNSA/NSO], 2003). 12 distinct soil areas were identified during site characterization activities (Figure 2).

This CAP provides the detailed scope of work required to implement the recommended corrective actions for CAU 528 as specified in the CAU 528 Corrective Action Decision Document (CADD) (NNSA/NSO, 2004). Site characterization work was performed from August 24, 2003 through January 8, 2004 and identified 12 areas impacted with PCBs and/or TPH at concentrations above preliminary action levels (PALs). In addition, most of the 12 areas are within the TCC facility fence which is currently posted as an RMA. The areas within the TCC facility are impacted with radionuclides at levels above background concentrations. The recommended corrective action alternative for CAU 528 is Closure in Place with Administrative Controls. This corrective action alternative applies to each of the 12 areas identified during site characterization (Figure 2).

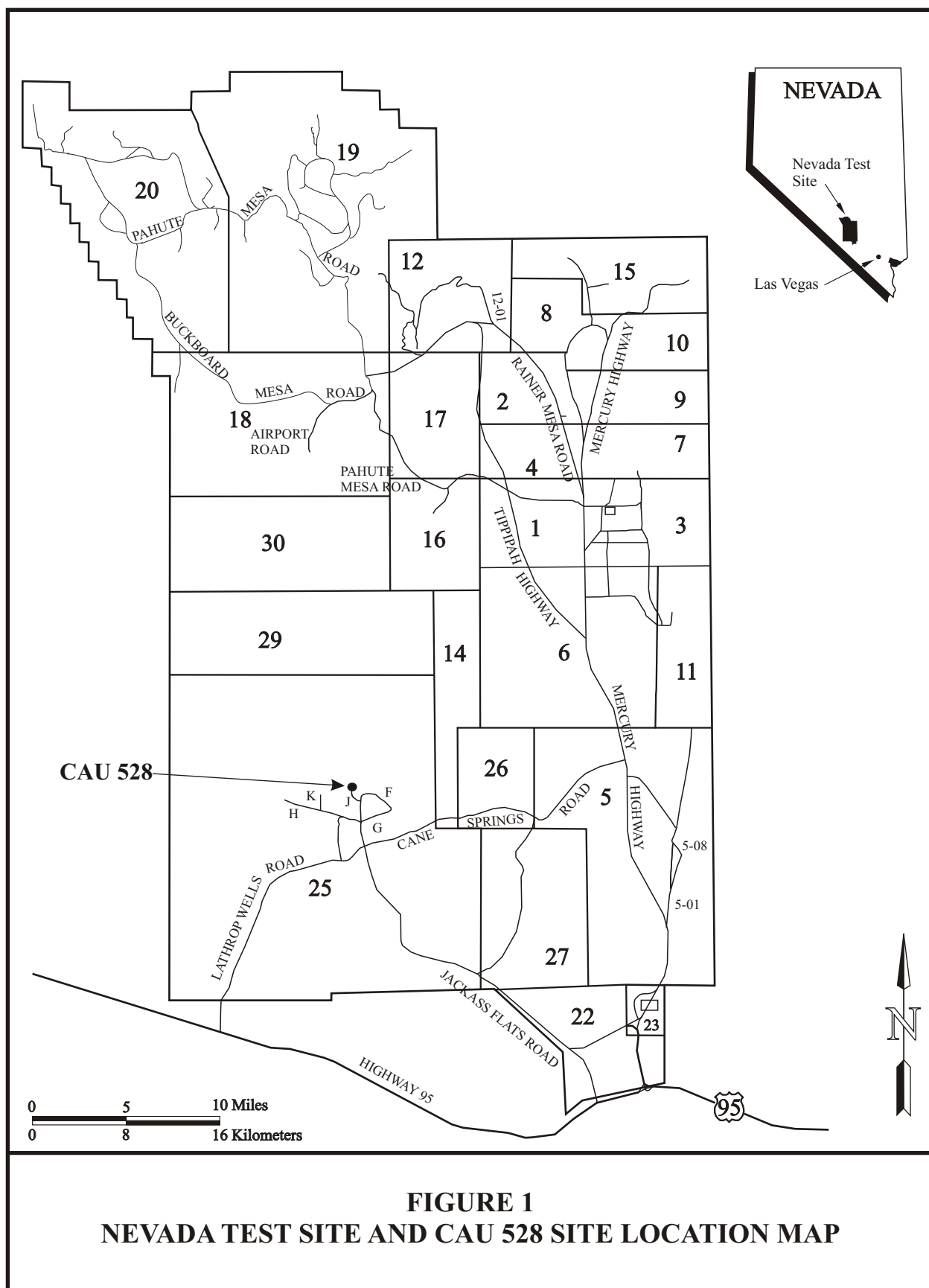
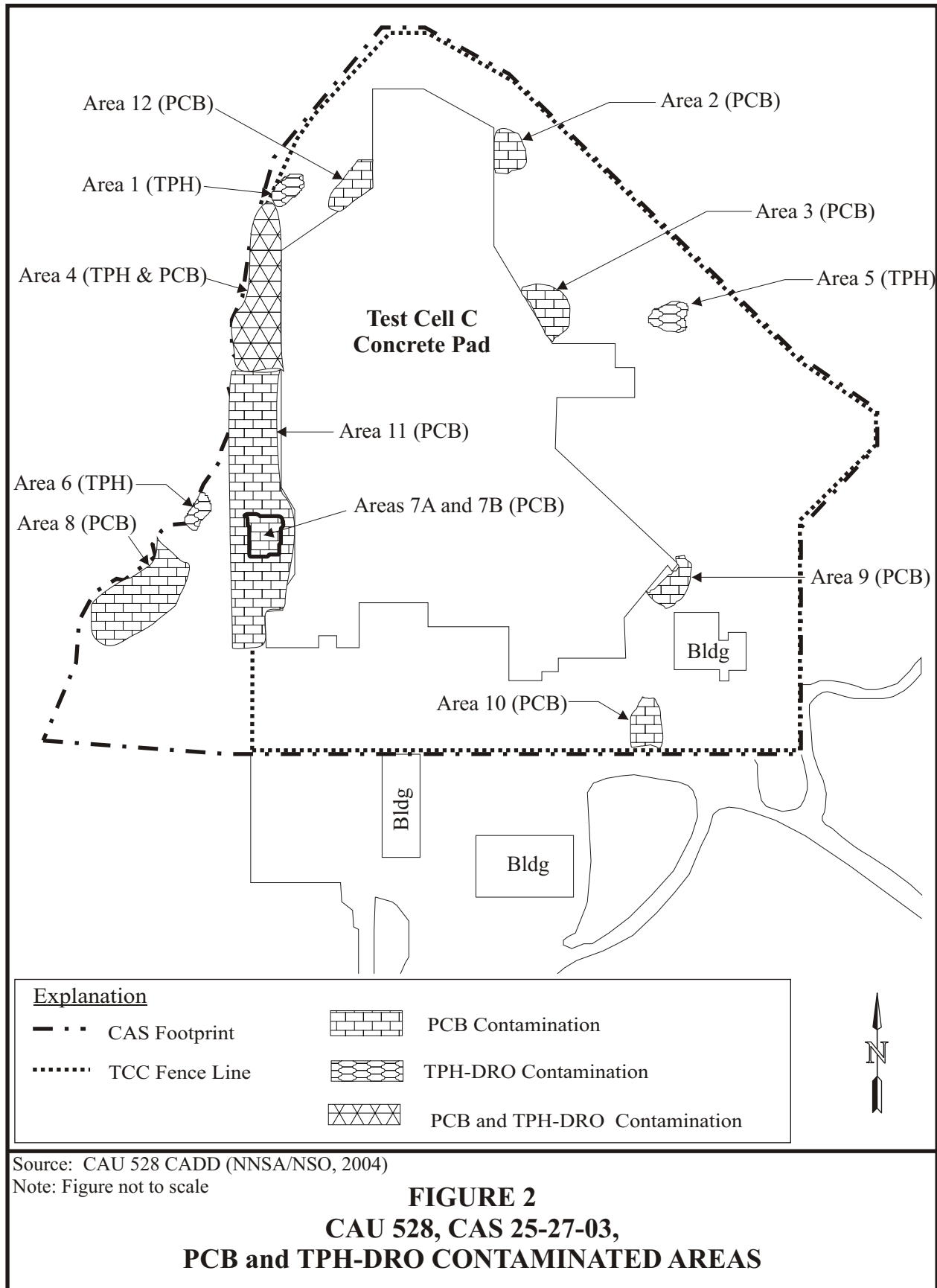


FIGURE 1
NEVADA TEST SITE AND CAU 528 SITE LOCATION MAP



1.2 SCOPE

The CAU 528 site investigation identified 12 areas located around the TCC concrete pad with levels of PCBs and/or TPH as diesel range organics (DRO) in soil at concentrations exceeding PALs. The recommended closure alternative for CAU 528 presented in the CADD is Closure in Place with Administrative Controls for all 12 areas within CAS 25-27-03 (NNSA/NSO, 2004). Most of the 12 areas are within the current fenced boundary of the TCC RMA and access to the areas is restricted. At each of the 12 areas, UR warning signs will be posted and URs implemented. All warning signs will be posted according to the FFACO UR posting guidance (FFACO, 2003). In addition, at two locations soil with PCB concentrations greater than the TSCA action level will be removed and disposed. Soil samples will be collected to verify that PCB concentrations remaining in the soil are less than 25 ppm. The two areas will be posted as PCB sites and URs implemented. Specific details of the corrective actions to be performed are presented in Section 2.0 of this report.

1.3 CORRECTIVE ACTION PLAN CONTENTS

This CAP includes the following sections and appendices:

| | |
|---------------------------|-------------------------------------------------------------------|
| Section 1.0 | Introduction |
| Section 2.0 | Detailed Statement of Work |
| Section 3.0 | Schedule |
| Section 4.0 | Post-Closure Plan |
| Section 5.0 | References |
| Appendix A.1 | Engineering Specifications and Drawings (contains no information) |
| Appendix A.2 | Sampling and Analysis Plan (contains no information) |
| Appendix A.3 | Project Organization |
| Library Distribution List | |

Note: Appendices A.1 and A.2 are included as required by the approved FFACO CAP outline, but because the information is not applicable for closure of CAU 528 or the information is covered in the main body of the CAP, Appendix A.1 and A.2 contain no material.

This report was primarily developed using information and guidance from the following documents:

- Federal Facility Agreement and Consent Order (FFACO, 1996)
- Corrective Action Decision Document for Corrective Action Unit 528 (NNSA/NSO, 2004)
- Corrective Action Investigation Plan for Corrective Action Unit 528 (NNSA/NSO, 2003)

2.0 DETAILED STATEMENT OF WORK

2.1 CORRECTIVE ACTIONS

The corrective action alternative for closure of CAU 528 identified in the CADD (NNSA/NSO, 2004) and approved by the Nevada Division of Environmental Protection (NDEP) is Closure in Place with Administrative Controls. The objective of the corrective actions is to prevent or mitigate adverse environmental impacts due to exposure and migration of surface and subsurface contamination. Table 1 shows the 12 impacted areas identified at CAS 25-27-03 during the CAU 528 site characterization and presented in the CADD (NNSA/NSO, 2004). Closure activities are detailed below and summarized in Table 1.

- **CAS 25-27-03 Areas 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, and 12 Closure Activities:**

Each of these areas (Figure 2) will be closed in place with administrative controls. This is the appropriate closure alternative for these areas because:

- 1) The majority of the areas are currently within the TCC facility fencing, which is locked and posted as an RMA. The TCC facility security fencing will remain in place after the TCC is closed (i.e., access to the CAU 528 areas within the current TCC facility will remain controlled).
- 2) An “a through k” risk assessment for the CAS presented in Section 3.3.3.1 of the CADD (NNSA/NSO, 2004) showed that closing the areas in place (i.e., leaving small amounts of TPH and PCBs in the soil at levels greater than PALs) poses no substantial risk to the groundwater.

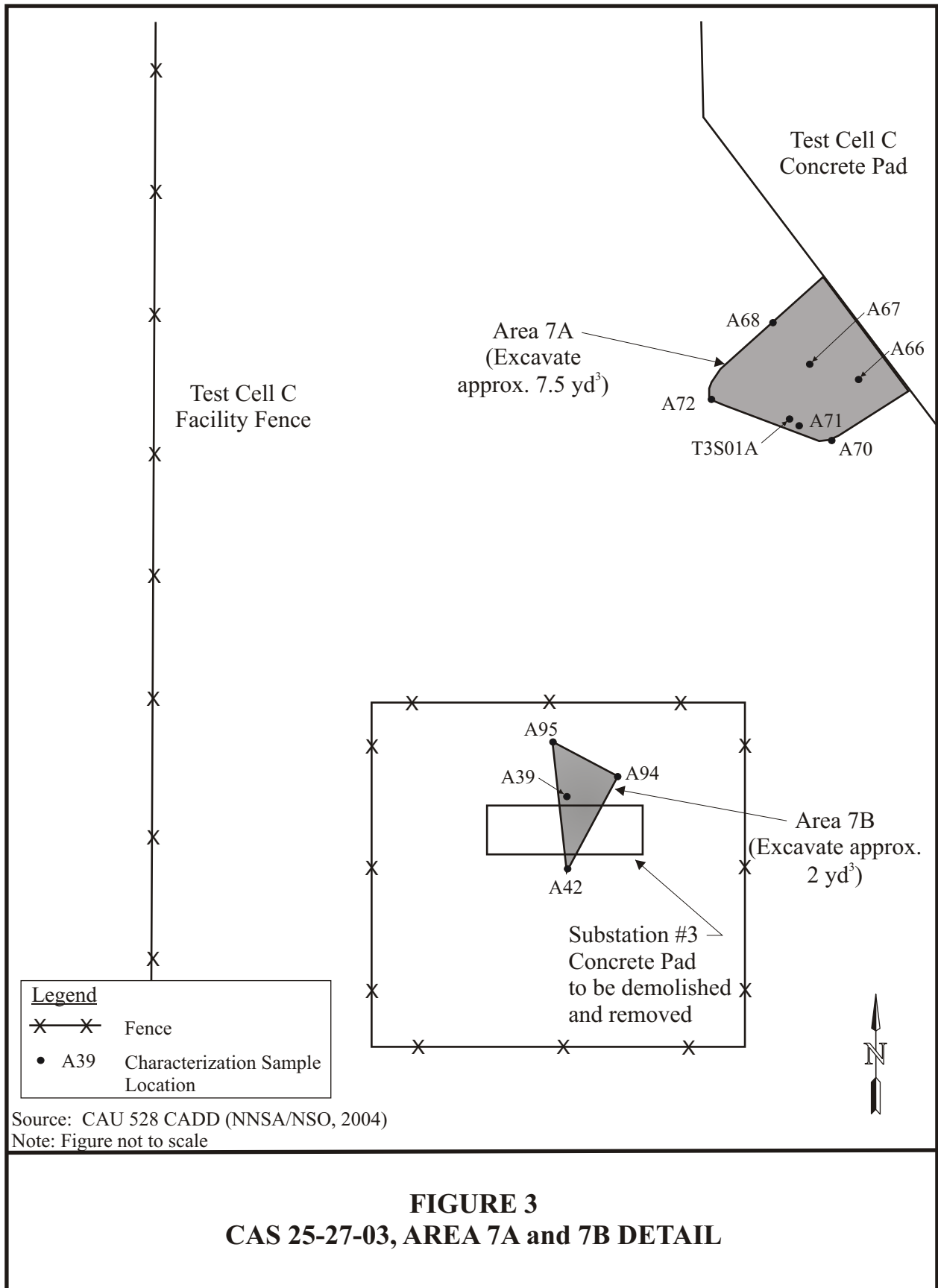
At each area, closure activities will include posting appropriate UR warning signs and implementing land URs. Appropriate UR warning signs will be posted as directed by the FFACO UR posting guidance (FFACO, 2003). For larger areas, the perimeter of the area will be posted with UR warning signs placed at the corners of the area, at a minimum. For smaller areas, a single UR warning sign will be placed at the approximate center of the area and the distance from the sign covered under the UR specified on the UR form. The coordinates of the perimeter corner locations and of the center point of the smaller areas will be determined by survey or using a Global Positioning System. The coordinates for each area will be listed on a FFACO Use Restriction Information form. A sketch of the areas, along with the completed UR form, will be included in the CAU 528 Closure Report. Details of the CAU 528 Post-Closure Plan, including site inspection and monitoring requirements, are included in Section 4 of this report.

- **Area 7A and Area 7B Excavation and Closure in Place with Administrative Controls:**
At areas 7A and 7B (Figure 3), site characterization results showed PCB concentrations in soil at levels greater than 50 ppm (NNSA/NSO, 2004). TSCA regulations recommend removal of PCB-contaminated soil with concentrations greater than or equal to 50 ppm. Based on characterization sample locations, the CADD estimates that approximately 7 cubic yards (yd³) and 2.5 yd³ of PCB-contaminated soil are present at Areas 7A and 7B respectively (NNSA/NSO, 2004). The highest levels of PCB contamination are within the 0- to 1-foot interval. To comply with the TSCA recommendations, approximately 9.5 yd³ total of PCB-impacted soil will be removed from Areas 7A and 7B. In addition, at Area 7B

the PCB-impacted soil runs under the Substation #3 concrete pad. For this reason the concrete pad will be demolished and removed during the Area 7B closure activities. The concrete pad was sampled and is not contaminated with PCBs (NNSA/NSO, 2004). The concrete waste generated from the pad demolition will be managed as sanitary or low-level waste (LLW) depending on field screening results for radionuclides.

TABLE 1. CAS 25-27-03 AREA CLOSURE ACTIVITIES

| AREA | APPROVED CLOSURE ALTERNATIVE | CLOSURE ACTIVITIES |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, and 12 | Closure in Place with Administrative Controls. | <ul style="list-style-type: none"> Post UR warning signs at each area per the FFACO UR posting guidance (FFACO, 2003). Determine site coordinates for each area by survey or by Global Positioning System equipment or equivalent. Implement land UR for each area; complete and file a "Use Restriction Information" form for each area. |
| 7A and 7B | <p>Closure in Place with Administrative Controls.</p> <p>As a best management practice remove PCB impacted soil with PCBs > 25 ppm and concrete pad.</p> | <ul style="list-style-type: none"> Demolish the substation #3 concrete pad at area 7B and place rubble in approved containers for disposal. Remove approximately 9.5 yd³ of PCB-impacted soil from two locations. Place excavated soil in approved containers and support waste characterization sampling for development of a waste disposal profile. Collect soil samples from each excavation to verify that PCB levels remaining on site are less than 25 ppm and that TSCA clean-up criteria have been met. Post UR warning signs for a PCB-impacted site per the FFACO UR posting guidance (FFACO, 2003). Determine coordinates for each area by survey or by Global Positioning System equipment or equivalent. Implement UR for each area; complete and file a UR Information form for areas. |



At both Areas 7A and 7B contaminated soil will be removed until PCB levels remaining on site are less than 25 ppm as recommended by TSCA regulations. Following the removal of soil from Areas 7A and 7B, soil verification samples will be collected and submitted for PCB analysis. After analytical results verify that PCB concentrations remaining on site are less than 25 ppm, the excavations will be backfilled with NTS native soil from an approved borrow source, compacted by wheel rolling with heavy equipment, UR warning signs placed, and area coordinates collected for the UR form. UR warning signs will be posted per the FFACO UR posting guidance (FFACO, 2003).

Because Areas 7A and 7B are in a posted RMA, all PCB-impacted soil removed from the areas will be managed as PCB/low-level radioactive waste. The soil will be placed in appropriate containers (55-gallon drums or B25 boxes), and staged in an established controlled waste accumulation area while a waste disposal profile is developed. After a waste disposal profile is developed the waste will be disposed of appropriately at an approved disposal facility. The concrete pad at Area 7B will be broken up to provide access to the underlying soil, the concrete waste will be managed as low-level radioactive waste. Analytical results for samples of the concrete pad showed no PCB contamination greater than 25 ppm (NNSA/NSO, 2004). If field screening or sampling indicates that the concrete debris is LLW, it will be placed into appropriate containers and managed in an approved waste accumulation area. A waste profile will be developed and after it is approved, the waste will be disposed of appropriately in an onsite facility. If field screening or sampling indicates that the concrete debris can be free released (U. S. Department of Energy, Nevada Operations Office [DOE/NV], 2000), it will be placed in approved containers or loaded directly into transport trucks and disposed of as construction debris in an appropriate onsite facility.

2.2 CONSTRUCTION QUALITY ASSURANCE / QUALITY CONTROL

Construction activities are limited to excavation, backfilling, recontouring, and posting warning signs. No engineered structures will be constructed as part of site closure. Therefore, a construction quality assurance/quality control plan is not required.

2.2.1 Construction Field Sample Collection Activities

Construction field samples are not necessary for site closure. Samples will be collected for the purpose of waste stream characterization and to verify that the approved clean-up criteria have been met. Field sample collection activities are addressed in Section 2.4, “Confirmation of Corrective Actions.”

2.2.2 Construction Laboratory/Analytical Data Quality Indicators

CAU 528 activities are limited to excavation, backfilling, recontouring and posting warning signs. Therefore, a construction quality assurance/quality control plan is not required, and associated data quality indicators are not applicable.

2.3 WASTE MANAGEMENT

All waste streams will be managed and disposed of according to applicable state and federal regulations, DOE Orders, U.S. Department of Transportation, and Bechtel Nevada (BN)

procedures. During CAU 528 closure activities, PCB, PCB/LLW, and potentially LLW may be generated. Confirmation of waste disposal will be included in the CAU 528 Closure Report.

Sanitary Waste

Sanitary waste removed from the site will be radiologically screened for free release (DOE/NV, 2000) and disposal. Sanitary waste will be disposed in an onsite permitted landfill.

PCB and PCB/Low-Level Waste

PCB waste will be generated during closure activities at Areas 7A and 7B of CAS 25-27-03. PCBs are classified by TSCA as a toxic waste and will be managed as such. All PCB waste will be accumulated onsite, placed in approved containers and stored in an established Waste Accumulation Area. The waste will be characterized by sampling and a waste profile developed for disposal. The waste will be properly classified and disposed of at an approved permitted offsite waste treatment, storage, and disposal (TSD) facility.

Depending on analytical results for waste classification samples, the waste generated at Areas 7A and/or 7B may be classified as PCB/LLW. All PCB/LLW will be accumulated on site, placed in approved containers, and stored in an approved waste accumulation area. After an approved waste profile is generated, the waste will be disposed of at an appropriate permitted TSD facility.

Low-Level Waste

LLW may potentially be generated during CAU 528 closure activities in the form of radiologically contaminated concrete debris and/or soil from the Area 7B. All LLW will be characterized by process knowledge, ISOCS analysis, laboratory analysis, and/or radiological screening. After characterization a waste profile for disposal will be prepared. All LLW will be stored in the existing RMA and packaged in approved containers, if required. After approval of the waste profile, the LLW will be transported to an onsite disposal facility and disposed.

Decontamination Waste

All radiologically impacted equipment will be surveyed prior to release from the TCC RMA (DOE/NV, 2000). Any equipment that becomes contaminated during closure activities will be decontaminated on site. Dry decontamination will be the preferred method. For larger pieces of equipment that cannot be effectively decontaminated using dry decontamination techniques, wet decontamination techniques shall be used. All decontamination rinsate will be containerized, solidified, and characterized by sampling. Rinsate containers will be labeled and stored according to all applicable waste regulations. Upon receipt of analytical results, the waste will be properly disposed.

Personal Protective Equipment

All personal protective equipment that becomes contaminated during closure activities shall be disposed with the appropriate waste stream. All wastes generated during closure activities will be properly disposed in either onsite landfills or at a permitted offsite TSD facility.

2.3.1 Waste Minimization

All work activities that generate waste will follow the BN Waste Minimization and Pollution Prevention Program. Special care will be given to properly characterizing and segregating the waste streams to avoid the generation of additional waste

2.4 CONFIRMATION OF CORRECTIVE ACTIONS

Accurate and defensible analytical data will be collected to characterize waste and verify that the closure objectives outlined in this CAP have been met.

2.4.1 CAS 25-27-03 Confirmation of Corrective Actions

CAS 25-27-03 consists of 12 distinct areas that will be Closed in Place with Administrative Controls. Eleven of the 12 areas will be closed by posting UR warning signs, determining the boundary corner coordinates, and filing the UR Information forms. Closure activities for areas 1, 2, 3, 4, 5, 6, 8, 9, 10, 11 and 12 will be confirmed by visually inspecting each area to see that the UR postings are correctly placed, securely installed and legible. Site photographs of each area will be taken and included in the CAU 528 Closure Report. The UR coordinate information will be independently checked for accuracy by the FFACO support group.

At Areas 7A and 7B, it is estimated that approximately 9.5 yd³ PCB-impacted soil will be removed to meet the TSCA UR requirement that PCB concentrations remaining on site be less than 25 ppm. To confirm that this is the case, soil verification samples will be collected from the open excavations and submitted to an offsite laboratory for analysis. Verification samples will be analyzed for PCBs. Based on the estimated volumes presented in the CADD (NNSA/NSO, 2004), a minimum of six verification samples, including one blind duplicate, will be collected from the Area 7A excavation. A minimum of five verification samples will be collected from the Area 7B excavation based on the estimated volume presented in the CADD (NNSA/NSO, 2004). Samples will be collected from the center of the excavation side walls and the approximate center of the bottom of the excavation. If field screening for PCBs in soil indicates that the excavations are smaller than anticipated, the number of verification samples collected will be reduced. Conversely, additional verification samples may be collected if the size of the excavations increase dramatically or other biasing indicators are encountered. All analytical results for soil verification samples will be included in the CAU 528 Closure Report.

If analytical results for soil samples show PCB concentrations are greater than 25 ppm, additional soil will be removed from the area(s). After the area(s) have been over excavated, additional verification samples will be collected and submitted for analysis. This process will be repeated until analytical results verify that the PCB concentrations remaining on site are less than 25 ppm.

After the Area 7A and 7B excavations are backfilled and compacted, UR signs will be erected. Closure activities will be confirmed by visually verifying that the correct UR warning signs have been securely installed at the perimeter corners, and are legible. Site photographs of each area will be taken and included in the CAU 528 Closure Report. The UR coordinate information will be independently checked for accuracy by the FFACO support group.

2.4.2 Sample Collection Methods

All samples will be collected by qualified personnel, using disposable pre-cleaned or decontaminated sampling equipment, and following an approved operating instruction (BN, 2002 and 2000b). Samples will be collected either by hand from the indicated locations, or if the excavation poses a safety hazard to sampling personnel, from the center of a backhoe bucket of soil collected from the indicated locations. All samples will be collected in clean containers, labeled appropriately, sealed with a custody seal, bagged, placed on ice in a cooler, and transported to the BN Environmental Technical Services group under a completed “Chain of Custody” form (BN, 2000a). Samples will be analyzed by U.S. Environmental Protection Agency (EPA)-approved analytical methods at EPA-approved laboratories (EPA, 1996). Sample analysis will include laboratory analysis of quality assurance/quality control (QA/QC) samples and will follow stringent QA/QC procedures. All final analytical data will be validated at the Tier II level (BN, 2003; 2004) as required by the Industrial Site Quality Assurance Project Plan (NNSA/NV, 2002). Any data determined not to be valid will be identified in the Closure Report.

All samples will be labeled with a unique sample identification number using the CAS number followed by the sample number (e.g., 252703-V1 for verification samples and 252703-W1 for waste classification samples). QA/QC samples will be collected and will include a blind duplicate and matrix spike/matrix spike duplicate. The blind duplicate will be labeled with a unique sample number.

2.4.3 Laboratory/Analytical Data Quality Indicators

Data Quality Objectives (DQO) are qualitative and quantitative statements that specify the quality of the data required to support closure of a site. The DQOs for the CAU 528 site investigation were defined in the CAIP (NNSA/NV, 2003) using the Seven Step DQO Process developed by the U.S. Environmental Protection Agency (EPA, 2000a). A single Conceptual Site Model for the CAU 528 was defined in the CAIP (NNSA/NV, 2003), and this model was reconciled with the results of the site investigation in Appendix A of the CADD (NNSA/NSO, 2004).

Sample analytical results will be generated during closure activities at Areas 7A and 7B of CAS 25-27-03 only. All laboratory data generated during closure activities will be reviewed by project personnel to ensure the data are usable and complete according to the CAU 528 DQOs. Also, as specified in the *Industrial Sites Quality Assurance Project Plan* (NNSA/NV, 2002), all data received in final data packages will be validated at the Tier II level using applicable BN Organization Instruction(s) (OI). These include OI-2151.303 (BN, 2004) for validating radiological and chemical data and OI-2154.458 (BN, 2003) for validating organic chemical data. OI-2154.458 is based on *EPA Functional Guidelines* (EPA, 2000b). More details on the proposed number and location of the verification samples are given in Section 2.4.1 of this plan.

Data Quality Indicators

Data Quality Indicators (DQIs) are qualitative and quantitative statements that specify the data requirements of a project. The DQIs include accuracy, precision, comparability, completeness, representativeness, and sensitivity. These DQIs are discussed below.

Precision

Precision measures the reproducibility of data under a given set of conditions. It is a quantitative measurement of the variability of a population of measurements compared to their average value. Precision applies to parameters sampled and analyzed in duplicate.

One duplicate sample will be collected per set of verification samples. All duplicate samples will be collected from the same medium and analyzed for the same set of analytes as verification samples. The precision of the analytical results will be assessed by calculating the relative percent difference (RPD) for a verification sample and its duplicate sample results. An RPD of less than or equal to 30 percent indicates acceptable precision (NNSA/NV, 2002).

Accuracy

Accuracy measures the nearness of a measured or calculated value of a parameter to the true value of that parameter. The closer the measurement is to the true value, the more accurate the measurement. Accuracy will be assessed by examining the percent recovery of laboratory control and spiked samples. A percent recovery within the range of 70-130 percent indicates satisfactory analytical accuracy (NNSA/NV, 2002).

Representativeness

Representativeness is a qualitative measure of the degree to which the sample data accurately and precisely represent a characteristic of a sample population or environmental condition. Representativeness will be attained by ensuring that the sample locations, analytical parameters, analytical methods, sampling protocols, and sample handling all meet the project-specific objectives.

Comparability

Comparability is a qualitative measure that expresses the confidence that one data set can be compared to another. It will be achieved by using standardized field sampling procedures and the same analytical methods for sample analysis. All samples will be collected using approved BN methods for sample collection (BN, 2000b). Sample results will be reported in standard units to allow for comparison of the data.

Completeness

Completeness is a quantitative measure of data quality expressed as the percentage of valid data obtained that satisfies the project-specific requirements. Since a limited number of samples will be collected for both waste characterization and verification of closure, 100 percent of the data collected needs to be of acceptable quality to maintain acceptable QA/QC standards.

Sensitivity

Sensitivity is the capability of a method or instrument to discriminate between measurement responses representing different levels of a variable of interest. This indicator is determined from the value of the standard deviation at the concentration level of interest. It represents the minimum difference of concentration that can be distinguished between two samples with a high degree of confidence. Sensitivity must be sufficient to detect contaminants at or below decision

levels. Sensitivity will be achieved by analyzing all samples using appropriate EPA-approved analytical laboratories, methods, and instruments.

2.5 PERMITS

Prior to beginning field closure activities, planning documents and permits will be prepared. These documents will include a Field Management Plan, National Environmental Policy Act (NEPA) Checklist, NNSA/NSO Real Estate/Operations Permit (REOP), Radiological Work Permits (RWP), BN Work Packages, utility clearances, excavation permits, and blind penetration permits.

2.5.1 National Environmental Policy Act Checklist

A NEPA Checklist will be completed prior to all excavation activities at the site. Excavation activities will follow all applicable federal, state, and local laws, regulations, and permits regarding protection of the environment.

2.5.2 NNSA/NSO Real Estate/Operations Permit

A REOP will be obtained prior to beginning closure activities. The permit will establish the NNSA/NSO as the prime authority possessing control of the site. The REOP will establish a sole governing organization responsible for safety and will identify the NNSA/NSO's responsibility to plan and schedule activities.

2.5.3 Radiological Work Permit

RWPs will be required for work at any radiologically impacted site when radiological conditions require, as determined by a BN Health Physicist. RWPs will inform workers of the specific personal protective equipment necessary to protect them while performing their tasks, and will identify site-specific controls. The workers will be required to sign the permits and acknowledge their understanding of the requirements before entry into any contamination area, if present. The RWPs will be posted and maintained by a Radiological Control Technician at the entrance to the contamination area. All site workers will be required to be Radiological Worker II trained to perform any work within a radiologically controlled area.

2.5.4 Excavation - Blind Penetration Permit

An Excavation - Penetration permit will be obtained prior to beginning any excavation or penetration activities. An Excavation-Penetration permit requires that a utility clearance be performed before the permit is approved. A copy of the permit will be filed on site throughout the duration of the project.

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3.0 SCHEDULE

All preparation and field activities are scheduled for completion in Fiscal Year 2006. The FFACO deadline for the Closure Report has not yet been established. Sufficient flexibility will be incorporated into the field schedule to allow for minor difficulties (e.g., weather, equipment failure). The NNSA/NSO shall notify the NDEP of any condition or event that may impact the project schedule.

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4.0 POST-CLOSURE PLAN

The CAU 528 corrective actions include Closure in Place with Administrative Controls. Administrative Controls will include posting UR warning signs and implementing URs at each area in CAS 25-27-03 to prohibit any unauthorized intrusive activities. The post-closure inspections of the areas will be required to verify the posting and URs are maintained.

4.1 INSPECTIONS

Annual site inspections will be completed at the 12 areas in CAS 25-27-03. Inspections will consist of annual visual inspections to verify that the UR postings are in place, readable, and that land URs are maintained. Any identified maintenance and repair requirements will be reported to NDEP and maintenance scheduled within 90 working days of discovery. Because most of the CAS 25-27-03 areas are within an existing RMA, and because the RMA will remain in effect after the closure of CAU 528, inspections at this site will be performed for an indefinite period, or until advised otherwise by the NDEP.

Results of the post-closure inspection for a given year will be included in the NTS Industrial Sites Post-Closure annual letter report. The annual letter report will include the following information for CAU 528:

- Discussion of observations and inspections
- Copies of the site inspection checklists (blank copies will be included in the CAU 528 Closure Report)
- Records of any site maintenance activities

A copy of the NTS Industrial Sites Post-Closure annual letter report will be submitted to the NDEP.

4.2 MONITORING

As no post-closure sampling or data collection will be performed after CAU 528 is closed, no post-closure monitoring is required at CAU 528. However, as stated above, visual post-closure inspections will be performed for CAS 25-27-03.

4.3 MAINTENANCE AND REPAIR

If any maintenance or repair requirements are identified during the annual inspection of CAS 25-27-03, funding will be requested and the repair work scheduled. Any repair or maintenance performed at this site shall be documented in writing at the time of the repair and included in the NTS Industrial Sites Post-Closure annual letter report.

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5.0 REFERENCES

BN, see Bechtel Nevada.

Bechtel Nevada. 2000a. “Sampling Chain of Custody,” Organization Instruction OI-2152.100. Las Vegas, NV.

Bechtel Nevada. 2000b. “Soil Sampling,” Organization Instruction OI-2152.108. Las Vegas, NV.

Bechtel Nevada. 2003. “Organic Data Verification and Validation,” Organization Instruction OI-2154.458. Las Vegas, NV.

Code of Federal Regulation. 2003. 40 CFR 7611, “Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Prohibitions.” Washington, D.C.

Bechtel Nevada. 2004. “Validation of Radiological and Chemical Laboratory Data,” Organization Instruction OI-2151.303. Las Vegas, NV.

DOE/NV, see U.S. Department of Energy, Nevada Operations Office.

EPA, see U.S. Environmental Protection Agency.

FFACO, see Federal Facility Agreement and Consent Order.

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

Federal Facility Agreement and Consent Order. 2003. FFACO Use Restriction Posting Guidance for NNSA/NSO and Associated Contractors, Rev. 0.

Nevada Administrative Code. 2003. NAC 445A.2272, “Contamination of Soil: Establishment of Action Level.” Carson City, NV.

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

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

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

REFERENCES (continued)

- U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2003. Corrective Action Investigation Plan for Corrective Action Unit 528: Polychlorinated Biphenyls Contamination, Nevada Test Site, Nevada, Rev. 0, DOE/NV--892. Las Vegas, NV.
- U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2004. Corrective Action Decision Document for Corrective Action Unit 528: Polychlorinated Biphenyls Contamination, Nevada Test Site, Nevada, Rev. 0, DOE/NV--960. Las Vegas, NV.
- U.S. Department of Energy, Nevada Operations Office. 2000. NV/YMP Radiological Control Manual Rev. 4, DOE/NV/11718-079. Bechtel Nevada. Las Vegas, NV.
- U.S. Environmental Protection Agency. 1996. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, Third Edition. Washington, D.C.
- U.S. Environmental Protection Agency. 2000a. Guidance for Data Quality Assessment: Practical Methods for Data Analysis, EPA QA/G-9, EPA/600/R-96/055. Washington, D.C.
- U.S. Environmental Protection Agency. 2000b. Contract Laboratory Program National Functional Guidelines for Organic Data Review, EPA/540/R-99/008. Washington, D.C.

APPENDIX A.1

ENGINEERING SPECIFICATIONS AND DRAWINGS*

*Engineering Specifications and Drawings are not applicable to the closure of Corrective Action Unit 528.

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APPENDIX A.2

SAMPLING AND ANALYSIS PLAN*

*Sufficient detail has been provided in Section 2.4.3 on the type, number, and location of verification samples to be collected to verify site closure activities. This Appendix is included here as a place-holder, as required by the *Standard FFACO Outline for a Corrective Action Plan*, but contains no material.

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APPENDIX A.3

PROJECT ORGANIZATION

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PROJECT ORGANIZATION

The U. S. Department of Energy National Nuclear Security Administration Nevada Site Office (NNSA/NSO) Acting Industrial Sites Project Manager is Sabine Curtis, and her telephone number is (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 NNSA/NSO Project Manager be contacted for further information. The Task Manager will be identified in the Federal Facility Agreement and Consent Order Monthly Activity Report prior to the start of field activities.

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