Nevada
Environmental
Restoration
Project

DOE/NV-11718-220
UC-702

Streamlined Approach for
Environmental Restoration
Work Plan for
Corrective Action Unit 198:
Test Cell C Filter Tank Closure
Nevada Test Site, Nevada

Controlled Copy No.:

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Revision No.: 0

MASTER

June 1998

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Environmental Restoration
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U.S. Department of Energy
Nevada Operations Office

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**STREAMLINED APPROACH FOR ENVIRONMENTAL
RESTORATION WORK PLAN FOR
CORRECTIVE ACTION UNIT 198:
TEST CELL C FILTER TANK CLOSURE
NEVADA TEST SITE, NEVADA**

**Prepared for:
U. S. Department of Energy
Nevada Operations Office
Under Contract No. DE-AC08-96NV11718**

Controlled Copy No.:

Revision: 0

**Prepared:
Bechtel Nevada
Environmental Restoration**

June 1998

**STREAMLINED APPROACH FOR ENVIRONMENTAL
RESTORATION WORK PLAN FOR
CORRECTIVE ACTION UNIT 198:
TEST CELL C FILTER TANK CLOSURE
NEVADA TEST SITE, NEVADA**

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ACRONYMS AND ABBREVIATIONS

ALARA	As Low As Reasonably Achievable
CAS	Corrective Action Site
CAU	Corrective Action Unit
cm	centimeter
DOE	U.S. Department of Energy, Nevada Operations Office
DOT	U.S. Department of Transportation
DRI	Desert Research Institute
FFACO	Federal Facility Agreement and Consent Order
ft	feet
G	gallon
HASP	Health and Safety Plan
in	inch
LLW	Low Level Waste
L	liter
m	meter
MDA	Minimal Detectable Activity
mR/hr	milliroentgen per hour
NDEP	Nevada Division of Environmental Protection
NEPA	National Environmental Protection Act
NTS	Nevada Test Site

ACRONYMS AND ABBREVIATIONS (continued)

RWAP	Radioactive Waste Acceptance Program
RWMS	Radioactive Waste Management Site
RWP	Radiological Work Permit
SAFER	Streamlined Approach for Environmental Restoration

EXECUTIVE SUMMARY

This plan addresses characterization and closure of Corrective Action Unit (CAU) 198 identified in the Federal Facility Agreement and Consent Order (FFACO). The site is located at the Nevada Test Site (NTS) Area 25 Test Cell C Complex (Figure 1). The CAU consists of one Corrective Action Site (CAS) 25-23-12 which includes two aboveground radioactive wastewater filter tanks.

The tanks have an estimated capacity of 2,271 liters (L) (600 gallons [G]) each and were used to filter radioactive wastewater originating from the Test Cell C "Nuclear Furnace 1" testing. The tanks contain radioisotopes. Process knowledge indicates that the most likely isotopes of concern include ⁹⁰Strontium and ¹³⁷Cesium. The site is currently roped off and posted with "Caution Radiation Area" signs.

Closure for this site will be completed by the following:

- Excavate into the north side of the soil berm to provide access to the filter tanks.
- Remove, cap, and seal, associated aboveground tank piping.
- Remove the filter tanks from the concrete pad.
- Isolate the filter tanks in a SEALAND® container and transport to the Area 6 Decontamination Facility, pending Radioactive Waste Acceptance Program (RWAP) approval.
- Dispose of low level waste (LLW) in the Area 5 Radioactive Waste Management Site (RWMS) (pending RWAP approval).

Soils, subsurface piping, and the tanks' concrete support pad will not be closed or removed during this field activity. These materials will require a new designation as a CAS. It is proposed that removal be completed during the closure activities of CAU 135 which includes the six underground wastewater storage tanks (CAS 25-02-02) associated with the Nuclear Furnace Test filtration and disposal system.

1.0 INTRODUCTION

This plan addresses characterization and closure of Corrective Action Unit (CAU) 198 identified in the Federal Facility Agreement and Consent Order (FFACO). The site is located at the Nevada Test Site (NTS) Area 25 Test Cell C Complex (Figure 1). The CAU is currently in Appendix II of the FFACO. Approval by the Nevada Division of Environmental Protection (NDEP) to move the CAU to Appendix III is pending. The CAU consists of one Corrective Action Site (CAS) 25-23-12 which includes two aboveground radioactive wastewater filter tanks.

1.1 PURPOSE

The purpose of this plan is to provide the methodology for removing the filter tanks for closure of CAU 198. The tanks are located on the east side of Test Cell C, approximately 15.2 meters (m) (50 feet [ft]) from the facility fence line (Figure 2). A 2.4-m (8-ft) to 3.0-m (10-ft) high earthen berm surrounds the tanks and is used as engineering control to minimize radiation exposure. The tanks have an estimated capacity of 2,271 liters (L) (600 gallons [G]) each and were used to filter radioactive wastewater originating from the Test Cell C "Nuclear Furnace 1" testing. As-built engineering drawings indicate that the filter media within the tanks consist of coarse gravels at the base to fine filter media (presumably sand) at the top. Wastewater was pumped into the filter tanks from subsurface storage tanks. Wastewater entered the filter tanks from the top and discharged from the bottom through pipes leading to a tile disposal field south of the tanks (Figure 3). Figure 4 shows the filter tanks with the influent and effluent piping and the direction of wastewater flow through the system.

The tanks contain radioisotopes. Constituents of concern may include ⁸⁹Strontium, ⁹⁰Strontium, ¹³⁷Cesium, ¹⁴¹Cerium, ¹³¹Iodine, and other common radionuclides associated with nuclear reactor testing (Shinkle, 1972). However, the most likely isotopes include ⁹⁰Strontium and ¹³⁷Cesium (Desert Research Institute [DRI], 1988). The site is currently roped off and posted with "Caution Radiation Area" signs.

A radiological Site Demarcation Survey taken February 15, 1996, identified a maximum radiation level of 30 milliroentgen per hour (mR/hr) at 30 centimeters (cm) (1 ft) from the top of the tanks. A pre-work radiation survey was completed on March 31, 1998, under Radiological Work Permit (RWP) No. 98066 to identify if radioactivity was removable and where elevated readings were located on the tanks. Soil samples were also taken from the soil berm on the north interior and exterior where the berm will be breached for access as well as the soil area surrounding the concrete tank support pad.

FIGURE 2
 CAU 198 SITE VICINITY MAP

FIGURE 4
 SCHEMATIC OF THE FILTER TANKS

The March 31, 1998 survey results indicate that removable beta is present on the tanks and piping. The maximum removable value reported was 969.50 disintegrations per minute. The maximum contact reading on the top of the tanks was 40 mR/hr. The exposure rate at 1.0 m (3.3 ft) from the tanks was measured at 5 mR/hr. The pre-work radiation survey results are provided as Appendix A. Gross alpha/beta and gamma 20 minute count soil results indicate that elevated beta (¹³⁷Cesium) levels exist in the soils surrounding the concrete tank pad. Results are summarized in Table 1. Reference documentation describing how the filtration tanks were used and the processes involved support using process knowledge to determine that the tanks only filtered radiologically contaminated wastewater (DRI, 1988, Fraser, 1986, and Schinkle, 1972).

TABLE 1 - SUMMARY OF RADIOLOGICAL SOIL SAMPLE RESULTS

SAMPLE ID	SAMPLE LOCATION	ISOTOPE	RESULT (pCi/g)	MDA	ERROR %
CAU198-1	Perimeter of concrete pad supporting filter tanks (composite)	Gross Alpha	2.98	0.52	19
		Gross Beta	17.5	1.1	5.8
		Gamma 20 - CS137	38.5	0.074	9.5
		K40	29.3	1.2	18
		TH228	1.98	0.13	28
		TH232	1.38	0.46	41
CAU198-2	North side of soil berm (interior and exterior composite)	Gross Alpha	2.43	0.52	22
		Gross Beta	2.9	1.1	25
		Gamma 20 - CS137	0.268	0.084	45
		K40	27.1	1.3	19
		TH228	2.18	0.12	20

NOTES:

pCi/g - picocuries per gram

MDA - Minimum Detectable Activity

CS137 - Cesium 137

K40 - Potassium 40

TH228 - Thorium 228

TH232 - Thorium 232

1.2 SCOPE

Based on the historical knowledge of the tank's use and the findings of the pre-activity work survey, the tank closure will be completed using the Streamlined Approach for Environmental Restoration (SAFER) concept.

If, at any time during the site closure, new information is developed that indicates that the closure method should be revised, the closure activities will be redirected to more appropriately protect human health and the environment. Closure for this site will be completed by the following:

- Excavate into the north side of the soil berm to provide access to the filter tanks.
- Remove, cap, and seal, associated aboveground tank piping.
- Remove the filter tanks from the concrete pad.
- Isolate the filter tanks in a SEALAND® container and transport to the Area 6 Decontamination Facility, pending Radioactive Waste Acceptance Program (RWAP) approval.
- Dispose of low level waste (LLW) in the Area 5 Radioactive Waste Management Site (RWMS) (pending RWAP approval).

1.3 SAFER PLAN CONTENTS

This SAFER Plan has been developed in a manner to support the proposed closure CAU 198. The format of the plan is as follows:

- Introduction (Section 1.0).
- Detailed Statement of Work (Section 2.0).
- Schedule of Closure Activities (Section 3.0).
- Post-Closure Plan (Section 4.0).
- References (Section 5.0).

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

- Nevada Environmental Restoration Project, Project Management Plan, Revision 0, Department of Energy (DOE), 1994.
- Nevada Environmental Restoration Project, Industrial Sites, Quality Assurance Project Plan, Nevada Test Site, Revision 1, DOE, 1996.

- Comprehensive Environmental Response, Compensation, and Liability Act Preliminary Assessment of DOE's Nevada Operations Office Nuclear Weapons Testing Areas, Volume 1, Desert Research Institute, 1988.
- Nevada Test Site Underground Contaminants, Reynolds Electrical & Engineering Company, 1986.
- Nuclear Furnace 1 Effluent Clean Up System Efficiency, Space Nuclear Systems Office, Schinkle, 1972.

2.0 DETAILED STATEMENT OF WORK

2.1 WORK PLAN IMPLEMENTATION

The closure approach is based on the following:

- The site contains impacted by radiological constituents only. Process knowledge supports that hazardous constituents are not present.
- The radiological constituents are contained in the filter tanks. Clean closure of CAU 198 will be completed by removing the two filter tanks.
- Soils, subsurface piping, and the tanks' concrete support pad will not be closed or removed during this field activity. These materials will require a new designation as a Corrective Action Site (CAS). It is proposed that removal be completed during the closure activities of CAU 135 which includes the six underground wastewater storage tanks (CAS 25-02-02) associated with the Nuclear Furnace Test filtration and disposal system.

2.1.1 Pre-field Implementation Activities

The following activities have been completed or will be completed prior to the implementation of this plan:

- Tortoise habitat and endangered species investigation.
- Preparation of National Environmental Protection Act documentation (NEPA).
- Preparation of a Health & Safety Plan (HASP).
- A Cultural Resource Survey is not required since all work will be completed in previously disturbed areas. Off road driving in areas surrounding the site is not allowed.

2.1.1.1 Tortoise Habitat and Endangered Species Investigation

This site is located within the range of the desert tortoise. Therefore, a desert tortoise survey will be conducted. During all site activities, the terms and conditions of the NTS Biological Opinion (US Fish and Wildlife Services, 1992) will be followed.

2.1.1.2 National Environmental Protection Act Documentation

NEPA documentation will be completed prior to starting field activities.

2.1.1.3 Health and Safety Plan

A hazard assessment and HASP have been prepared for this project. Work activities within the controlled area will be completed following as low as reasonably achievable (ALARA) methodology. Required personal protective equipment will be dictated by the approved HASP and the RWP. All Site workers will be Radiologic Worker II certified. Only properly trained/certified personnel will operate equipment and tools necessary to remove the tanks.

2.1.2 Field Activities

Field activities will include:

- Excavating into the soil berm to provide personnel access to the filter tanks.
- Remove, cap, and seal, associated aboveground tank piping.
- Remove the filter tanks from the concrete pad.
- Isolating the filter tanks in a SEALAND® container for transporting to the Area 6 Decontamination Facility. The SEALAND® will be stored in a controlled access area pending RWAP approval.

2.1.2.1 Soil Berm Excavation

The soil berm will be breached on the north side to allow personnel to enter the tank area. The berm will be breached and benched or so that sloughing or caving will not present a safety hazard to site workers. The breached area will also serve as the hot line entrance/exit. A composite sample collected from the berm indicates that the soil does not contain elevated radiation levels (Table 1), therefore, soils excavated from the berm will be left onsite.

2.1.2.2 Filter Tank Removal

Each tank will be disconnected and removed independently. Prior to removing the piping, plastic or Brattice cloth will be placed over the concrete pad and soil where personnel will be working to avoid unnecessary contact or dispersion of the irradiated soils. Every effort will be

made to remove the piping at the joints using hand tools to avoid unnecessary cutting torch work inside the radiological control area. The piping will be disconnected slowly and observed for any moisture or leakage coming from the connection. Based on site observation of the system lines, and the design of the tank(s), it is not anticipated that any free liquid remains. However, if slight leakage is observed, the piping will be retightened and a drain hose will be brought into the work area and used to drain the tank(s) into 208 L (55 G) drums. Once the tank piping is disconnected, it will be sealed with cement grout.

Tank removal will be completed using the existing lifting eyes on the tanks in addition to a sling or choker cable prior to cutting away the base supports. The tanks will be removed from the radiation area using a forklift or crane and subsequently loaded into a SEALAND® container.

2.1.2.3 Tank Storage and Management

The tanks will be transported offsite within a SEALAND® container following all applicable U.S. Department of Energy (DOE) and U.S. Department of Transportation (DOT) requirements for transporting solid radiological waste. The transportainer will be brought to the Area 6 Decontamination Facility for storage pending RWAP approval. If disposal approval is provided prior to tank removal, the SEALAND® will be transported directly to the Area 5 LLW repository.

2.2 CONSTRUCTION QUALITY ASSURANCE/QUALITY CONTROL

Construction quality assurance or quality control is not applicable to this project since the CAS is being decommissioned and closed. No new structures or foundations are being constructed at the site. Only properly trained personnel will operate equipment and tools necessary to remove the tanks.

2.3 WASTE MANAGEMENT

Waste generated from the closure and characterization activities will consist of radiologically impacted filter tanks, personal protective equipment, and compactable trash. Provided RWAP approval has been obtained prior to tank removal, the filter tanks and compactable trash will be shipped directly to an approved LLW repository at the NTS. If approval has not been obtained, they will be transported to the Area 6 Decontamination Facility. The personnel protection clothing and hand tools, as required, will be taken to the Area 6 Laundry Facility and Decontamination Facility, respectively. These items will be decontaminated and stocked for reuse. All DOE and DOT regulations pertinent to the transport of LLW will be followed.

2.3.1 Waste Minimization

Waste generation will be minimized by limiting the number of people in the work area. In addition, work in the exclusion zone will be planned in advance to limit the number of times personnel will be required to dress out. The tank contents will remain within the tanks eliminating the need for B-25 radioactive waste containers and unnecessary exposure to site workers.

In an effort to determine the activity level in the tanks and the isotopes of concern, a gamma spectroscopy unit will be used. If the analysis is unsuccessful, the activity level will be estimated using historical Nuclear Furnace Testing data (process knowledge) and the results of recent radiological site surveys.

2.4 CLEAN-UP VERIFICATION

Since CAU closure consists only of removing the filter tanks, clean-up verification sampling is not required.

2.5 PERMITS

A RWP will be obtained in order to work in the controlled area. A Hot Work Permit will be also be required if a cutting torch is used to remove piping or the tanks' support footing.

3.0 SCHEDULE

The closure field activities are anticipated to begin within 45 calendar days of NDEP approval of this plan and is outlined as follows:

- RWAP review based on gamma spectroscopy results and/or process knowledge (tentative start and completion date - June 9 and July 15, 1998, respectively).
- Prepare for field work (ALARA review, pre-field permits) (tentative start and completion date - May 10 and July 9, 1998, respectively).
- Submit final SAFER Work Plan to DOE and NDEP (scheduled for June 26, 1998. Review period is 30 days).
- Begin field closure activities within 45 days of submittal of final SAFER Work Plan to NDEP. Tank removal and transport is anticipated to take two days (tentative start date is July 20, 1998)
- Submit draft SAFER Closure Report to DOE (September 22, 1998).

The schedule will require modification if conditions exist that are outside the assumptions on which the schedule was developed. Flexibility has been placed in the project schedule to account for minor difficulties (weather, equipment breakdowns, personnel availability, etc.). DOE will keep the NDEP apprised of any condition that may impact the project schedule.

4.0 POST-CLOSURE PLAN

Post-closure monitoring will not be required for this CAU. The site will continue to be fenced off and posted as a contamination area due to contaminated soils and subsurface tanks and piping. Site demarcation conducts periodic site monitoring to verify that fencing and sign postings are still intact.

Upon completion of the tank's removal, a closure report will be prepared and will include the following:

- Introduction (Purpose and Scope)
- Closure Activities (Description of activities)
- Waste Disposition (RWAP documentation)
- Conclusions

5.0 REFERENCES

DRI, 1988, Comprehensive Environmental Response, Compensation, and Liability Act Preliminary Assessment of DOE's Nevada Operations Office Nuclear Weapons Testing Areas, April 1988, Volume 1. Desert Research Institute, Las Vegas, Nevada.

Fraser, D. L., 1986, Nevada Test Site Underground Contaminants, Reynolds Electrical & Engineering Company, Las Vegas, Nevada.

Schinkle, J.J., 1972, Nuclear Furnace 1 Effluent Clean Up System Efficiency, Space Nuclear Systems Office, Las Vegas, Nevada.

US Fish and Wildlife Services, 1992, The Nevada Test Site Biological Opinion, Terms and Conditions.

APPENDIX A

**PRE-WORK RADIOLOGICAL SURVEY
AND SOIL RESULTS**

April 2 , 1998

RADIATION SURVEY SUMMARY FOR CAU 198

On March 31, 1998, a pre-work radiation survey was conducted on two tanks, miscellaneous piping, and a concrete pad. All items referenced are part of CAU-198. Results of the survey are summarized below, and attached on Bechtel Nevada Radiation Survey Report # A 01212.

Prior to this survey being conducted, process knowledge information was gathered in the form of a 1996 Radiation Survey Report done by the Demarcation Section of the Health Physics Department. This report indicated that the tanks had a maximum contact reading of 40mR/hr. In order to gather more extensive information prior to work being conducted, a determination to conduct the above mentioned survey was made.

A Radiological Work Permit (RWP) # BN 98066 was issued for this survey. As part of the RWP, the requirement of using pocket dosimeters was enforced based on the process knowledge information. The tanks were identified as "A" and "B".

Survey results are as follows:

Exposure Rate at 1 meter: 5mR/hr

Maximum Contact Reading: 40mR/hr on tank tops

Pocket Dosimeter Readings: 9mR/hr (1 hour in area)
7mR/hr (1 hour in area)
5mR/hr (30 min in area)

Maximum Removable Contamination: 969.50 dpm Beta

Maximum Allowable of Removable
Contamination based on Table 2-2 of
the DOE/NTS Radcon Manual for the
Sr90 and Cs137 : 200 dpm Beta

2 Attachments

James Mc Closkey
Technician

RADIATION SURVEY REPORT

Number A 01212 Page 1 of 2

RGT(S):		SIGNATURE: <i>Mc Closkey</i>		DATE: 3-31-98	
HEALTH PHYSICIST:		EVENT/RWP NO. BN 98066		PROJECT / WORK ORDER: N/A	
SUPERVISOR: RILAND		COUNTING EQUIPMENT USED IN COLUMN N/A		INSTRUMENT USED IN COLUMN 5	
INSTRUMENT NUMBER		INSTRUMENT NUMBER		INSTRUMENT NUMBER	
18150 TENALEC		ELECTRA 2092		140-3 26575	
ALPHA BETA		INSTRUMENT USED IN COLUMN		INSTRUMENT USED IN COLUMN	
EFFICIENCY 30.1%		EFFICIENCY		INSTRUMENT USED IN COLUMN	
MDA 15 dpm		MDA		INSTRUMENT USED IN COLUMN	
CONVERSION FACTOR 23 dpm		CONVERSION FACTOR		INSTRUMENT USED IN COLUMN	
COUNT TIME 1 MIN		COUNT TIME		INSTRUMENT USED IN COLUMN	
PURPOSE: PRE WORK SURVEY OF TANKS.		ALL READINGS MEET UNRESTRICTED RELEASE LIMITS? ☐ YES ☒ NO			
TIME		DESCRIPTION OF SURVEY		No. of Points	
0900		BACKGROUND (Gross)		N/A	
1216		TOP OF TANK "A"		6	
1221		BOTTOM OF TANK "A"		4	
1227		SIDE A-1 OF TANK "A"		5	
1233		SIDE A-2 OF TANK "A"		5	
1238		TOP OF TANK "B"		5	
1243		BOTTOM OF TANK "B"		4	
1249		SIDE B-1 OF TANK "B"		5	
1255		SIDE B-2 OF TANK "B"		5	
1305		CONCRETE PAD UNDER TANKS A+B		9	
1310		PRESSURE RELIEF PIPE		4	
1320		EFFLUENT PIPES A+B		8	

COMMENTS: 1- POSSIBLE BLEED WHEN

2. CONTAMINATED MATERIAL S190, Cc 137 (PROCESS KNOWLEDGE)

FOLLOW UP REQUIRED? YES ☐ NO ☒

ALL READINGS ARE NET ABOVE BACKGROUND UNLESS NOTED

RWP 98066

LOCATION: A-25 near Test Cell C

MONITOR: R. Sorom

SUPERVISOR: T. Beckstrand

LH - Left Hand
GN - Gonads
OT - Other

RH - Right Hand
WB - Whole Body
EY - Eyes

BODY PART CODE
LF - Left Foot
RF - Right Foot

SHIFT

PAGE / OF

LOCATION:

DATE	720
6-DIGIT	BADGE NUMBER

LAST NAME, INITIALS

POCKET	ORG.
DOSIMETER	CODE
NUMBER	

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REMARKS

Bechtel Nevada

RADIATION SURVEY REPORT

(SUPPLEMENT)

Number A01212 Page 2 of 2

RCT(S): <u>Mc Closkey, Sorom R.</u>		SIGNATURE: <u>[Signature]</u>		DATE: <u>3-31-98</u>
HEALTH PHYSICIST: <u>RICARD</u>	SUPERVISOR: <u>REITRAND</u>	EVENT/ RWP NO: <u>BN 58066</u>	PROJECT / WORK ORDER: <u>L/A</u>	

PURPOSE:	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
<i>PRE-WORK SURVEY OF TANKS</i>	<i>a</i> ☒ <i>b</i> ☐ <i>c</i> ☐ <i>d</i> ☐	<i>a</i> ☐ <i>b</i> ☒ <i>c</i> ☐ <i>d</i> ☐	<i>a</i> ☒ <i>b</i> ☐ <i>c</i> ☐ <i>d</i> ☐	<i>a</i> ☐ <i>b</i> ☒ <i>c</i> ☐ <i>d</i> ☐	<i>a</i> ☐ <i>b</i> ☐ <i>c</i> ☒ <i>d</i> ☐
	OTHER	OTHER	OTHER	OTHER	OTHER

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COMMENTS:

FOLLOW UP REQUIRED? YES ☐ NO ☒

ALL READINGS ARE NET ABOVE BACKGROUND UNLESS NOTED

Bechtel Nevada

Interoffice Memorandum

MAY 6 12 58 PM '98

To: S. J. Nacht

Date: May 5, 1998

From: T. P. Van Sittert
Analytical Services Laboratory, 295-7472

No.: 2150-AL-98-0217

Subject: DATA REPORT FOR SAMPLE DELIVERY GROUP (SDG) B271
Project No. 04001

Analytical Services Laboratory's results have been reported to J. F. Bonn for the gamma spectroscopy, gross alpha, and gross beta analyses of two soil samples submitted to the laboratory on March 31, 1998. Also included was a statement of services which indicated the charge number associated with this SDG.

Preliminary data was faxed to the client on April 29, 1998.

SPECIFIC:

Gamma Spectroscopy:

Method associated quality assurance (QA) and quality control (QC) criteria were met.

Gross Alpha / Gross Beta:

Method associated QA and QC criteria were met.

These determinations are performed on small sample aliquots. Accordingly, the data reflect strictly those aliquots processed and may not be representative of each sample as a whole.

The client stated that he would receive back the unadulterated excess sample fractions to be returned to the sampling site. Contact Dodie Witham (5-7691) to coordinate transfer of any unused sample associated with this SDG.

Please direct any questions you may have to your Client Service Representative, Ted Redding, at 295-7220.

T. P. Van Sittert

TPV:mm
Subject Code: ENV3

cc: Correspondence Control, NLV008
J. F. Bonn (results enc.), NTS306
K. A. Quintana, NLV022
D. M. Witham (results enc.), NTS273
ASL SDG B321 (results enc.), NTS273

Bechtel Nevada Corporation

ANALYTICAL SERVICES LABORATORY
P.O.Box 3936, N. Las Vegas, NV 89036

Page 1

Reported to: Remediation Projects
J. F. Bonn
M/S NTS306

Report Date: 29-APR-98
Sample Delivery Group: B271
Batch: 0792
Program: 720

Report No. :

Sample ***** Identification *****	Isotope	Analysis	Result	Error %	Qual Flag	MDA	Result Units	Analysis Date	Sample Coll Date	Size	Size Units	Type Matrix	Tracer Yield %	Spike Recv %	System Detector	Packet-Item Sample
CAU198-1	CS137	GAM20	3.85E+01	9.5E+00		7.4E-02	pCi/g	04-01-98	03-31-98	5.76E+02	gm	SOIL G			05-01	G8779-0-75031
CAU198-1	K 40	GAM20	2.93E+01	1.8E+01		1.2E+00	pCi/g	04-01-98	03-31-98	5.76E+02	gm	SOIL G			05-01	G8779-0-75031
CAU198-1	TH228	GAM20	1.98E+00	2.8E+01		1.3E-01	pCi/g	04-01-98	03-31-98	5.76E+02	gm	SOIL G			05-01	G8779-0-75031
CAU198-1	TH232	GAM20	1.38E+00	4.1E+01		4.6E-01	pCi/g	04-01-98	03-31-98	5.76E+02	gm	SOIL G			05-01	G8779-0-75031
CAU198-2	CS137	GAM20	2.68E-01	4.5E+01		8.4E-02	pCi/g	04-01-98	03-31-98	6.72E+02	gm	SOIL G			05-01	G8779-1-75033
CAU198-2	K 40	GAM20	2.71E+01	1.9E+01		1.3E+00	pCi/g	04-01-98	03-31-98	6.72E+02	gm	SOIL G			05-01	G8779-1-75033
CAU198-2	TH228	GAM20	2.18E+00	2.0E+01		1.2E-01	pCi/g	04-01-98	03-31-98	6.72E+02	gm	SOIL G			05-01	G8779-1-75033
QA BKG EMPTY BTL U05	No Nucl Det	GAM20	0.00E+00	0.0E+00	U	0.0E+00	NA	04-01-98	07-01-95	1.00E+00	gm	QUAL			05-01	Q0539-0-00140
QA BKG EMPTY BTL U05	AM241	GAM20	0.00E+00	0.0E+00	U	1.5E+00	pCi	04-01-98	07-01-95	1.00E+00	sm	QUAL			05-01	Q0539-0-00140
QA BKG EMPTY BTL U05	CO60	GAM20	0.00E+00	0.0E+00	U	2.7E-01	pCi	04-01-98	07-01-95	1.00E+00	sm	QUAL			05-01	Q0539-0-00140

Comment:

The gross alpha and gross beta determinations were performed on small aliquots of the samples. Accordingly, the results may not be representative of the sample as a whole.

Prepared by:

Date: 4/29/98

Approved by:

Date: 4/29/98

Qualification Flags:

E = Estimated Quantity
H = High Recovery for Sample
J = Result is less than the RDL
L = Low Recovery for Sample
P = Preliminary Results
Q = Bad Instrument Quality Control, Result is OK
R = Results are Unusable, Resampling is Necessary
U = Result is less than Minimum Detectable Activity

Note: % Error is the 2.0 Sigma Error

Bechtel Nevada Corporation

ANALYTICAL SERVICES LABORATORY
P.O.Box 3936, N. Las Vegas, NV 89036

Page 2

Reported to: Remediation Projects
J. F. Bonn
M/S NTS306

Report Date: 29-APR-98
Sample Delivery Group: B271
Batch: 0792
Program: 500

Report No. :

Sample ***** Identification *****	Isotope	Analysis	Result	Error %	Qual Flag	MDA	Result Units	Analysis Date	Sample Coll Date	Size	Size Units	Type Matrix	Tracer Yield %	Spike Recv %	System Detector	Packet-Item Sample
QA BKG EMPTY BTL U05	CS137	GAM20	0.00E+00	0.0E+00	U	3.2E-01	pCi	04-01-98	07-01-95	1.00E+00	sm	QUAL			05-01	Q0539-0-00140
QA SP:NAS-A0271	AM241	GAM20	1.70E+05	8.9E+00		2.7E+02	pCi	04-01-98	04-01-92	1.00E+00	sm	QUAL		105.2	05-01	Q0534-3-13520
QA SP:NAS-A0271	CO60	GAM20	3.03E+05	8.5E+00		2.3E+02	pCi	04-01-98	04-01-92	1.00E+00	sm	QUAL		101.6	05-01	Q0534-3-13520
QA SP:NAS-A0271	CS137	GAM20	2.05E+05	8.1E+00		7.4E+01	pCi	04-01-98	04-01-92	1.00E+00	sm	QUAL		101.2	05-01	Q0534-3-13520

Comment:

The gross alpha and gross beta determinations were performed on small aliquots of the samples. Accordingly, the results may not be representative of the sample as a whole.

Prepared by:

Date: 4/29/98

Approved by:

Date: 4/29/98

Qualification Flags:

E = Estimated Quantity
H = High Recovery for Sample
J = Result is less than the RDL
L = Low Recovery for Sample
P = Preliminary Results
Q = Bad Instrument Quality Control, Result is OK
R = Results are Unusable, Resampling is Necessary
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Note: % Error is the 2.0 Sigma Error

Bechtel Nevada Corporation

ANALYTICAL SERVICES LABORATORY
P.O.Box 3936, N. Las Vegas, NV 89036

Page 3

Reported to: Remediation Projects
J. F. Bonn
M/S NTS306

Report Date: 29-APR-98
Sample Delivery Group: B271
Batch: M476
Program: 720

Report No. :

Sample ***** Identification *****	Isotope	Analysis	Result	Error %	Qual Flag	MDA	Result Units	Analysis Date	Sample Coll Date	Size	Size Units	Type Matrix	Tracer Yield %	Spike Recv %	System Detector	Packet-Item Sample
CAU198-1	Gross Alpha	Gross A	2.98E+00	1.9E+01		5.2E-01	pCi/g	04-06-98	03-31-98	1.00E+00	gm	SOIL G			14-01	G8779-0-75030
CAU198-2	Gross Alpha	Gross A	2.43E+00	2.2E+01		5.2E-01	pCi/g	04-06-98	03-31-98	1.00E+00	gm	SOIL G			14-01	G8779-1-75032
QA REA	Gross Alpha	Gross A	6.59E-02	3.5E+02	U	4.2E-01	pCi	04-06-98	04-01-98	1.00E+00	sm	QUAL			14-01	G8780-0-06774
QA SP:GROSSAB 04	Gross Alpha	Gross A	2.68E+00	1.8E+01		4.2E-01	pCi	04-06-98	02-07-92	1.00E+00	sm	QUAL		78.3	14-01	G8780-1-06775
CAU198-1	Gross Beta	Gross B	1.75E+01	5.8E+00		1.1E+00	pCi/g	04-06-98	03-31-98	1.00E+00	gm	SOIL G			14-01	G8779-0-75030
CAU198-2	Gross Beta	Gross B	2.88E+00	2.5E+01		1.1E+00	pCi/g	04-06-98	03-31-98	1.00E+00	gm	SOIL G			14-01	G8779-1-75032
QA REA	Gross Beta	Gross B	3.56E-01	1.7E+02	U	9.8E-01	pCi	04-06-98	04-01-98	1.00E+00	sm	QUAL			14-01	G8780-0-06774
QA SP:GROSSAB 04	Gross Beta	Gross B	4.21E+00	1.9E+01		9.8E-01	pCi	04-06-98	02-07-92	1.00E+00	sm	QUAL		82.6	14-01	G8780-1-06775

Comment:

The gross alpha and gross beta determinations were performed on small aliquots of the samples. Accordingly, the results may not be representative of the sample as a whole.

Prepared by:

Date:

Approved by:

Date:

Qualification Flags:

E = Estimated Quantity
H = High Recovery for Sample
J = Result is less than the RDL
L = Low Recovery for Sample
P = Preliminary Results
Q = Bad Instrument Quality Control, Result is OK
R = Results are Unusable, Resampling is Necessary
U = Result is less than Minimum Detectable Activity

Note: % Error is the 2.0 Sigma Error

BN-0732 (02/98)

APPENDIX B

**NEVADA DIVISION OF ENVIRONMENTAL
PROTECTION DOCUMENT REVIEW SHEET**

DOCUMENT REVIEW SHEET

Document Title/Number: Draft - Streamlined Approach for Environmental Restoration Work Plan for Corrective Action Unit 198:
Test Cell C Filter Tank Closure, Nevada Test Site, Nevada / DOE/NV--11718-220

Document Date: April 1998

Revision Number: 0

Originator/Organization: Jerry Bonn / Bechtel Nevada Environmental Restoration

Date Comments Received: June 10, 1998

Reviewer/Organization: Mike McKinnon / Nevada Division of Environmental Protection

COMMENT NUMBER/ LOCATION	COMMENT	COMMENT RESPONSE
1.) Section 2.1: Work Plan Implementation, Third bullet:	In addition to "... soils and subsurface radiologically impacted tanks, piping, pumps, etc...", provision must be made for remediating the contaminated concrete pad on which the filter tanks are located and the associated leachfield. If these items are not already identified in the FFACO, they must be included in the appropriate Corrective Action Units (CAUs).	The report will be revised to state the following: Soils, subsurface piping, and the tanks' concrete support pad will not be closed or removed during this field activity. These materials will require a new designation as a Corrective Action Site (CAS). It is proposed that removal be completed during the closure activities of CAU 135 which includes the six underground wastewater storage tanks (CAS 25-02-02) associated with the Nuclear Furnace Test filtration and disposal system.

COMMENT NUMBER/ LOCATION	COMMENT	COMMENT RESPONSE
2.) Section 2.3.1: Waste Minimization, Third sentence:	<p>“...sampling equipment...will not be required...”</p> <p>Recommend using a portable gamma spectroscopy unit to positively identify the radioactive materials contained in the filter tanks. If quantification of activities with this system is not possible, recommend using process knowledge to approximate the activity contained in each tank.</p>	<p>Following the last sentence of Section 2.3.1 the report will be changed to read as follows:</p> <p>In an effort to determine the activity level in the tanks and the isotopes of concern, a gamma spectroscopy unit will be used. If the analysis is unsuccessful, the activity level will be estimated using historical Nuclear Furnace Testing data and the results of recent radiological site surveys.</p>
3.) General	<p>Is decontamination of the tanks planned? The removable beta contamination is reported to be 969.5 dpm; whereas the maximum allowable removable beta contamination is 200 dpm (DOE/NTS RadCon Manual, Table 2-2).</p>	<p>Decontamination of the tanks is not planned due to the elevated isotope levels detected. Disposal of the tanks and contents will be proposed for on-site disposal. The final disposal determination is contingent on approval by the Radioactive Waste Acceptance Program. The 200 dpm level referenced is a guideline used by the Radiological Control Organization for materials to be released off of the Nevada Test Site. Since offsite removal/disposal is not proposed, the 200 dpm guideline will not apply and is only discussed for comparison of the removal beta levels identified on the tanks.</p>

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