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July 2, 2001

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Subject: Saxton Nuclear Experimental Corporation (SNEC)
Operating License No. DPR-4
Docket No. 50-146
Phase 1 Characterization Data

Gentlemen,

GPU Nuclear letter E910-01-001, dated January 30, 2001, committed to provide the NRC remaining radiological characterization data for the SNEC Facility in phases. The attachment to this letter provides the Phase 1 information. Included in this phase of characterization is the Decommissioning Support Facility, the Containment Vessel Pipe Tunnels subsurface soil, and pavement and subpavement soil.

If you have questions regarding this information, please contact Mr. James Byrne at (717) 948-8461.

Sincerely,

A handwritten signature in black ink, appearing to read "G. A. Kuehn", written over a horizontal line.

G. A. Kuehn
Vice President SNEC

Attachment

cc: NRC Project Manager
NRC Project Scientist, Region 1

A001

Introduction

As committed in GPU Nuclear letter E910-01-001, dated January 31, 2001, this document provides an update to existing radiological conditions at the SNEC facility site. Information is provided for the Decommissioning Support Facility (DSF), Containment Vessel (CV) Pipe Tunnel sub-surface soils, site access roads (paved and unpaved), and sub-pavement soils.

A revision to the applicable sections of the SNEC License Termination Plan (LTP), **Chapter 2.0, SITE CHARACTERIZATION**, will be made to incorporate the additional characterization data. Additionally, based on this characterization data, no changes to LTP Table 5-2, "Initial Classification of Site Areas" is required. The specific LTP changed sections and any additional figures and tables associated with these changes follow:

2.2.4.1.2 Decommissioning Support Facility (DSF)

This "Butler type" prefabricated building was erected in 1996 to support decommissioning operations. The DSF is subdivided into three areas known as the Decommissioning Support Building (DSB), the Material Handling Bay (MHB) and the Personnel Access Facility (PAF). The DSF is in use at this time to support decommissioning. Prior to license termination this building will either be remediated and included in the Final Status Survey or demolished and removed from the site. Figure 2-12 shows the location of the DSF. Characterization information is provided in Tables 2-6 and 2-6a following this section. Chapter 4.0 discusses remediation plans for the DSF. Chapter 5.0 provides the preliminary survey classifications that result from the characterization data.

Table 2-6a
DSF Facility General Area Measurement Results

(Note: \pm Values Represent 1 Standard Deviation Estimates)

DECOMMISSIONING SUPPORT BUILDING GENERAL AREA RESULTS	
Type of Material and/or Location	Average
Decommissioning Support Building (DSB) – urem/h	26.5 \pm 51.4 urem/h
DSB Floor Frisk Results – ncpm	40.7 \pm 30.3 ncpm
DSB Wall Frisk Results – ncpm	17 \pm 17.5 ncpm
DSB Overhead – ncpm	24 \pm 15.8 ncpm
DSB Floor Smear Results – dpm (beta/gamma)	< 236 dpm
DSB Wall Smear Results – dpm (beta/gamma)	< 236 dpm
DSB Overhead Smear Results – dpm (beta/gamma)	< 236 dpm
PERSONNEL ACCESS FACILITY GENERAL AREA RESULTS	
Type of Material and/or Location	Average
Personnel Access Facility (PAF) – urem/h	6.9 \pm 2.6 urem/h
PAF Floor Frisk Results – ncpm	3.3 \pm 11.5 ncpm
PAF Wall Frisk Results – ncpm	10 \pm 15.1 ncpm
PAF Overhead – ncpm	7.5 \pm 10.4 ncpm
PAF Floor Smear Results – dpm (beta/gamma)	< 237 dpm
PAF Wall Smear Results – dpm (beta/gamma)	< 237 dpm
PAF Overhead Smear Results – dpm (beta/gamma)	< 237 dpm
MATERIALS HANDLING BAY GENERAL AREA RESULTS	
Type of Material and/or Location	Average
Materials Handling Bay (MHB) – urem/h	18 \pm 5.9 urem/h
MHB Floor Frisk Results – ncpm	100 \pm 82 ncpm
MHB Wall Frisk Results – ncpm	16 \pm 18.4 ncpm
MHB Overhead – ncpm	23.3 \pm 19.7 ncpm
MHB Floor Smear Results – dpm (beta/gamma)	< 237 dpm
MHB Wall Smear Results – dpm (beta/gamma)	< 237 dpm
MHB Overhead Smear Results – dpm (beta/gamma)	< 237 dpm
MHB Floor Sample Above CV Pipe Tunnel – SX8SD99273	1.3 \pm 0.2 pCi/g
DECOMMISSIONING SUPPORT FACILITY ROOF GENERAL AREA RESULTS	
Type of Material and/or Location	Average
DSF Roof, A/C Air Filter Material – SX9SD01908 CS-137	109 \pm 11 pCi/g
DSF Roof, A/C Air Filter Material – SX9SD01908 Co-60	2.8 \pm 0.43 pCi/g
DSF Roof, Debris From Inside Air Conditioner Housing – SXOT951	23 \pm 4.7 pCi/g
Decommissioning Support Facility (DSF) Roof – urem/h	4.8 \pm 0.6 urem/h
DSF Roof Smear Results – dpm	< 100 dpm

Note 1: All smear results are per 100-centimeter square area.

Note 2: ncpm = net counts per minute using standard frisker probe (probe area ~15 cm² - probe held stationary at ~1/2 inch from surface for each determination).

Note 3: < values indicate Minimum Detectable Activities.

2.2.4.2 Soil

In addition to the CV, contaminated soil in and around the SNEC Facility site will require remediation. As described in Section 2.2.1, the SNEC Soil Remediation Project, completed in 1994, removed contaminated soil from the site in an effort to reduce Cs-137 levels to <1pCi/g average. While this project achieved its goal, contaminated soil near the CV and the surrounding support tunnel could not be removed until these structures were removed. Additionally, soil conditions and pervasive ground water near the surface prevented an assessment of soil contamination below about three feet deep in these areas. Also, this project was limited to the SNEC Facility property and the immediately adjoining area.

In order to survey the areas not covered by the 1994 soil project and to investigate potentially impacted areas identified by the HSA (Reference 2-14) a major surface and subsurface soil sampling program was completed in 1999. In addition to random points, biased sample locations were selected based on the HSA and previous survey results. Cs-137 was the only nuclide attributed to licensed operations detected. The surface findings are reported in Table 2-14, while the sample locations are shown on Figures 2-13 and 2-14. Given the site history and previous survey data, the results are unremarkable. The information has been used to classify the survey units as described in Chapter 5.0. The data has resulted in some areas off the SNEC Facility site but within the surrounding PENELEC property being classified as "impacted".

In addition to the 55 surface sample locations, 42 subsurface locations were sampled. These were generally biased locations, located in areas where below grade tanks, piping, ducts, spills, and structures were once present. The results of subsurface sampling are presented in Table 2-15. Subsurface sample locations are shown on Figures 2-15 and 2-16. As a compliment to the subsurface sampling, gamma bore logging was performed at these same locations. The use of two different techniques allows for the differentiation of possible soil contamination at a location from the presence of buried radioactive components. The results of the gamma bore logging are presented in Table 2-16. Subsurface gamma bore logging locations are shown on Figures 2-15 and 2-16. Results of the subsurface sampling and gamma logging indicated the need to remediate soil to a depth at least ten (10) feet deep on the north side of the CV, this has been completed. Gamma bore logging results indicated that some radioactive components were present at this depth in this location (hole #10 & 13), these have been removed.

The CV Pipe Tunnel concrete structure has largely been removed. The top of the tunnel started at grade elevation and ended approximately ten (10) feet below grade. The walls, ceiling and floor of the CV Pipe Tunnel were about 8 to 14 inches thick in most areas.

The interior tunnel surface was contaminated from leaks in piping within the tunnel area during facility operation. Additionally, there are a number of contaminated pipe penetrations which extend through the CV steel shell wall and entered into the CV Pipe Tunnel. Many of these penetrations, which were initially cut and capped, leaked over the years since plant shutdown. These leaks resulted in contaminated water penetrating the seam between the CV Tunnel floor and wall sections, and at other structural defect areas within the CV Tunnel, which caused contamination in soils at select locations below and adjacent to the CV Tunnel floor.

Based on the difficulty of surveying this contaminated and normally water filled structure, it was determined that remediation of the CV Tunnel would be necessary. As a result of this decision, the majority of the CV Tunnel has now been removed. Only a small section of the CV Tunnel remains which supports the floor of the Material Handling Bay (MHB), portion of the DSF. The MHB is still in use and will be removed at a later time. The section of the CV Tunnel supporting the MHB floor will be surveyed and released before backfill operations, after the majority of the CV itself has been removed. Soil volumes below the remaining section of the CV Pipe Tunnel floor (below the MHB) have been sampled by drilling through the floor to allow access to this area.

Figures 2-25 and 2-26 show the approximate location of CV Tunnel and the current excavated area surrounding the CV. The depth of the current excavation ranges from grade (811' El.) down to approximately the 795' elevation and covers an area of about 1300 square meters that includes the CV. Characterization information is provided in Table 2-23.

Transuranic (TRU) radionuclides and strontium-90 were positively identified by off-site analysis in several samples from the CV excavation area. SNEC sample number SX5SD99202 was taken at a depth of 4-6 feet within the CV North yard area. This sample contained Am-241 at a concentration of 0.012 pCi/g. Another North yard area sample that was collected from soil bag number 34L (packaged for disposal), contained a combined TRU concentration of approximately 0.2 pCi/g and exhibited a strontium-90 concentration of 0.27 pCi/g. Finally, a sample of sediment from within the CV Pipe Tunnel (before remediation), contained strontium-90 at a concentration of about 9.7 pCi/g. The latter two sample materials both contained measurable amounts of Cs-137 and Co-60 as well. Selected samples from on-site areas are routinely sent for a more complete analysis supporting SNEC remediation efforts.

Chapter 5.0 provides the survey classifications that result from the characterization data.

Table 2-23
SNEC Containment Vessel (CV) & CV Pipe Tunnel Area Sub-Surface Soil Sample Results (pCi/g)
 Table Includes Data From Work Packages SMPRQ - SOIL001, SR-0010 & SR-0016

Sample Number	Estimated Depth (Grade @ ~811' El.)	Cs-137	Co-60	Eu-155
SX-5-SL-01-933	802' El.	2.16	< MDA	< MDA
SX-5-SL-01-934	802' El.	9.58	< MDA	< MDA
SX-5-SL-01-935	802' El.	61	< MDA	< MDA
SX-SL-959	800' El.	9.1	< MDA	< MDA
SX-SL-960	797' El.	2.8	< MDA	< MDA
SX-SL-961	795' El.	3	< MDA	< MDA
SX-SL-982	798' El.	3.21	< MDA	< MDA
SX-SL-983	800' El.	1.8	< MDA	< MDA
SX-SL-984	802' El.	7.12	< MDA	< MDA
SX-SL-985	802' El.	0.54	< MDA	< MDA
SX-5-SL-01-790	802' El.	0.12	< MDA	< MDA
SX-5-SL-01-801	802' El.	1.04	< MDA	< MDA
SX-5-SL-01-829	802' El.	32.97	< MDA	< MDA
SX-5-SL-01-830	802' El.	105.2	< MDA	< MDA
SX-5-SL-01-831	802' El.	34.3	< MDA	< MDA
SX-5-SL-01-833	802' El.	80.5	< MDA	< MDA
SX-5-SL-01-841	802' El.	5.3	< MDA	< MDA
SX-5-SL-01-842	802' El.	13	< MDA	< MDA
SX-5-SL-01-802	802' El.	4.94	< MDA	< MDA
SX-SL-942	802' El.	0.06	< MDA	< MDA
SX-SL-943	802' El.	1.8	< MDA	< MDA
SX-SL-944	802' El.	0.046	< MDA	< MDA
SX-SL-945	802' El.	27	< MDA	< MDA
SX-SL-946	802' El.	29.3	< MDA	< MDA
SX-SL-947	802' El.	46.5	< MDA	< MDA
SX-SL-948	802' El.	38.06	< MDA	< MDA
SX-SL-949	802' El.	53.2	< MDA	< MDA
SX-SL-972	802' El.	0.71	< MDA	< MDA
SX-SL-973	802' El.	0.64	< MDA	< MDA
SX-SL-974	802' El.	0.55	< MDA	< MDA
SX-SL-975	802' El.	0.18	< MDA	< MDA
SX-SL-976	802' El.	23.5	< MDA	< MDA
SX-9-SL-00-364*	CV Yard 807' El.	2.24	< MDA	< MDA
SX-9-SL-00-343*	CV Yard 809' El.	225.6	0.2	< MDA
SX-9-SL-00-339*	CV Yard 809' El.	40.8	< MDA	0.18
SX-9-SL-00-340*	CV Yard 809' El.	3	< MDA	0.07
SX-9-SL-00-341*	CV Yard 809' El.	1.2	< MDA	0.07
SX-9-SL-00-342*	CV Yard 809' El.	4.75	< MDA	< MDA
SX-9-SL-00-347*	CV Yard 807' El.	241	< MDA	< MDA
SX-9-SL-00-363*	CV Yard 807' El.	596.5	< MDA	< MDA
SX-SL-977*	Under Septic Tank Pad	0.17	< MDA	< MDA
SX-SL-978*	Under Septic Tank Pad	0.045	< MDA	< MDA
SX-SL-979*	Under Septic Tank Pad	0.032	< MDA	< MDA
SX-SL-980*	Under Septic Tank Pad	0.26	< MDA	< MDA
Average		39.0	0.2	0.11
Standard Deviation		99.1	----	0.06

NOTE: Only positive values included for Co-60 & Eu-155 Radionuclides

*** These Samples were not from under CV Tunnel Floor Slab but were taken from CV yard.**

2.2.4.3 Site Access Roads (paved and unpaved), and Sub-pavement Soils.

Paved and unpaved roads are indicated on Figures 2-11 and 2-12. The pavement area south of the DSF has had subsurface sampling and gamma logging performed (sample location #14 and 15 in tables 2-15 and 2-16). Results of sampling and gamma logging in these two locations showed no activity related to licensed operations. Site Access Roads (paved and unpaved) extend over the SNEC facility property as well as PENELEC area properties. Scan surveys of these surfaces were performed using 2" diameter by 2" long sodium iodide (NaI) detectors. Because of the variability of natural occurring site radionuclides, background values were determined by re-evaluation on a location by location basis, supported by sample collection and analysis of the major gamma emitters, Cs-137 and Co-60.

The main access roadway to the site enters the PENELEC property from Power Plant Road from Pennsylvania Route 913. The site entrance road extends approximately 1/8 mile onto the site before terminating at a trailer complex. Side roads and dirt lanes branch from this main site access road into other areas of the site. An old access roadway to the Saxton Steam Generating Station (SSGS) west of the nuclear station also was included in the survey coverage. Much of this old roadway was required to be uncovered due to overburden soils that were deposited during previous SSGS demolition efforts. There are two main paved areas at the site. One area lies between the PENELEC warehouse and PENELEC garage areas (South and Southwest of the site). The second is a paved area by the Decommissioning Support Facility.

Radioactive waste is packaged and staged for shipment at some on-site locations which can result in slightly elevated general area measurements at these locations. These staging areas can vary across the site depending on the work schedule. However, current decommissioning activities such as remediation work and routine waste shipments, have little or no prospect of contaminating access roads and parking lot surfaces. Conversely, past surveys have recorded contaminated areas along site access roads from facility operation.

Current and abandoned site access roads, including paved and unpaved surfaces and sub-pavement soils have been characterized and are shown in Table-2-24.

Chapter 5.0 provides the preliminary survey classifications that result from the characterization data.

Table 2-24, Site Access Roads

2" by 2" Sodium Iodide (NaI) Scanning Results

Type of Material and/or Location	Average NaI cpm
Macadam Parking Lot Area Between PENELEC Warehouse & Garage	8400 ± 2700
Access Areas Between PENELEC Warehouse & 1.1 Acre Site	9700 ± 2500
10 Acre PENELEC Site Perimeter Dirt Road	10300 ± 2900
Dirt Access Roads to Dump Area & Rifle Range	13400 ± 1800
Main Access Road to Site & PENELEC Line Shack	12400 ± 2500
Old Coal Fired Plant Macadam Access Road	12700 ± 2700

Typical Sample Results in pCi/g (Cs-137)

Type of Material and/or Location - Sample No.	pCi/g
Access Areas Between PENELEC Warehouse & 1.1 Acre Site – SX10SL01758 & 759	0.6 ± 0.25
10 Acre PENELEC Site Perimeter Dirt Road – SX11SL01755 & 760	0.31 ± 0.29
Dirt Access Roads to Dump Area & Rifle Range – SX11SL01748, 750 & 754	0.1 ± 0.03
Main Access Road to Site & PENELEC Line Shack – SX11SL01749, 751 & 752	0.2 ± 0.28
Old Coal Fired Plant Macadam Access Road – SX11AT01765	< 0.13

2" by 2" Sodium Iodide (NaI) Scanning Results – Near Site Background Samples

Type of Material and/or Location	Average NaI cpm
Near-Site Background Macadam	7200 ± 1000
Near-Site Background Gravel	12900 ± 1000
Near-Site Background Soil	13400 ± 2100

Typical Sample Results in pCi/g (Cs-137)

Type of Material and/or Location - Sample No.	pCi/g
Near-Site Background Macadam – SX12AT00371	< 0.27
Near-Site Background Gravel – SX12GR00372	< 0.09
Near-Site Background Soil – SX12SL00370	< 0.15

Figure 2-25

SOIL REMEDIATION NEAR SNEC CV

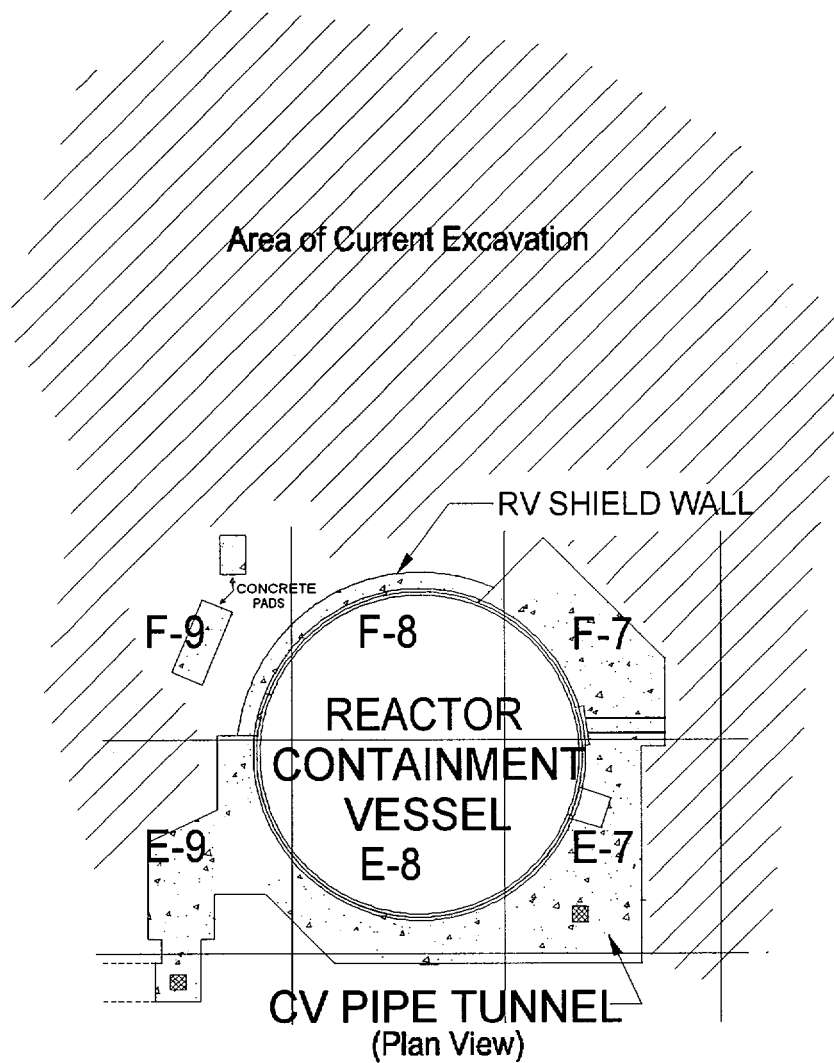
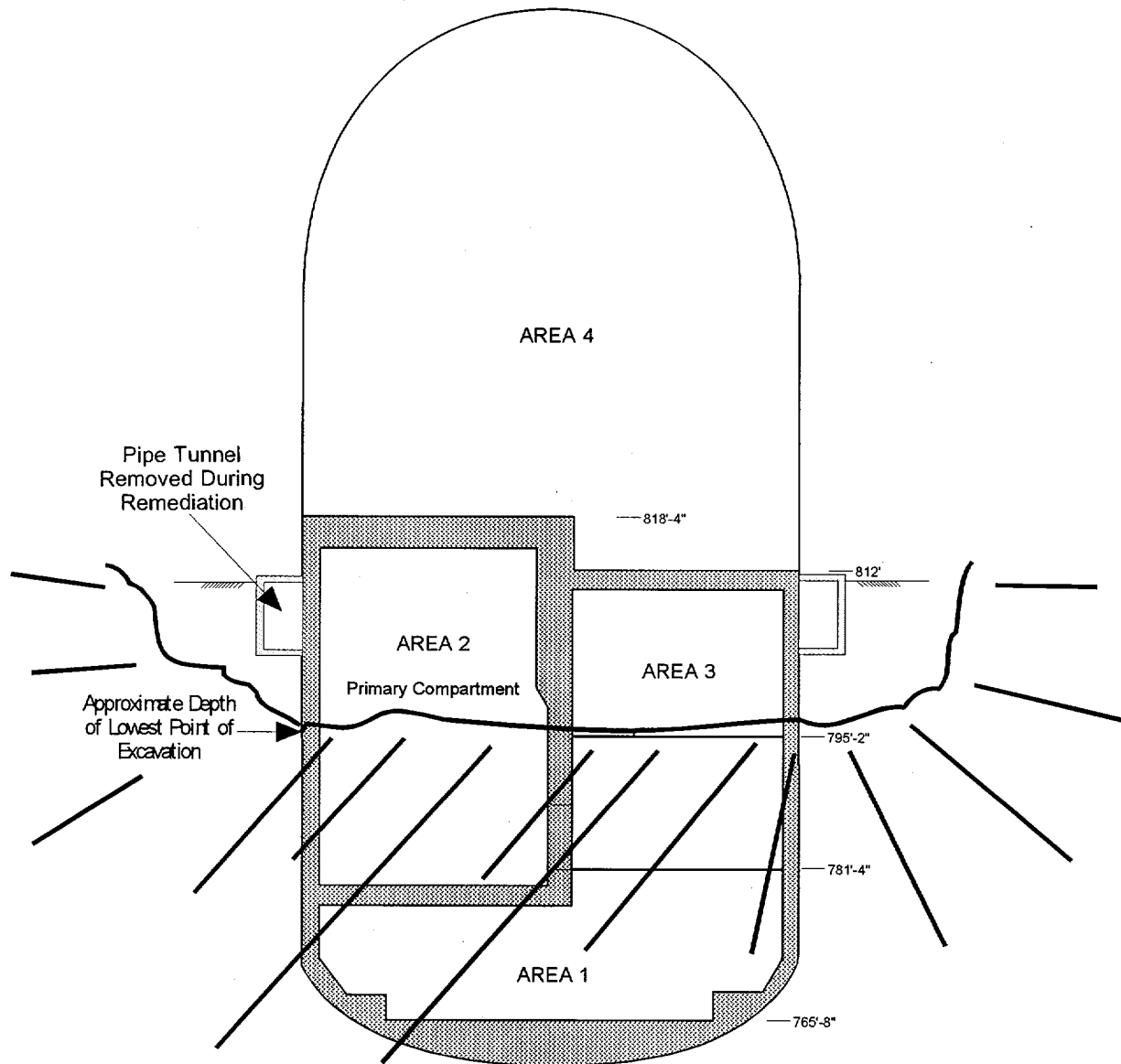


Figure 2-26

SNEC FACILITY CV
Sketch Shows Approximate
Depth of Remediation Efforts to Date



Containment Vessel, Sectional View
(Looking North)
NOTE: CV Internals Not
Shown in Correct Orientation
With Respect to Excavated Areas