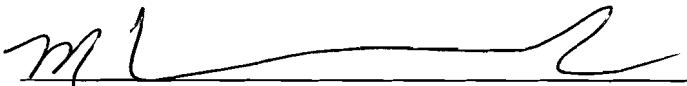
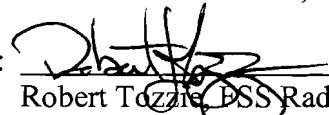


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FINAL STATUS SURVEY REPORT**

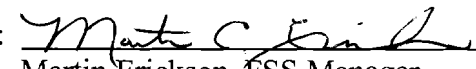
REPORT NO.: YNPS-FSS-NOL-02-00

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Appendix B – YA-REPT-00-015-04, “*Instrument Efficiency Determination for Use in Minimum Detectable Concentration Calculations in Support of the Final Status Survey at Yankee Rowe*”

Appendix C – YA-REPT-00-003-05, “*Generic ALARA Review for Final Status Survey of Soil at YNPS*”

Appendix D – ALARA Evaluations, NOL-02

Appendix E – YA-REPT-01-018-05, “*Use of In-situ Gamma Spectrum Analysis to Perform Elevated Measurement Comparison in Support of Final Status Surveys*”

List of Attachments

Attachment A – Maps and Posting Plots

Attachment B – Data Quality Assessment Plots and Curves

Attachment C – Instrument QC Records

Attachment D – ORTEC Direct Measurement Data

Attachment E – ISOCS Scan Data

(In the electronic version, every Table of Contents, Figures, Appendices and Attachments, as well as every mention of a Figure, Appendix or Attachment is a hyperlink to the actual location or document.)

List of Abbreviations and Acronyms

AL	Action Level
ALARA	As Low As Reasonably Achievable
ASP	Area Surveillance Plan
c/d	Counts per Disintegration
DCGL	Derived Concentration Guideline Level
DCGL _{EMC}	DCGL for small areas of elevated activity
DCGL _W	DCGL for average concentration over a wide area, used with statistical tests
DQO	Data Quality Objectives
EMC	Elevated Measurement Comparison
ETD	Easy-to-Detect
FSS	Final Status Survey
FSSP	Final Status Survey Plan
GPS	Global Positioning System
H ₀	Null Hypothesis
HSA	Historical Site Assessment
HTD	Hard-to-Detect
ISOCS	<i>In-situ</i> Object Counting System [®]
LBGR	Lower Bound of the Grey Region
LTP	License Termination Plan
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum Detectable Activity
MDC	Minimum Detectable Concentration
PAB	Primary Auxiliary Building
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCA	Radiological Controlled Area
RP	Radiation Protection
RSS	Reactor Support Structure
SFP	Spent Fuel Pool
VC	Vapor Container
VCC	Vertical Concrete Cask
VSP	Visual Sample Plan
YNPS	Yankee Nuclear Power Station

1.0 EXECUTIVE SUMMARY

A Final Status Survey (FSS) was performed of Survey Area NOL-02 in accordance with Yankee Nuclear Power Station's (YNPS) License Termination Plan (LTP). This FSS was conducted as an open land area FSS with soil DCGLs.

1.1 Identification of Survey Area and Units

The NOL-02 Survey Area is comprised of 4 Survey Units in the RCA comprising the previous site of the New Fuel Vault, surrounding areas east of the former Spent Fuel Pool and the Northeast Upper RCA Yard. Sub-surface systems that traversed or connected within the Survey Area include electrical, storm drain, fuel oil and auxiliary service water, fire protection, and radioactive liquid drain and transfer lines. Many of these systems were encased in concrete duct banks. Survey Unit NOL-02-01, on the west side of the survey area, is an open land area approximately 562 m² in size. NOL-02-01 was surveyed as a Class 1 Survey Unit. Survey Unit NOL-02-02, on the east side of the survey area, is an open land area consisting of approximately 698 m² in surface area. NOL-02-02 was surveyed as a Class 1 Survey Unit. Survey Unit NOL-02-03, on the south side of the survey area is an open land area consisting of approximately 469 m² in surface area. NOL-02-03 was surveyed as a Class 1 Survey Unit. Survey Unit NOL-02-04, on the north side of the survey area is an open land area consisting of approximately 524 m² in surface area. NOL-02-04 was surveyed as a Class 1 Survey Unit.

A map of the Survey Area and Survey Units in relation to the site is found in Attachment A.

1.2 Dates of Surveys

Table 1 Date of FSS Surveys and DQOs

Survey Unit	Survey Start Date	Survey End Date	DQA Date
NOL-02-01	8/9/2005	8/17/2005	10/19/2006
NOL-02-02	5/4/2006	5/5/2006	10/30/2006
NOL-02-03	6/28/2006	6/29/2006	9/18/2006
NOL-02-04	7/31/2006	8/3/2006	9/11/2006

1.3 Number and Types of Measurements Collected

Final Status Survey Plans were developed for these Survey Units in accordance with YNPS LTP and FSS procedures using the MARSSIM protocol. The planning and design of the survey plan employed the Data Quality Objective (DQO) process, ensuring that the type, quantity and quality of data gathered was appropriate for the decision making process and that the resultant decisions were technically sound and defensible. A total of 70 statistical soil samples were taken in the Survey Area, providing data for the non-parametric testing of the Survey Area. In addition to the soil samples, 100% of the areas were scanned.

1.4 Summary of Survey Results

Following the survey, the data were reviewed against the survey design to confirm completeness and consistency, to verify that the results were valid, to ensure that the survey plan objectives were met and to verify Survey Unit classification. Soil sample surveys indicated that none of the systematic measurements exceeded the DCGL_w, depicted in Attachment B. Retrospective power curves were generated and demonstrated that an adequate number of samples were collected to support the Data Quality Objectives. Therefore, the null hypothesis (H_0) (that the Survey Unit exceeds the release criteria) is rejected.

1.5 Conclusions

Based upon the evaluation of the data acquired for the FSS, NOL-02 meets the release requirements set forth in the YNPS LTP. The Total Effective Dose Equivalent (TEDE) to the average member of the critical group does not exceed 25 mRem per year, including that from groundwater. 10CFR20 Subpart E ALARA requirements have been met as well as the site release criteria for the administrative level DCGLs that ensure that the Massachusetts Department of Public Health's 10 mRem per year limit will also be met.

2.0 FSS PROGRAM OVERVIEW

2.1 Survey Planning

The YNPS FSS Program employs a strategic planning approach for conducting final status surveys with the ultimate objective to demonstrate compliance with the DCGLs, in accordance with the YNPS LTP. The DQO process is used as a planning technique to ensure that the type, quantity, and quality of data gathered is appropriate for the decision-making process and that the resultant decisions are technically sound and defensible. Other key planning measures are the review of historical data for the Survey Area and the use of peer review for plan development.

2.2 Survey Design

In designing the FSS, the questions to be answered are: "Does the residual radioactivity, if present in the Survey Area, exceed the LTP release criteria?" and "Is the potential dose from this radioactivity ALARA?" In order to answer these questions, the radionuclides present in the Survey Area must be identified, and the Survey Units classified. Survey Units are classified with respect to the potential for contamination: the greater the potential for contamination, the more stringent the classification and the more rigorous the survey.

The survey design additionally includes the number, type and locations of soil samples (as well as any judgmental assessments required), scanning requirements,

and instrumentation selection with the required sensitivities or detection levels. DCGLs are developed relative to the surface/material of the Survey Unit and are used to determine the minimum sensitivity required for the survey. Determining the acceptable decision error rates, the lower bound of the gray region (LBGR), statistical test selection and the calculation of the standard deviation and relative shift allows for the development of a prospective power curve plotting the probability of the Survey Unit passing FSS.

2.3 Survey Implementation

Once the planning and development has been completed, the implementation phase of the FSS program begins. Upon completion of remediation and final characterization activities, a final walk down of the Survey Unit is performed. If the unit is determined to be acceptable (i.e. physical condition of the unit is suitable for FSS), it is turned over to the FSS team, and FSS isolation and control measures are established. After the Survey Unit isolation and controls are in place, grid points are identified for the soil samples, using Global Positioning System (GPS) coordinates whenever possible, consistent with the Massachusetts State Plane System, and the area scan grid is identified. Data is collected and any required investigations are performed.

2.4 Survey Data Assessment

The final stage of the FSS program involves assessment of the data collected to ensure the validity of the results, to demonstrate achievement of the survey plan objectives, and to validate Survey Unit classification. During this phase, the DQOs and survey design are reviewed for consistency between DQO output, sampling design and other data collection documents. A preliminary data review is conducted to include: checking for problems or anomalies, calculation of statistical quantities and preparation of graphical representations for data comparison. Statistical tests are performed, if required, and the assumptions for the tests are verified. Conclusions are then drawn from the data, and any deficiencies or recommendations for improvement are documented.

2.5 Quality Assurance and Quality Control Measures

YNPS FSS activities are implemented and performed under approved procedures, and the YNPS Quality Assurance Project Plan (QAPP) assures plans, procedures and instructions have been followed during the course of FSS, as well as providing guidance for implementing quality control measures specified in the YNPS LTP.

3.0 SURVEY AREA INFORMATION

3.1 Survey Area Description

The NOL-02 Survey Area is comprised of 4 Survey Units in the area referred to as the Northeast Upper RCA Yard. A map of the Survey Area and Unit divisions are found in Attachment A.

3.1.1 NOL-02-01 Description

Survey Area NOL-02-01, an open land area, is the previous site of the New Fuel Vault and surrounding areas east of the former Spent Fuel Pool. The soils located around and under NOL-02-01 include backfill, overburden, and glacio-lacustrine till. Permeability to groundwater flow is varied with the till being the most impermeable and the backfill being the least impermeable. NOL-02-01 is bounded by NOL-01-04 on the north, by NOL-02-04 on the north and east, by NOL-02-02 on the east, by NOL-02-03 on the south and by NOL-01-02 and NOL-01-03 on the west. It is approximately 562 square meters of surface area.

3.1.2 NOL-02-02 Description

Survey Area NOL-02-02, an open land area, is upslope from Survey Unit NOL-02-01 and was the site of the Fuel Oil Storage, the Temporary waste evaporator and liquid waste storage tank. These structures have been removed resulting in an open land survey unit comprised of soils and small rocks. The soils located around and under these areas include backfill, overburden, and glacio-lacustrine till. Survey Unit NOL-02-02 is located within the RCA and is bounded by NOL-02-04 on the north, NOL-02-01 on the west and NOL-02-03 on the south, and OOL-11-01 on the east. It is approximately 698 square meters of surface area.

3.1.3 NOL-02-03 Description

Survey Unit NOL-02-03, an open land area, is bordered by NOL-02-01 & 02 to its north, OOL-11-02 to its east, NOL-05-02 to its west and NOL-03-02 to its south. It is approximately 469 square meters of surface area.

3.1.4 NOL-02-04 Description

Survey Area NOL-02-04, an open land area, is located northeast of the former Spent Fuel Pool building and east of the Alleyway. The footprint of NOL-02-04 was within the RCA. Systems that traversed the survey unit include a steel reinforced concrete duct bank for storm drain and fuel oil lines, and auxiliary service water. A rail spur to the containment structure ran through the survey unit. Surface activities in the area included outdoor storage of radioactive material and entrance to /egress from the RCA. Demolition activities have been completed in NOL-02-04, which included removal of subsurface systems and duct banks, and the unit has been subjected to extensive remediation. There are some concrete remnants of the service building wall and the remnant of a support column within the survey unit. These concrete remnants have been surveyed and released under the Radiation Protection Program-Free Release procedure. Survey Unit NOL-02-04 is bounded by OOL-02-02, NOL-01-04 and OOL-12 to the north, by NOL-01-04 and NOL-02-01 to the west, by NOL-02-02 to the south and by OOL-08-04 to the east. It is approximately 524 square meters of surface area.

3.2 History of Survey Area

From the beginning of plant operations, portions of Survey Area NOL-02 were posted and controlled as an RCA. The early bounds of the RCA were established based on a common history of the travel of personnel and material within the upper portion (elevation 1035') of the RCA. The RCA was expanded over time to accommodate the need for additional space. NOL-02 provided access to the SFP, IX Pit, PAB and Waste Disposal Building. All of these structures have been removed in total. The area was potentially impacted by migration of contamination due to routine personnel and material travel into and out of the upper level RCA as well as demolition activities in and around the area,

Operational events and activities were relevant to the contamination of Survey Unit NOL-02 which includes: AOR 61-15 Radioactive Spill chemistry container breakage, AOR 63-12 Shield Tank Cavity Shield Water Spill, AOR 64-13 Leakage from the Ion Exchange Pit, PIR 75-07 Yard Area Contamination, PIR 77-16 Radioactive Liquid Transfer Line Puncture, PIR 80-09 Resin Spill, and Test tank sample collection practices

3.3 Division of Survey Area into Survey Units

The NOL-02 Survey Area is divided into 4 Survey Units. NOL-02-01, NOL-02-02, NOL-02-03 and NOL-02-04 are class 1 Survey Units. A map of the Survey Area and Unit divisions are found in Attachment A.

4.0 SURVEY UNIT INFORMATION

4.1 Summary of Radiological Data Since Historical Site Assessment (HSA)

4.1.1 Chronology and Description of Surveys Since HSA

The Table below provides a summary of surveys performed during the Final Status Survey of NOL-02.

Table 2 Dates of Surveys since HSA

Survey Unit	Survey Start Date	Survey End Date	Description
NOL-02-01	8/9/2005	8/17/2005	FSS Survey
NOL-02-01	9/14/2005	9/14/2005	ASP Survey
NOL-02-02	5/4/2006	5/5/2006	FSS Survey
NOL-02-02	8/23/2006	8/23/2006	ASP Survey
NOL-02-03	6/28/2006	6/29/2006	FSS Survey
NOL-02-04	7/31/2006	8/3/2006	FSS Survey
NOL-02-04	8/24/2006	8/24/2006	ASP Survey
NOL-02-04	10/9/2006	10/9/2006	ASP Survey

4.1.2 Radionuclide Selection and Basis

4.1.2.1 NOL-02-01 Radionuclides of Concern

During the initial DQO process, Co-60, Cs-137, Ag-108m and H-3 were identified as the radiological nuclides of concern for NOL-02-01. However, soil samples were evaluated for all LTP listed nuclides.

4.1.2.2 NOL-02-02 Radionuclides of Concern

During the initial DQO process, Co-60 and Cs-137 were identified as the radiological nuclides of concern for NOL-02-02. However, soil samples were evaluated for all LTP listed nuclides.

4.1.2.3 NOL-02-03 Radionuclides of Concern

During the initial DQO process, Co-60 and Cs-137 were identified as the radiological nuclides of concern for NOL-02-03. However, soil samples were evaluated for all LTP listed nuclides.

4.1.2.4 NOL-02-04 Radionuclides of Concern

During the initial DQO process, Co-60 and Cs-137 were identified as the radiological nuclides of concern for NOL-02-04. However, soil samples were evaluated for all LTP listed nuclides.

4.1.3 Scoping & Characterization

A characterization survey was performed in NOL-02-01 to provide characterization data for Survey Unit NOL-02-01. A characterization survey was also performed in NOL-02-02 to provide characterization data for Survey Unit NOL-02-02. Twenty-five (25) samples from the HSA data were used to provide the characterization data for survey unit NOL-02-03. Survey results from NOL-01-04, adjacent to NOL-02-04 were used as characterization data for Survey Unit NOL-02-04.

4.2 Basis for Classification

Based upon the radiological condition of this Survey Area identified in the operating history and as a result of the decommissioning activities performed to date, Survey Units NOL-02-01, NOL-02-02, NOL-02-03, and NOL-02-04 were identified as Class 1 areas.

4.3 Remedial Actions and Further Investigations

4.3.1 NOL-02-01 Remedial Actions and Further Investigations

Six locations required rescan with ISOCS due to presence of interfering radiation from outside the survey unit (a Sea Land container with highly radioactive material was temporarily stored near the survey unit). The results of these rescans were all below investigation criteria. One location was investigated based on results of ISOCS scans. The location was rescanned with ISOCS in addition to SPA-3 scans. During the investigation a chunk of contaminated concrete was identified. Removal of this chunk of concrete effectively remediated the area. No other investigation or remediation was required. No elevated areas greater than DCGL_w remained in NOL-02-01.

4.3.2 NOL-02-02 Remedial Actions and Further Investigations

An initial attempt to perform FSS in NOL-02-02 was terminated after several scans identified areas of elevated activity. The area was returned to the decommissioning group and was completely remediated. Following this remediation the FSS of NOL-02-02 resulted in no investigations or remedial actions.

4.3.3 NOL-02-03 Remedial Actions and Further Investigations

No investigations or remedial actions were required in NOL-02-03.

4.3.4 NOL-02-04 Remedial Actions and Further Investigations

No investigations or remedial actions were required in NOL-02-04

4.4 Unique Features of Survey Area

Survey Area NOL-02 consisted of relatively level to steeply inclined open land comprised of soils and small rocks with several excavations, contours and changes in elevation caused by remediation and removal of structures and subsurface systems and the natural topography of the land which generally sloped up to the south and east.

4.5 ALARA Practices and Evaluations

The generic ALARA evaluation for soils is documented in Appendix C, Technical Report YA-REPT-00-003-05, "Generic ALARA Review for Final Status Survey of Soil at YNPS". The report is augmented by individual evaluations which are found in Appendix D, which concludes that no further remediation of soil below the DCGL is warranted.

5.0 SURVEY UNIT FINAL STATUS SURVEY

5.1 Survey Planning

5.1.1 Final Status Survey Plan and Associated DQOs

The FSS for NOL-02 Survey Area was planned and developed in accordance with the LTP using the DQO process. Form DPF-8856.1, found in YNPS Procedure 8856, "*Preparation of Survey Plans*," was used to provide guidance and consistency during development of the FSS Plans. The FSS Plans can be found in Appendix A. The DQO process allows for systematic planning and is specifically designed to address problems that require a decision to be made in a complex survey design and, in turn, provides alternative actions.

The DQO process was used to develop an integrated survey plan providing the Survey Unit identification, sample size, selected analytical techniques, survey instrumentation, and scan coverage. The Sign Test was specified for non-parametric statistical testing for this Survey Unit, if required. The design parameters developed are presented below.

Table 3 Survey Area NOL-02 Design Parameters

Survey Unit	Design Parameter	Value	Basis
NOL-02-01	Survey Unit Area	562 m ²	Class 1, Soil, $\leq 2,000$ m ²
	Number of Direct Measurements	15 (calculated) +0 (added) Total: 15	α (Type I) = 0.05 β (Type II) = 0.05 σ : 0.12 Relative Shift: 2 DCGLw (Unity): 1 LBGR: 0.5
	Critical Value	11 for Sign test.	$(15/2) + (1.645/2) * \text{Square Root}(15)$
	Gridded Sample Area Size Factor	37.47 m ²	Area / Number of Samples (562 m ² /15)
	Sample Grid Spacing:	Triangular: 6.6 m	Square Root (562 m ² / 0.866*15)
	Direct Measurement Investigation Level	> DCGL _{emc} or > DCGLw + 3 Sigma	Class 1 Area: > DCGL _{emc} or > DCGLw + 3 Sigma
	Scanning Coverage Requirements	562 m ²	Class 1 Soil Area: 100%
	Scan Investigation Level	Co-60: 0.87 pCi/gm, Cs-137 : 4.0 pCi/gm, or SOF >1	2m 90° ISOCS
NOL-02-02	Survey Unit Area	698 m ²	Class 1, Soil, $\leq 2,000$ m ²
	Number of Direct Measurements	15 (calculated) + 5 (added) Total: 20	α (Type I) = 0.05 β (Type II) = 0.05 σ : 0.033 Relative Shift: 2 DCGLw (Unity): 1 LBGR: 0.93
	Critical Value	14 for Sign test.	$(20/2) + (1.645/2) * \text{Square Root}(20)$
	Gridded Sample Area Size Factor	34.9 m ²	(698 m ² /20)
	Sample Grid Spacing:	Triangular: 6.3 m	Square Root (698 m ² / (0.866*20))
	Direct Measurement Investigation Level	> DCGL _{emc} or > DCGLw + 3 Sigma	Class 1 Area: > DCGL _{emc} or > DCGLw + 3 Sigma
	Scanning Coverage Requirements	698 m ²	Class 1 Soil Area: 100%
	Scan Investigation Level	Co-60: 0.18pCi/gm, Cs-137 : 0.7pCi/gm, or SOF >1	1m 180° ISOCS
NOL-02-03	Survey Unit Area	469 m ²	Class 1, Soil, $\leq 2,000$ m ²
	Number of Direct Measurements	15 (calculated) + 0 (added) Total: 15	α (Type I) = 0.05 β (Type II) = 0.05 σ : 0.084 Relative Shift: 2 DCGLw: 1 (Unity) LBGR: 0.832
	Critical Value	11 for Sign test.	$(15/2) + (1.645/2) * \text{Square Root}(15)$
	Gridded Sample Area Size Factor	31.27 m ²	(469 m ² /15)
	Sample Grid Spacing:	6 m	Square Root (469 m ² /

Survey Unit	Design Parameter	Value	Basis
NOL-02-04			(0.866*15))
	Direct Measurement Investigation Level	> DCGL _{emc} or > DCGL _w + 3 Sigma	Class 1 Area: > DCGL _{emc} or > DCGL _w + 3 Sigma
	Scanning Coverage Requirements	469 m ²	Class 1 Soil Area: 100%
	Scan Investigation Level	Co-60: 0.18pCi/gm, Cs-137 : 0.7pCi/gm, or SOF >1	1m 180° ISOCS
	Survey Unit Area	524 m ²	Class 1, Soil, ≤ 2,000 m ²
	Number of Direct Measurements	15 (calculated) + 5 (added) Total: 20	α (Type I) = 0.05 β (Type II) = 0.05 σ: 0.1806 Relative Shift: 2.77 DCGL _w : 1 (Unity) LBGR: 0.5
	Critical Value	14 for Sign test.	(20/2)+(1.645/2)*Square Root (20)
	Gridded Sample Area Size Factor	26.2 m ²	(524 m ² /20)
	Sample Grid Spacing:	5.5 m	Square Root (524 m ² / (0.866*20))
	Direct Measurement Investigation Level	> DCGL _{emc} or > DCGL _w + 3 Sigma	Class 1 Area: > DCGL _{emc} or > DCGL _w + 3 Sigma
	Scanning Coverage Requirements	524 m ²	Class 1 Soil Area: 100%
	Scan Investigation Level	Co-60: 0.18pCi/gm, Cs-137 : 0.7pCi/gm, or SOF >1	1m 180° ISOCS

5.1.2 Deviations from the FSS Plan as Written in the LTP

The FSSP design was performed to the criteria of the LTP; therefore, no LTP deviations with potential impact to this Survey Area need to be evaluated.

5.1.3 DCGL Selection and Use

For the final evaluation of the NOL-02 Survey Area and throughout this report, the administrative acceptance criterion of 8.73 mRem per year has been set for Soil LTP-listed radionuclides.

Table 4 Soil DCGL Values

Nuclide	Soil 8.73 mRem per year (pCi/g)	Nuclide	Soil 8.73 mRem per year (pCi/g)
Co-60	1.4E+00	H-3	1.3E+02
Nb-94	2.5E+00	C-14	1.9E+00
Ag-108m	2.5E+00	Fe-55	1.0E+04
Sb-125	1.1E+01	Ni-63	2.8E+02
Cs-134	1.7E+00	Sr-90	6.0E-01
Cs-137	3.0E+00	Tc-99	5.0E+00
Eu-152	3.6E+00	Pu-238	1.2E+01

Nuclide	Soil 8.73 mRem per year (pCi/g)	Nuclide	Soil 8.73 mRem per year (pCi/g)
Eu-154	3.3E+00	Pu-239	1.1E+01
Eu-155	1.4E+02	Pu-241	3.4E+02
Am-241	1.0E+01	Cm-243	1.1E+01

5.1.4 Measurements

Error tolerances and characterization sample population statistics drove the selection of the number of statistical measurements. The quantity of statistical measurements collected for each unit is listed above in the table titled “Survey Area NOL-02 Design Parameters”. Split samples and recounts are addressed under the quality control section 6.2. The NOL-02-01, NOL-02-02, NOL-02-03, and NOL-02-04 soil sampling grids were developed as systematic grids with spacing consisting of a triangular pitch pattern with a random starting point. Sample measurement locations are provided in Attachment A.

The class 1 areas; NOL-02-01, NOL-02-02, NOL-02-03 and NOL-02-04 were scanned 100% with ISOCS. The results are listed in the table below titled “ISOCS Scan Summary”.

5.2 Survey Implementation Activities

The Table below provides a summary of daily activities performed during the Final Status Survey of NOL-02.

Table 5 FSS Activity Summary for NOL-02

Survey Unit	Date	Activity
NOL-02-01	7/30/05	Performed walk-down of Survey Unit
	7/30/2005	Established Isolation and Controls
	7/26/2005	Performed Job Hazard Analysis
	8/5/2005	Performed Unit Classification
	8/8/2005	Performed Sample Quantity Calculations, established DQOs
	8/8/2005	Generated FFS Sample Plans
	8/9/2005 to 8/17/2005	Performed Scans, and Direct measurements.
	9/14/2005	Performed ASP
	10/19/2006	Performed DQA, FSS Complete
NOL-02-02	5/2/2006	Performed walk-down of Survey Unit
	5/4/2006	Established Isolation and Controls
	5/2/2006	Performed Job Hazard Analysis
	5/2/2006	Performed Unit Classification
	5/4/2006	Performed Sample Quantity Calculations, established DQOs
	5/4/2006	Generated FFS Sample Plans
	5/4/2006 to 5/5/2006	Performed Scans, and Direct measurements.
	8/23/2006	Performed ASP

Survey Unit	Date	Activity
	10/30/2006	Performed DQA, FSS Complete
NOL-02-03	6/22/2006	Performed walk-down of Survey Unit
	6/26/2006	Established Isolation and Controls
	5/17/2006	Performed Job Hazard Analysis
	5/18/2006	Performed Unit Classification
	5/17/2006	Performed Sample Quantity Calculations, established DQOs
	5/18/2006	Generated FFS Sample Plans
	6/28/2006 to 6/29/2006	Performed Scans, and Direct measurements.
	9/18/2006	Performed DQA, FSS Complete
NOL-02-04	7/26/2006	Performed walk-down of Survey Unit
	7/26/2006	Established Isolation and Controls
	7/26/2006	Performed Job Hazard Analysis
	7/26/2006	Performed Unit Classification
	7/24/2006	Performed Sample Quantity Calculations, established DQOs
	7/26/2006	Generated FFS Sample Plans
	7/31/2006 to 8/3/2006	Performed Scans, and Direct measurements.
	8/24/2006 & 10/9/2006	Performed ASP
	9/11/2006	Performed DQA, FSS Complete

5.3 Surveillance Surveys

5.3.1 Periodic Surveillance Surveys

Upon completion of the FSS of Survey Area NOL-02, the Survey Area was placed into the program for periodic surveillance surveys on a quarterly basis in accordance with YNPS procedure DP-8860, “*Area Surveillance Following Final Status Survey.*” These surveys provide assurance that areas with successful FSS remain unchanged until license termination.

5.3.2 Resurveys

Area Surveillance Surveys were performed in NOL-02-01, NOL-02-02 and NOL-02-04. No statistical differences were found the in the Area Surveillance Surveys, demonstrating that the areas remained unchanged.

5.3.3 Investigations

No additional investigations were required for this Survey Area due to Area Surveillance Surveys.

5.4 Survey Results

Soil sample surveys indicated that NOL-02 had no systematic measurements that exceeded the $DCGL_w$, depicted in Attachment B. Retrospective power curves were generated and demonstrated that an adequate number of samples were collected to support the Data Quality Objectives. Therefore, the null hypothesis (H_0) (that the Survey Unit exceeds the release criteria) is rejected.

Table 6 Soil Sample Summary

Sample	SOF	Sample	SOF	Sample	SOF	Sample	SOF
NOL-02-01-001-F	0.15	NOL-02-02-001-F	0.05	NOL-02-03-001-F	0.06	NOL-02-04-001-F	0.05
NOL-02-01-002-F	0.09	NOL-02-02-002-F	0.11	NOL-02-03-002-F	0.05	NOL-02-04-002-F	0.05
NOL-02-01-003-F	0.14	NOL-02-02-003-F	0.10	NOL-02-03-003-F	0.19	NOL-02-04-003-F	0.11
NOL-02-01-004-F	0.05	NOL-02-02-004-F	0.14	NOL-02-03-004-F	0.10	NOL-02-04-004-F	0.05
NOL-02-01-005-F	0.09	NOL-02-02-005-F	0.10	NOL-02-03-005-F	0.09	NOL-02-04-005-F	0.04
NOL-02-01-006-F	0.17	NOL-02-02-006-F	0.06	NOL-02-03-006-F	0.13	NOL-02-04-006-F	0.04
NOL-02-01-007-F	0.07	NOL-02-02-007-F	0.06	NOL-02-03-007-F	0.09	NOL-02-04-007-F	0.06
NOL-02-01-008-F	0.12	NOL-02-02-008-F	0.18	NOL-02-03-008-F	0.05	NOL-02-04-008-F	0.07
NOL-02-01-009-F	0.05	NOL-02-02-009-F	0.11	NOL-02-03-009-F	0.06	NOL-02-04-009-F	0.06
NOL-02-01-010-F	0.05	NOL-02-02-010-F	0.07	NOL-02-03-010-F	0.15	NOL-02-04-010-F	0.16
NOL-02-01-011-F	0.05	NOL-02-02-011-F	0.05	NOL-02-03-011-F	0.04	NOL-02-04-011-F	0.05
NOL-02-01-012-F	0.06	NOL-02-02-012-F	0.04	NOL-02-03-012-F	0.11	NOL-02-04-012-F	0.07
NOL-02-01-013-F	0.26	NOL-02-02-013-F	0.09	NOL-02-03-013-F	0.11	NOL-02-04-013-F	0.07
NOL-02-01-014-F	0.08	NOL-02-02-014-F	0.04	NOL-02-03-014-F	0.06	NOL-02-04-014-F	0.28
NOL-02-01-015-F	0.11	NOL-02-02-015-F	0.14	NOL-02-03-015-F	0.05	NOL-02-04-015-F	0.04
		NOL-02-02-016-F	0.11			NOL-02-04-016-F	0.17
		NOL-02-02-017-F	0.14			NOL-02-04-017-F	0.04
		NOL-02-02-018-F	0.05			NOL-02-04-018-F	0.04
		NOL-02-02-019-F	0.10			NOL-02-04-019-F	0.04
		NOL-02-02-020-F	0.05			NOL-02-04-020-F	0.07
Max	0.26	Max	0.18	Max	0.19	Max	0.28
Average	0.10	Average	0.09	Average	0.09	Average	0.08
Standard Deviation	0.06	Standard Deviation	0.04	Standard Deviation	0.04	Standard Deviation	0.06

ISOCS systems were used to perform scan surveys for the remainder of the units. Measurement results listed below are reported in sum of fraction of the investigation levels. A number less than one indicates that no investigation was warranted.

$$Investigation\ level(I_{LV}) = {}^1DCGL_w \times {}^2AF \times AdjustmentFactor$$

¹ Soil $DCGL_w$ from Appendix 6E of YNPS LTP

² Area Factor for 1 m² taken from Appendix 6Q of YNPS LTP

$$\frac{C_1}{I_{LV_1}} + \frac{C_2}{I_{LV_2}} + \dots + \frac{C_n}{I_{LV_n}} \leq 1$$

where:

C_n = Concentration of radionuclide n

I_{LV} = Investigation level for radionuclide n

Table 7 ISOCS Scan Summary

Sample Title	SOF	Sample Title	SOF	Sample Title	SOF	Sample Title	SOF
NOL-02-01-001-F-G	0.00	NOL-02-02-101-F-G	0.00	NOL-02-03-101-F-G	0.00	NOL-02-04-101-F-G	0.00
NOL-02-01-002-F-G	0.00	NOL-02-02-102-F-G	0.00	NOL-02-03-102-F-G	0.00	NOL-02-04-102-F-G	0.00
NOL-02-01-003-F-G	0.26	NOL-02-02-103-F-G	0.00	NOL-02-03-103-F-G	0.00	NOL-02-04-103-F-G	0.00
NOL-02-01-004-F-G	0.19	NOL-02-02-104-F-G	0.00	NOL-02-03-104-F-G	0.00	NOL-02-04-104-F-G	0.00
NOL-02-01-005-F-G	0.00	NOL-02-02-105-F-G	0.00	NOL-02-03-105-F-G	0.00	NOL-02-04-105-F-G	0.00
NOL-02-01-006-F-G	0.00	NOL-02-02-106-F-G	0.09	NOL-02-03-106-F-G	0.00	NOL-02-04-106-F-G	0.00
NOL-02-01-007-F-G	0.26	NOL-02-02-107-F-G	0.10	NOL-02-03-107-F-G	0.11	NOL-02-04-107-F-G	0.00
NOL-02-01-008-F-G	0.44	NOL-02-02-108-F-G	0.00	NOL-02-03-108-F-G	0.00	NOL-02-04-108-F-G	0.00
NOL-02-01-009-F-G	0.22	NOL-02-02-109-F-G	0.00	NOL-02-03-109-F-G	0.00	NOL-02-04-109-F-G	0.13
NOL-02-01-010-F-G	0.00	NOL-02-02-110-F-G	0.00	NOL-02-03-110-F-G	0.00	NOL-02-04-110-F-G	0.00
NOL-02-01-011-F-G	0.00	NOL-02-02-111-F-G	0.00	NOL-02-03-111-F-G	0.00	NOL-02-04-111-F-G	0.00
NOL-02-01-012-F-G	0.45	NOL-02-02-112-F-G	0.13	NOL-02-03-112-F-G	0.00	NOL-02-04-112-F-G	0.00
NOL-02-01-013-F-G	0.47	NOL-02-02-113-F-G	0.00	NOL-02-03-113-F-G	0.00	NOL-02-04-113-F-G	0.00
NOL-02-01-014-F-G	0.33	NOL-02-02-114-F-G	0.00	NOL-02-03-114-F-G	0.00	NOL-02-04-114-F-G	0.00
NOL-02-01-015-F-G	0.00	NOL-02-02-115-F-G	0.00	NOL-02-03-115-F-G	0.27	NOL-02-04-115-F-G	0.00
NOL-02-01-016-F-G	0.00	NOL-02-02-116-F-G	0.00	NOL-02-03-116-F-G	0.00	NOL-02-04-116-F-G	0.00
NOL-02-01-017-F-G	0.42	NOL-02-02-117-F-G	0.00	NOL-02-03-117-F-G	0.00	NOL-02-04-117-F-G	0.00
NOL-02-01-018-F-G	0.30	NOL-02-02-118-F-G	0.00	NOL-02-03-118-F-G	0.00	NOL-02-04-118-F-G	0.00
NOL-02-01-019-F-G	0.29	NOL-02-02-119-F-G	0.04	NOL-02-03-119-F-G	0.00	NOL-02-04-119-F-G	0.07
NOL-02-01-020-F-G	0.00	NOL-02-02-120-F-G	0.15	NOL-02-03-120-F-G	0.00	NOL-02-04-120-F-G	0.00
NOL-02-01-021-F-G	0.00	NOL-02-02-121-F-G	0.00	NOL-02-03-121-F-G	0.00	NOL-02-04-121-F-G	0.00
NOL-02-01-022-F-G	0.00	NOL-02-02-122-F-G	0.00	NOL-02-03-122-F-G	0.00	NOL-02-04-122-F-G	0.00
NOL-02-01-023-F-G	0.00	NOL-02-02-123-F-G	0.00	NOL-02-03-123-F-G	0.00	NOL-02-04-123-F-G	0.00
NOL-02-01-024-F-G	0.00	NOL-02-02-124-F-G	0.00	NOL-02-03-124-F-G	0.00	NOL-02-04-124-F-G	0.00
NOL-02-01-025-F-G	0.08	NOL-02-02-125-F-G	0.00	NOL-02-03-125-F-G	0.00	NOL-02-04-125-F-G	0.00
NOL-02-01-026-F-G	0.00	NOL-02-02-126-F-G	0.00	NOL-02-03-126-F-G	0.00	NOL-02-04-126-F-G	0.00
NOL-02-01-027-F-G	0.00	NOL-02-02-127-F-G	0.00	NOL-02-03-127-F-G	0.00	NOL-02-04-127-F-G	0.00
NOL-02-01-028-F-G	0.00	NOL-02-02-128-F-G	0.00	NOL-02-03-128-F-G	0.00	NOL-02-04-128-F-G	0.18
NOL-02-01-029-F-G	0.00	NOL-02-02-129-F-G	0.10	NOL-02-03-129-F-G	0.00	NOL-02-04-129-F-G	0.00
NOL-02-01-030-F-G	0.21	NOL-02-02-130-F-G	0.00	NOL-02-03-130-F-G	0.00	NOL-02-04-130-F-G	0.00
NOL-02-01-031-F-G	0.00	NOL-02-02-131-F-G	0.00	NOL-02-03-131-F-G	0.00	NOL-02-04-131-F-G	0.00
NOL-02-01-032-F-G	0.00	NOL-02-02-132-F-G	0.00	NOL-02-03-132-F-G	0.00	NOL-02-04-132-F-G	0.00
NOL-02-01-033-F-G	0.18	NOL-02-02-133-F-G	0.00	NOL-02-03-133-F-G	0.10	NOL-02-04-133-F-G	0.00
NOL-02-01-034-F-G	0.10	NOL-02-02-134-F-G	0.08	NOL-02-03-134-F-G	0.00	NOL-02-04-134-F-G	0.00
NOL-02-01-035-F-G	1.06	NOL-02-02-135-F-G	0.00	NOL-02-03-135-F-G	0.00	NOL-02-04-135-F-G	0.00
NOL-02-01-036-F-G	0.00	NOL-02-02-136-F-G	0.00	NOL-02-03-136-F-G	0.00	NOL-02-04-136-F-G	0.00
NOL-02-01-037-F-G	0.00	NOL-02-02-137-F-G	0.00	NOL-02-03-137-F-G	0.00	NOL-02-04-137-F-G	0.14
NOL-02-01-038-F-G	0.00	NOL-02-02-138-F-G	0.15	NOL-02-03-138-F-G	0.00	NOL-02-04-138-F-G	0.15
NOL-02-01-039-F-G	0.00	NOL-02-02-139-F-G	0.08	NOL-02-03-139-F-G	0.00	NOL-02-04-139-F-G	0.00
NOL-02-01-040-F-G	0.00	NOL-02-02-140-F-G	0.00	NOL-02-03-140-F-G	0.00	NOL-02-04-140-F-G	0.00
NOL-02-01-041-F-G	0.00	NOL-02-02-141-F-G	0.00	NOL-02-03-141-F-G	0.00	NOL-02-04-141-F-G	0.00
NOL-02-01-042-F-G	0.00	NOL-02-02-142-F-G	0.00	NOL-02-03-142-F-G	0.00	NOL-02-04-142-F-G	0.00
NOL-02-01-043-F-G	0.06	NOL-02-02-143-F-G	0.00			NOL-02-04-143-F-G	0.00
NOL-02-01-044-F-G	0.80	NOL-02-02-144-F-G	0.00			NOL-02-04-144-F-G	0.00
NOL-02-01-045-F-G	0.00	NOL-02-02-145-F-G	0.00			NOL-02-04-145-F-G	0.00
NOL-02-01-046-F-G	0.00	NOL-02-02-146-F-G	0.00			NOL-02-04-146-F-G	0.00

Sample Title	SOF	Sample Title	SOF	Sample Title	SOF	Sample Title	SOF
NOL-02-01-047-F-G	0.00	NOL-02-02-147-F-G	0.00			NOL-02-04-147-F-G	0.00
NOL-02-01-048-F-G	0.00	NOL-02-02-148-F-G	0.00			NOL-02-04-148-F-G	0.00
NOL-02-01-049-F-G	0.00	NOL-02-02-149-F-G	0.00			NOL-02-04-149-F-G	0.05
NOL-02-01-050-F-G	0.00	NOL-02-02-150-F-G	0.00			NOL-02-04-150-F-G	0.00
NOL-02-01-051-F-G	0.02					NOL-02-04-151-F-G	0.00
NOL-02-01-052-F-G	0.00					NOL-02-04-152-F-G	0.00
NOL-02-01-053-F-G	0.03					NOL-02-04-153-F-G	0.00
NOL-02-01-054-F-G	0.00					NOL-02-04-154-F-G	0.00
NOL-02-01-055-F-G	0.00					NOL-02-04-155-F-G	0.41
NOL-02-01-056-F-G	0.00					NOL-02-04-156-F-G	0.00
NOL-02-01-057-F-G	0.00						
NOL-02-01-058-F-G	0.00						
NOL-02-01-059-F-G	0.04						
NOL-02-01-060-F-G	0.00						
NOL-02-01-061-F-G	0.00						
NOL-02-01-062-F-G	0.00						
NOL-02-01-063-F-G	0.00						
NOL-02-01-064-F-G	0.00						
NOL-02-01-065-F-G	0.00						
NOL-02-01-066-F-G	0.00						
NOL-02-01-067-F-G	0.00						
NOL-02-01-068-F-G	0.00						
NOL-02-01-069-F-G	0.41						
* NOL-02-01-070-F-G	1.08						
* NOL-02-01-071-F-G	1.41						
* NOL-02-01-072-F-G	1.74						
* NOL-02-01-073-F-G	1.91						
NOL-02-01-074-F-G	0.00						
NOL-02-01-075-F-G	0.00						
NOL-02-01-076-F-G	0.00						
NOL-02-01-077-F-G	0.00						
NOL-02-01-078-F-G	0.00						
NOL-02-01-079-F-G	0.00						
NOL-02-01-080-F-G	0.00						
NOL-02-01-081-F-G	0.00						
NOL-02-01-082-F-G	0.67						
NOL-02-01-083-F-G	0.63						
* NOL-02-01-084-F-G	1.56						
* NOL-02-01-085-F-G	1.83						
NOL-02-01-086-F-G	0.00						
NOL-02-01-087-F-G	0.00						
NOL-02-01-088-F-G	0.00						
NOL-02-01-089-F-G	0.00						
NOL-02-01-090-F-G	0.00						
NOL-02-01-091-F-G	0.00						
NOL-02-01-092-F-G	0.00						
NOL-02-01-093-F-G	0.38						

Sample Title	SOF	Sample Title	SOF	Sample Title	SOF	Sample Title	SOF
NOL-02-01-094-F-G	0.57						
NOL-02-01-095-F-G	0.64						
NOL-02-01-096-F-G	0.70						
NOL-02-01-097-F-G	0.00						
NOL-02-01-098-F-G	0.00						
NOL-02-01-099-F-G	0.00						
NOL-02-01-100-F-G	0.00						
NOL-02-01-101-F-G	0.02						
NOL-02-01-102-F-G	0.30						
NOL-02-01-103-F-G	0.52						
NOL-02-01-104-F-G	0.58						
NOL-02-01-105-F-G	0.00						
** NOL-02-01-106-F-G-I	0.65						
** NOL-02-01-107-F-G-I	0.75						
** NOL-02-01-108-F-G-I	0.07						
** NOL-02-01-109-F-G-I	0.53						
** NOL-02-01-110-F-G-I	0.56						
** NOL-02-01-111-F-G-I	0.32						
** NOL-02-01-112-F-G-I	0.37						
** NOL-02-01-113-F-G-I	0.28						
** NOL-02-01-114-F-G-I	0.31						
NOL-02-01-115-F-G-I	0.58						
NOL-02-01-116-F-G	0.35						
Max	1.06	Max	0.15	Max	0.27	Max	0.41
Average	0.15	Average	0.02	Average	0.01	Average	0.02
Standard Deviation	0.24	Standard Deviation	0.04	Standard Deviation	0.05	Standard Deviation	0.07

* - Sea Land container with highly radioactive material found stored near survey unit during these.

** - Repeat scans following removal of the radioactive material.

5.5 Data Quality Assessment

The Data Quality Assessment phase is the part of the FSS where survey design and data are reviewed for completeness and consistency, ensuring the validity of the results, verifying that the survey plan objectives were met, and validating the classification of the Survey Unit.

The sample design and the data acquired were reviewed and found to be in accordance with applicable YNPS procedures DP-8861, *“Data Quality Assessment”*; DP-8856, *“Preparation of Survey Plans”*; DP-8853, *“Determination of the Number and Locations of FSS Samples and Measurements”*; DP-8857, *“Statistical Tests”*; DP-8865, *“Computer Determination of the Number of FSS Samples and Measurements”* and DP-8852, *“Final Status Survey Quality Assurance Project Plan”*.

The Data Quality Assessment power curves, scatter, quantile and frequency plots are found in Attachment B. Posting Plots are found in Attachment A.

5.5.1 NOL-02-01 Data Quality Assessment

The biased soil sample results were below the DCGLw. Fixed point sample concentrations were below the DCGLw and no sum-of-fractions were equal to or greater than one. HTD sample results were <DCGLw. Scans requiring investigation were investigated and the elevated readings were resolved. The data set was within approximately three standard deviations with normal dispersion about the arithmetic mean. The data posting plot does not clearly reveal any systematic spatial trends. The quantile plot exhibits some asymmetry in the lower quartile and the frequency plot demonstrates a normal distribution. The survey maintained sufficient power to pass the unit and the data set verified the assumptions of the statistical test.

5.5.2 NOL-02-02 Data Quality Assessment

Fixed point sample concentrations were below the DCGLw and no sum-of-fractions were equal to or greater than one. HTD sample results were <DCGLw. The data set was within approximately three standard deviations with normal dispersion about the arithmetic mean. The quantile plot exhibits some asymmetry in the lower quartile and the frequency plot shows a slight skew to the left. The data posting plot does not clearly reveal any systematic spatial trends. The survey maintained sufficient power to pass the unit and the data set verified the assumptions of the statistical test.

5.5.3 NOL-02-03 Data Quality Assessment

Fixed point sample concentrations were below the DCGLw and no sum-of-fractions were equal to or greater than one. HTD sample results were <DCGLw. The data set was within approximately three standard deviations with normal dispersion about the arithmetic mean. The quantile plot indicates no significant variability in the data set and the frequency plot demonstrates a normal distribution. The data posting plot does not clearly reveal any systematic spatial trends. The survey maintained sufficient power to pass the unit and the data set verified the assumptions of the statistical test.

5.5.4 NOL-02-04 Data Quality Assessment

Fixed point sample concentrations were below the DCGLw and no sum-of-fractions were equal to or greater than one. HTD sample results were <DCGLw. With the exception of one data point, the data set was within

approximately three standard deviations with all of the sum-of-fractions within a small fraction of unity. The scatter plot graphically illustrates that the data varies about the arithmetic mean. The data posting plot does not clearly reveal any systematic spatial trends. The quantile plot exhibits some asymmetry in the upper quartile and the frequency plot demonstrates a normal distribution. The survey maintained sufficient power to pass the unit and the data set verified the assumptions of the statistical test.

6.0 QUALITY ASSURANCE AND QUALITY CONTROL

6.1 Instrument QC Checks

Operation of the portable ISOCS was in accordance with DP-8871, "*Operation of the Canberra Portable ISOCS System*," with QC checks performed in accordance with DP-8869, "*In-situ (ISOCS) Gamma Spectrum Assay System Calibration Procedure*" and DP-8871, "*Operation of the Canberra Portable ISOCS System*." Operation of the E-600 w/SPA-3 was in accordance with DP-8535, "*Setup and Operation of the Eberline E-600 Digital Survey Instrument*," with QC checks performed in accordance with DP-8540, "*Operation and Source Checks of Portable Friskers*." Instrument response checks were performed prior to and after use for the E-600 w/SPA-3 and once per shift for the Portable ISOCS. Any flags (i.e. anomalies in the QC results) encountered during the ISOCS QC Source Count were corrected/resolved prior to surveying. All instrumentation involved with the FSS of NOL-02 satisfied the above criteria for the survey. QC records are found in Attachment C.

6.2 Split Samples and Recounts

6.2.1 NOL-02-01 Split Samples and Recounts

Two split and two recount "QC" samples were gathered and within tolerable limits in accordance with DP-8864, "*Split Sample Assessment for Final Status Survey*".

6.2.2 NOL-02-02 Split Samples and Recounts

Two split and two recount "QC" samples were gathered and within tolerable limits in accordance with DP-8864, "*Split Sample Assessment for Final Status Survey*".

6.2.3 NOL-02-03 Split Samples and Recounts

Two split and one recount "QC" sample was gathered and within tolerable limits in accordance with DP-8864, "*Split Sample Assessment for Final Status Survey*".

6.2.4 NOL-02-04 Split Samples and Recounts

Two split and two recount “QC” samples were gathered and within tolerable limits in accordance with DP-8864, “*Split Sample Assessment for Final Status Survey*”.

6.3 Self-Assessments

No self-assessments were performed during the FSS of NOL-02.

7.0 CONCLUSION

The FSS of NOL-02 has been performed in accordance with YNPS LTP and applicable FSS procedures. Evaluation of the soil sample data has shown none of the systematic soil samples exceeded the $DCGL_w$, depicted in Attachment B. Retrospective power curves were generated and demonstrated that an adequate number of samples were collected to support the Data Quality Objectives. Therefore, the null hypothesis (H_0) is rejected.

NOL-02 meets the objectives of the Final Status Survey.

Based upon the evaluation of the data acquired for the FSS, NOL-02 meets the release requirements set forth in the YNPS LTP. The Total Effective Dose Equivalent (TEDE) to the average member of the critical group does not exceed 25 mRem per year, including that from groundwater. 10CFR20 Subpart E ALARA requirements have been met as well as the site release criteria for the administrative level DCGLs that ensure that the Massachusetts Department of Public Health’s 10 mRem per year limit will also be met.

List of Appendices

Appendix A – YNPS-FSSP-NOL-02, *“Final Status Survey Planning Worksheets”*

Appendix B – YA-REPT-00-015-04, *“Instrument Efficiency Determination for Use in Minimum Detectable Concentration Calculations in Support of the Final Status Survey at Yankee Rowe”*

Appendix C – YA-REPT-00-003-05, *“Generic ALARA Review for Final Status Survey of Soil at YNPS”*

Appendix D – ALARA Evaluations, NOL-02

Appendix E – YA-REPT-01-018-05, *“Use of In-situ Gamma Spectrum Analysis to Perform Elevated Measurement Comparison in Support of Final Status Surveys”*

List of Attachments

Attachment A – Maps and Posting Plots

Attachment B – Data Quality Assessment Plots and Curves

Attachment C – Instrument QC Records

Attachment D – ORTEC Direct Measurement Data

Attachment E – ISOCS Scan Data

(In the electronic version, every Table of Contents, Figures, Appendices and Attachments, as well as every mention of a Figure, Appendix or Attachment is a hyperlink to the actual location or document.)