

PDXOM-01
Rev. 1
Effective
Date 11/20/92

LIPA
NUCLEAR MANAGEMENT
CONTROL MANUAL



NUCLEAR ORGANIZATION MANAGEMENT
CONTROL PROGRAM
FOR
Decommissioning Termination Survey Program Description
(PDXOM-01)

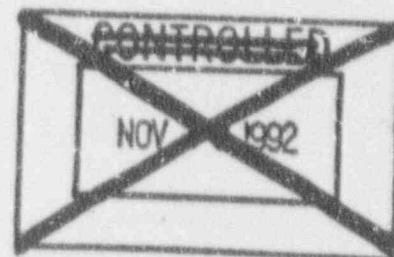
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TERMINATION SURVEY PROGRAM DESCRIPTION
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PROGRAM DESCRIPTION FOR SHOREHAM DECOMMISSIONING TERMINATION SURVEY

1.0 OBJECTIVE

Termination of the U. S. Nuclear Regulatory Commission (NRC) license for the Shoreham Nuclear Power Station (SNPS) requires that radioactive materials be removed and that residual radiation and contamination levels be below limits identified in the Shoreham Decommissioning Plan^{2.1}. This will be demonstrated through a comprehensive radiation survey of the facility, called the Termination Survey. Due to the specialized nature of termination surveys and the magnitude of the effort, a Termination Survey Program has been established within the Shoreham Decommissioning Project.

The principal objective of this document is to describe the Termination Survey organization and the management control mechanisms for the Termination Survey Program in accordance with the requirements of the Long Island Power Authority (LIPA) Nuclear Management Control Manual^{2.2}. This document also describes responsibilities of Shoreham Decommissioning Project organizations in support of the Termination Survey Program. A program overview is provided which includes a summary of the management approach and major planning milestones. This Program Description establishes the basis for development of implementing plans and procedures.

2.0 REFERENCES

- 2.1 LIPA Shoreham Decommissioning Plan, NRC Docket No. 50-322, as supplemented.
- 2.2 LIPA Nuclear Management Control Manual, "Nuclear Organization Management Control Program for Program Description Development, Review and Control", PDXOM-01
- 2.3 Long Island Lighting Company (LILCO), "Program Description Site Characterization Program, Shoreham Nuclear Power Station", Rev. 1, Oct. 10, 1990 (with addenda).
- 2.4 LILCO "Shoreham Nuclear Power Station Site Characterization Program Final Report", May 1990, with Addenda
- 2.5 LIPA Quality Assurance Manual

- 2.6 NRC "Manual for Conducting Radiological Surveys in Support of License Termination", NUREG/CR-5849, Draft Report for Comment.
- 2.7 LILCO SNPS Updated Safety Analysis Report (USAR) and Defueled Safety Analysis Report (DSAR), Docket No. 50-322, as amended.
- 2.8 LILCO SNPS Composite Component List (CCL).
- 2.9 U. S. Atomic Energy Commission (AEC), Regulatory Guide 1.86, "Termination of Operating Licenses for Nuclear Reactors", June, 1974

3.0 DEFINITIONS

- 3.1 Characterization Survey - Radiological survey measurements, supporting calculations and evaluations performed to establish the Shoreham facility baseline radiological condition prior to decommissioning activities and to serve as a planning tool for the decommissioning effort. The characterization survey activities are described in and controlled by the Site Characterization Program Description^{2,3}.
- 3.2 Criteria Document - The document which describes the criteria that will be used for releasing the Shoreham facility for unrestricted use. It interprets the NRC guidance and outlines the technical bases for the Shoreham Termination Survey. It is an attachment to this document.
- 3.3 History File - A compilation of information prepared for use in planning the termination survey of a survey unit. It summarizes the operational history, characterization data, operational surveys and other information to establish the basis for the design of the termination survey.
- 3.4 Open Area - A category of survey unit including open land areas, exterior surfaces of site buildings, paved or unpaved roadways, and equipment yards.
- 3.5 Operational Survey - A radiological survey performed under SNPS Health Physics procedures. All surveys not otherwise classified as termination surveys or characterization surveys are classified as operational surveys. These include surveys for radiological control purposes, for decommissioning planning and information, and for confirmation that a survey unit is ready for the termination survey.

- 3.6 Structure - A category of survey unit including all SNPS site buildings and their inner surfaces (generally identified as civil structures). For purposes of the termination survey, all structures such as platforms, restraints, supports and other physical items not identified in the system "MPSK" drawings are considered to be structures. External surfaces of piping systems are also treated as structures in the termination survey.
- 3.7 QC Survey - An independent radiation survey, usually performed on a representative sample of a characterization or termination survey to verify the results.
- 3.8 Release Criteria - A term used to identify the radiological criteria for release of the Shoreham facility for unrestricted use. These criteria, which consist of specified limits for residual contamination and radiation levels, are identified in the Shoreham Decommissioning Plan and are described in detail in Attachment 8.1 of this document.
- 3.9 Release Record - A document which demonstrates a survey unit is suitable for unrestricted use. It contains evaluated survey data and supporting information to provide a concise record of the results and basis for the conclusion that the release criteria are satisfied.
- 3.10 Site Characterization Report - A report (including addenda) which documents the surveys, calculations and evaluations and presents the results of the SNPS Site Characterization Program.
- 3.11 Survey Design - The process of determining the type, location, number and frequency (or density) of radiological measurements to be taken within a survey unit for the termination survey.
- 3.12 Survey Instructions - Written direction to survey personnel regarding the type and number of measurements to be taken in a survey unit. A survey instruction generally includes marked maps, written text or both. Each survey package includes survey instructions.

- 3.13 Survey Package - A collection of information in a standardized format for controlling and documenting field measurements taken for the termination survey. A survey package will be prepared for each survey unit.
- 3.14 Survey Subunit - A logical division of a survey unit, determined to be required by the survey design, to ensure radiological measurements of appropriate number and frequency (or density) are obtained.
- 3.15 Survey Unit - A logical division of the facility structures, systems and site environs for purposes of performing and documenting the termination survey. The survey unit is the basic entity for management of the termination survey. A survey unit may consist of a plant system, a room, a cubicle, a portion of a large room, a major building elevation, outdoor surfaces of a building, or a paved outdoor area as appropriate.
- 3.16 Survey Unit Classification - A term used to indicate the the potential for residual radioactive contamination within a survey unit.
- 3.17 Termination Survey - Radiological measurements, evaluations and supporting activities undertaken to demonstrate that the Shoreham facility satisfies the radiological criteria to allow the NRC license to be terminated and the facility and its property released for unrestricted use.
- 3.18 Termination Survey Plan - The document which provides the technical direction for conduct of the termination survey. The Termination Survey Plan describes the organization of the facility into survey units, defines survey unit classifications, and specifies the general survey design for a survey unit. The Termination Survey Plan specifies the survey measurements to be taken and the instruments to be used for the termination survey and demonstrates that these instruments and measurements are capable of verifying the release criteria. It is subordinate to this Program Description and provides the basis for specific termination survey procedures.
- 3.19 Termination Survey Report - A report describing the scope, methods, and results of the termination survey. It initiates the NRC review and final inspection of the facility prior to termination of the facility license. It is also called the Final Report.

4.0 RESPONSIBILITIES

4.1 LIPA - SNPS Resident Manager

The LIPA - SNPS Resident Manager reports to the Executive Vice President, Shoreham Project. He has overall responsibility for ensuring that the Shoreham decommissioning project is successfully completed in a safe manner, within budget and on schedule. He is responsible for ensuring that all licensed radioactive materials are removed and that the facility is suitable for unrestricted use. He implements LIPA senior management policies and provides overall management direction for the termination survey program.

4.2 Decommissioning Department Manager

The Decommissioning Department Manager reports to the Resident Manager and is responsible for management and direction of Shoreham decommissioning activities. This includes engineering, work planning, and field implementation including coordination and direction of decommissioning contractors. He is responsible for the following matters in regard to the termination survey:

- a. Reviewing survey units and survey unit classifications to identify areas involved in decommissioning work.
- b. Reviewing the termination survey schedule to verify that surveys do not conflict with decommissioning work schedules and to minimize duplication of scaffolding and other access support.
- c. Informing the Termination Survey staff when decommissioning work is completed in an area, prior to demobilization of decommissioning workers.
- d. Ensuring remediation is performed, such as additional component removal or housekeeping, if areas are found not to be ready for the termination survey.
- e. Leaving scaffolding available for termination survey use after decommissioning activities in a work area are completed, if requested by the Termination Survey Section. Subsequent removal of this scaffolding may also be requested.
- f. Providing access (opening plant system components or making cuts) and restoring systems (if applicable) where decommissioning activities were completed, as requested by Operations & Maintenance (O&M) Department management. This support will be provided on a case-by-case basis.

4.3 Nuclear Quality Assurance Department Manager

The Nuclear Quality Assurance (NQA) Department Manager reports to the Executive Vice President, Shoreham Project and is responsible to the Resident Manager for the development and administration of the decommissioning QA program. He provides QA oversight of the Termination Survey Program in accordance with the LIPA QA Manual^{2.5}. This oversight includes review of the Termination Survey Program Description, the Termination Survey Plan, termination survey procedures and other documents, as well as audit and surveillance of termination survey activities. Termination survey measurements are verified by independent QC measurement of selected survey points under NQA surveillance.

4.4 Nuclear Operations Support Department Manager

The Nuclear Operations Support Department (NOSD) Manager reports to the Resident Manager and is responsible for managing station support services, including plant security, fire protection and safety, training and site administration services. He provides historical information such as engineering drawings, documents and other reference materials for the termination survey and provides training for termination survey personnel. He also provides assistance in document control, and reference materials for use in preparation of termination survey history files.

4.4.1 Fuel Disposition Division Manager

The Fuel Disposition Division Manager reports to the NOSD Manager and is responsible for the planning, scheduling and coordination of activities involved with the removal of fuel from the Shoreham facility. He is responsible for the following matters regarding the termination survey:

- a. Informing the Radiological Controls Division (RCD) Manager regarding plans, status and schedules for removal of the nuclear fuel from the Spent Fuel Pool.
- b. Requiring fuel shipment contractors to make reasonable efforts to limit the introduction of radioactive contamination to the Shoreham facility from outside sources. This includes providing the Health Physics Engineer with radiation surveys from vendors and other information on incoming casks and other fuel transfer equipment.
- c. Minimizing the potential for contamination of affected areas as a result of fuel transfer activities.

4.5 Licensing/Regulatory Compliance Department Manager

The Licensing/Regulatory Compliance Department (LRCD) Manager reports to the Resident Manager and is responsible for licensing and regulatory matters (including NRC and other relevant agencies or regulatory bodies) relating to decommissioning of Shoreham. He is responsible for the following matters in regard to the termination survey:

- a. Ensuring that regulatory issues regarding the termination survey are identified and that LIPA position papers and/or responses to regulatory questions are developed, reviewed and submitted to the appropriate regulatory agency in a timely manner.
- b. Keeping the RCD Manager informed of licensing and regulatory issues and decisions which may affect the termination survey.
- c. Serving as liaison between LIPA and the NRC (and other governmental agencies) on all licensing and regulatory matters involving the termination survey and the application for termination of the facility license, including scheduling of verification surveys and review of the final report in support of the project schedule.
- d. Reviewing the Termination Survey Program and major implementing documents and reports to ensure that they are accurate with regard to regulatory requirements and related policy issues.
- e. Scheduling review of designated termination survey documents by the LIPA Site Review Committee (SRC).

4.6 Finance and Administration Department Manager

The Finance and Administration (F&A) Department Manager reports to the Resident Manager and is responsible for financial and administrative functions related to Shoreham decommissioning. He provides management direction for procurement of personnel and equipment, budgets and cost controls for the termination survey program. He provides procurement support services, strategic scheduling support, progress reporting and other administrative services to the program.

4.7 Operations and Maintenance Department Manager

The Operations and Maintenance (O&M) Department Manager reports to the Resident Manager and is responsible for operations, maintenance, radiological control and plant engineering support for the decommissioning project. He is

responsible for general policy guidance, and management oversight of the termination survey program. He is responsible for providing personnel and technical resources necessary to support the termination survey.

4.7.1 Radiological Controls Division Manager

The RCD Manager reports to the O&M Department Manager and is responsible for the radiological health and safety of project personnel and the public. He is responsible for radiochemistry, health physics, radwaste handling and disposal, and for the termination survey. He is responsible for personnel management and technical direction for the Termination Survey Program. He establishes and maintains budgetary controls for the program.

4.7.1.1 Termination Survey Section Head

The Termination Survey Section Head reports to the RCD Manager and is responsible for implementation of the Termination Survey Program described in this program description. He is responsible for:

- a. Identification of technical and personnel resources required, and selection of personnel.
- b. Supervision of termination survey personnel.
- c. Keeping SNPS management informed regarding the status and results of termination survey activities, and problem areas that may develop.
- d. In conjunction with the Project Controls Division of the P & A Department and the Work Planning & Scheduling Section of the O & M Department, scheduling termination survey activities to meet project milestones.
- e. Coordination of termination survey activities and requirements with other SNPS organizations.
- f. Representing the Shoreham Termination Survey in communications with outside organizations.
- g. Notifying SNPS management when the termination survey of a survey unit is complete and establishing controls to prevent possible recontamination or other events which would threaten the integrity of the termination survey results.

4.7.1.2 Termination Survey Engineer

The Termination Survey Engineer reports to the Termination Survey Section Head and is responsible for preparation of the Termination Survey Plan, providing the necessary technical direction to the Termination Survey Program. He is responsible for:

- a. Designing and implementing the Termination Survey Plan to meet established objectives and regulatory requirements.
- b. Procuring and developing specialized instrumentation and equipment.
- c. Providing technical direction to termination survey personnel.
- d. In conjunction with the Health Physics Engineer, determine the most efficient schedule for survey of individual survey units in order to minimize the potential for resurvey or impact on decommissioning activities.
- e. Coordination of review of survey results, preparation and approval of release records and preparation of the Termination Survey Report.
- f. Identification of components which must be disassembled (access provided) to accomplish surveys and initiation of the Maintenance Work Requests (MWRs) by which this work will be controlled.

4.7.1.3 Health Physics Engineer

The Health Physics Engineer reports to the RCD Manager and is responsible for health physics and radiological safety for the termination survey. He is responsible for the following regarding the termination survey:

- a. Providing instrumentation, instrument calibration services, instrument maintenance, routine health physics supplies, counting room services, and related technical services.
- b. Providing personnel to supplement the termination survey staff as needed, and to perform survey measurements.

c. Providing radiological information from characterization and operational surveys. He informs the Termination Survey Section Head of any changes in radiological conditions which could affect termination surveys of any area or system and acts to minimize the potential spread of contamination throughout the facility.

d. Performing surveys of incoming radioactive transport vehicles or equipment and informs the Termination Survey Section Head of pertinent results. He performs surveys to help ensure that no new radioactive species are introduced into the Shoreham facility.

e. Implementing necessary controls to prevent recontamination of a survey unit upon completion of the termination survey.

f. Coordination of survey support and actual survey activities to meet the project schedule.

4.7-1.4 Radwaste Engineer

The Radwaste Engineer reports to the RCD Manager and is responsible for radioactive waste management and disposal for the Shoreham Decommissioning Project. He is responsible for plant decontamination services. He provides decontamination support to the Health Physics Section and to the Termination Survey Section as requested.

4.7.1.5 Radiochemistry Engineer

The Radiochemistry Engineer reports to the RCD Manager and is responsible for plant chemistry and radiochemistry services. He provides radioanalytical support for the termination survey including gamma spectroscopy, gross beta, alpha, and other specialized radiochemistry analyses on request. He assists in special studies to identify radionuclide composition and concentrations of residual activity in various samples and materials.

4.7.2 Nuclear Engineering Division Manager

The Nuclear Engineering Division (NED) Manager reports to the O&N Department Manager and is responsible for engineering services and nuclear analysis. He provides engineering support as required for Station Modification Packages which provide access and restoration, if

applicable) to systems for termination survey measurements. He is also responsible for:

- a. Providing data and environmental sampling support for the termination survey from the Radiological Environmental Monitoring Program (REMP) through the LILCO Environmental Engineering Department.
- b. Providing data, results and interpretations relating to the radiological condition of the Shoreham facility, as requested.

4.7.3 Maintenance Division Manager

The Maintenance Division Manager reports to the O&M Department Manager and is responsible for maintenance of all plant mechanical and electrical equipment, instrument and controls systems and building janitorial services. He provides scaffolding, system access, utility services, component disassembly and restoration and other services traditionally provided by the Maintenance Division, including preplanning of Maintenance Work Requests (MWRs) for component access or disassembly, to support the termination survey. In most cases, the Maintenance Division will have lead responsibility for support of the termination survey. In some cases, the Decommissioning Department may be requested to provide services such as scaffolding or component disassembly.

4.7.4 Operations Division Manager

The Operations Division Manager reports to the O&M Department Manager and is responsible for operating the facility in accordance with NRC license and Technical Specification requirements. He provides support for the termination survey for system lineups, tagging, maintaining isolation of systems with completed termination surveys, and control of facility areas which have been surveyed. He notifies the RCD Manager of changes in facility configuration which could change the habitability conditions in termination survey areas or which could change radiological status of any system or area. He is responsible for daily work planning and scheduling of plant activities for the conduct and support of the termination survey. He provides input to the Termination Survey Section on the operational history of systems (used in preparation of system history files).

4.8 Shoreham Salvage Division (LILCO)

The Shoreham Salvage Division Manager reports to the Shoreham Site Support Department Manager. He is responsible for review

and concurrence with survey designs in order to assure the following:

- a. LILCO assests (salvageable components) are identified and removed from survey areas prior to conduct of the termination survey.
- b. Acknowledgement that components not removed from an area prior to the termination survey may not be available until after license termination.
- c. Concurrence with the planned final disposition of a system and/or component or identification of specific preservation requirements to be imposed upon completion of the termination survey.

5.0 PROGRAM DESCRIPTION

5.1 Termination Survey Program Overview

5.1.1 Background

The termination survey has been identified as a key element in the success of the Shoreham decommissioning effort, in that timely termination of the NRC license depends heavily on the quality of the termination survey and its documentation. Further, the Shoreham facility represents the first decommissioning of a large commercial nuclear power facility in the U. S. Unlike most previously decommissioned facilities, the Shoreham plant structures and the majority of the piping systems will be intact upon completion of decommissioning dismantlement and decontamination (D&D) activities. This represents a significant increase in the degree of complexity and physical scope of the survey in comparison with previous decommissioning projects. The approach to the termination survey described below is responsive to these challenges.

5.1.2 Technical Approach

The technical approach to the termination survey is based upon the NRC criteria for release of the facility for unrestricted use, as discussed in Attachment 8.1 of this program description. The methods for design of the survey, instruments used, field measurement procedures, data collection and analysis, documentation and interpretation of results are derived from published technical literature (including draft NUREG/CR-5849^{2.6}), experience from recent nuclear facility decommissioning termination surveys, and consultation with knowledgeable peers. The technical approach is described in detail in

the Shoreham Termination Survey Plan outlined in Section 5.7 below.

5.1.3 Program Design Approach

5.1.3.1 Responsible Organization

The Termination Survey Section, within the Radiological Controls Division, is responsible for development and implementation of the termination survey. It will be managed and supported by a qualified staff. The Health Physics Section will support the Termination Survey Section by providing technicians, supplies, administrative support, designated technical support and other services.

5.1.3.2 Departmental Interface

Appropriate methods shall be established for communication between the Termination Survey Section and other decommissioning project groups (i.e. the Decommissioning Department, the Operations Section and the Maintenance Section of the O&M Department) for scheduling termination surveys. Mechanisms shall be established for turnover of facility areas for termination surveys.

5.1.3.3 Control of Survey Units

Controls shall be established for isolation of survey units scheduled for termination survey to minimize the possibility of recontamination. Furthermore, appropriate controls will be maintained on all survey units for which the termination survey has been completed.

5.1.3.4 Survey of Facility Structures and Open Areas

The termination survey of facility structures and open areas will be organized by dividing them into discrete entities for management of the survey. Plant structures, systems and outdoor areas will be divided into survey units and subunits. The description and identification of areas for this purpose are based primarily upon plant general arrangement drawings similar to those contained in the SNPS USAR^{1.7}. Each survey unit or subunit will be classified based on the potential for residual radioactive contamination within the area it represents.

5.1.3.5 Survey of Plant Systems

Plant systems will be surveyed and evaluated as discrete entities. Identification of systems will follow the system index of the Records Management File Code List. Identification of system contents and boundaries will be based on "MFSK" series drawings. Identification of individual components will be in accordance with the SNPS CCL^{2.8}. Piping sections will be identified by reference to "MFSK" series drawings, installation isometric drawings and Stone & Webster Engineering Corporation (SWEC) line numbers as appropriate. Each system will be identified as a survey unit for termination survey purposes. Each system survey unit may be divided into survey subunits. Such subunits will include a portion of the system and may contain a single component, a group of components or a section of the system group. Portions of a system contained within a system subunit shall be determined to have equal potential for residual radioactive contamination. Each survey unit or subunit will be classified based on the potential for residual radioactive contamination in that portion of the system.

5.1.3.6 Use of Historical Information

Determination that a survey unit satisfies the criteria for unrestricted release shall be based upon an evaluation of its history as well as upon Termination Survey measurements. Maximum use shall be made of historical information. Historical information includes operating history and other relevant operational data, SNPS Characterization Program data, operational and environmental radiation surveys and data reports. Such information will be used for initial survey unit classification. The degree of reliance given to historical data considered for use as final survey data (see also, 5.2.2.4 Final Survey), depends on the conditions and changes occurring in the interval prior to the time of the survey and on the ability to document the data integrity in a manner consistent with termination survey data.

5.1.3.7 Release Record

Demonstration that the Shoreham facility satisfies the criteria for unrestricted use shall be documented for each survey unit. A document, called the Release Record, will be prepared for this purpose. The release record, prepared in a

standard format, contains survey data, survey statistics, a written evaluation and a determination that the release criteria are satisfied. Sufficient survey measurement data will be included in each release record as necessary to support the determination. In order to keep release records to a manageable size, supporting information such as the survey unit history file and field survey data may not be physically included, but will be referenced and properly archived. Survey units of similar composition, history and classification may be combined into a single release record to ease replication of administrative details. The release record will not be "closed out" and given final approval until all identified remedial actions are satisfactorily completed. Release records will be prepared by the Termination Survey Section. Each release record will be required to undergo independent technical review by an individual who has had no direct responsibility for design of the survey or evaluation of the data for the survey unit for which the release record is prepared. Each release record will be reviewed by the NQA Department. LIPA management approval of each release record shall be documented through the Site Review Committee (SRC).

5.1.3.8 Final Report

A final report will be prepared for submittal to the NRC. The report, an outline of which is provided in Attachment 8.5, will demonstrate that the facility is suitable for unrestricted use. The final report will comply with Section 4.e of Regulatory Guide 1.86^{1.9} and follow the form and content of draft NUREG/CR-5849^{2.6}. It will contain the results of the individual release records which may be attachments to the final report or the information contained within the release records may be reformatted and summarized.

5.2 Program Implementation

5.2.1 Documents

The implementing documents for the termination survey consist of the Termination Survey Plan, Termination Survey Procedures, and Health Physics Procedures (and work instructions). The final result and conclusions of the termination survey will be reported in the Termination Survey Final Report. Other documents and records which will be produced as part of the termination

survey include Survey Unit History Files, Survey Unit Survey Packages (including survey instructions), and Survey Unit Release Records. Documents and records produced in support of the termination survey include survey instrument calibration records, survey instrument control check records, computer software verification reports, facility background radiation measurements, and personnel training and qualification records.

5.2.2 Implementation Milestones

Program implementation can be viewed in terms of five major phases or milestones: planning, development, Preliminary Survey, Final Survey and Final Report.

5.2.2.1 Planning

The major planning phase milestones for program development are preparation and approval of the Termination Survey Plan and preparation of the list of survey units.

5.2.2.2 Development

Development activities include staffing, preparation of survey procedures and instructions, and procurement, development and testing of equipment. Background radiation studies and development of data management software and procedures will also occur during the development phase. Preparation of Survey Unit History Files will be initiated in the development phase.

5.2.2.3 Preliminary Survey

The Preliminary Survey represents the transition from the development phase to the Final Survey Phase. The Preliminary Survey includes field testing of equipment and procedures through appropriate mockups and dry runs. Data collected during the Preliminary Survey phase will be used to aid in the overall final survey design and in the design of surveys of individual survey units. Termination survey quality control procedures will also be finalized in the Preliminary Survey phase. Preliminary surveys will not be conducted on all survey units. Rather, representative survey units will be selected.

5.2.2.4 Final Survey

Final Survey measurements will begin when all applicable prerequisites are met. These include use

of approved procedures (including QC procedures), work instructions and qualified technicians and acceptance of the area or system for Final Survey. Final Survey measurements and certain Preliminary Survey activities may be performed concurrently throughout the facility in order to support the overall Decommissioning Project schedule. However, no measurements will be classified as Final Survey measurements unless applicable prerequisites are met.

5.2.2.5 Final Report

The Final Report phase includes completion of survey data evaluation, closure of survey data packages, preparation, verification and approval of release records and compilation of the Final Report. Compilation of the Final Report will begin during the Final Survey phase.

5.2.3 Integration with Project Schedule

Termination survey activities are included in the master project schedule including Preliminary Survey activities and the Final Survey of each survey unit. Surveys will be scheduled to avoid conflict with decommissioning work and fuel disposition activities.

5.3 Survey Process

5.3.1 Summary

A summary level schematic of the termination survey process is shown in Attachment 8.2. The process is designed to allow Final Surveys to be conducted on selected survey units in parallel with decommissioning work elsewhere in the facility. The schematic shows the logic for accomplishing this.

5.3.2 Process Details

A detailed view of the survey process is provided in Attachment 8.3. The schematic shows the principal activities, documents, and records produced.

5.4 Organization and Staffing

5.4.1 Organization Chart

A schematic of the termination survey organization is shown in Attachment 8.4. This shows the principal positions and reporting relationships in the termination survey organization. The organization chart shows the

positions dedicated to the termination survey. The survey is managed by the Termination Survey Section Head who reports to the RCD Manager.

5.4.2 Staffing

As shown in Attachment 8.4, the Termination Survey Section consists of a full time staff of specialists. This staff will be supplemented, during field measurement activities, by personnel from the Health Physics Section. The survey measurements will be performed by qualified HP technicians. During the active measurement phases of the termination survey, several Lead Technicians will be assigned to the termination survey. They will supervise the Health Physics technicians assigned to work on the termination survey. Technician staffing levels will be adjusted as necessary to support the project schedule.

5.5 Conduct of Operations

5.5.1 Organization Operations

Conduct of termination survey organization and personnel management will be identified in applicable station management policies and procedures. Conduct of operations will be in accordance with applicable station policies and procedures.

5.5.2 Work Control

Termination survey work will be conducted in accordance with applicable station work control procedures. Survey measurement, sample collection and instrument calibration will be controlled by Health Physics procedures, by Radiological Environmental Monitoring Program (REMP) procedures and by Termination Survey procedures. The station Maintenance Work Request (MWR) procedure will be used to request, document and control termination survey support work in the facility. The MWR records shall serve as the primary method to document the final configuration of plant systems. To the maximum extent practicable, survey unit structural surfaces, system components, and outside area sampling excavations (if performed) should remain open and accessible until completion of the NRC confirmation survey has been completed.

5.5.2.1 Engineering Support

Planning and conduct of the termination survey on systems will include consideration for the final system configuration requirements to support the facility. The extent to which a system (or a

component) must be restored shall be determined during survey design. The need for future access to the system or a single component shall be determined in order that the impact on termination survey data validity can be assessed. Additionally, the survey design for a particular system survey unit may require access to a point which is not achievable by disassembly of mechanical joints. For systems which will not be returned to a functional condition, engineering details will be provided for the necessary system disassembly. This may be accomplished through use of "generic" disassembly details. For systems required to remain functional, or where preservation requires full component or system integrity, additional engineering details will be provided to restore the system or component to the required condition. If actual configuration changes are made to piping systems or equipment (other than restoring access flanges, covers, joints, etc. to a "mechanic tight" condition), the changes shall be documented on an Engineering Change Report (ECR).

5.5.2.2 Non-LIPA Assets

Numerous components of the Shoreham facility remain the property of the Long Island Lighting Company (LILCO). The termination survey will be conducted in such a manner as to preserve the value of such material to the maximum extent practical. The Shoreham Salvage Division will review survey designs to determine the impact on salvageable equipment. MWRs for the disassembly of salvageable components will also be reviewed. This review will ensure the final configuration of a system or component is fully agreed upon prior to the termination survey of a system, area, or component. This provides assurance that termination survey results will not be impacted by the necessity for subsequent component removals.

5.6 Survey Quality Assurance

5.6.1 Decommissioning QA Program

The termination survey is subject to the provisions of the LIPA Quality Assurance Manual^{2.5}. Quality assurance is provided through oversight of the NQA Department. Termination survey QA oversight will consist of review of program documents, program readiness assessments, (as discussed in Section 7.2 below), and ongoing surveillance of program activities. Independent verification of final phase survey results will be performed under NQA

Department surveillance and review of the release records.

5.6.2 Internal Program Measures

Quality assurance is also provided through quality control elements built into termination survey program design and procedures. Termination survey QC procedures and methods will be based on the principles outlined in NUREG/CR-5849^{2.6} and the LIPA Quality Assurance Manual. Termination survey program design includes provisions to ensure a high level of confidence that the facility will satisfy the release criteria. These include: a fully documented program, thorough review of area and system histories, survey measurement intensity adjusted according to likelihood of residual contamination, preliminary survey of selected areas to verify the effectiveness of survey methods, close supervision and control of measurement processes, training for personnel involved in survey measurements, documentation of measurements and associated parameters, timely review of measurement results to identify anomalous results, and prompt attention to resolution of problems and discrepancies.

5.7 Termination Survey Plan

5.7.1 Plan Contents

The Termination Survey Plan provides technical guidance for conduct of the termination survey. It consists of an expansion and update^{2.1} of Section 4.0 of the LIPA Decommissioning Plan^{2.1}. The Termination Survey Plan is controlled as a program document in accordance with the LIPA Nuclear Management Control Manual^{2.2}. It covers the following topics:

- Facility Background Information
- Site Information including Site Description and Condition at Time of the Final Survey
- Survey Overview including Objectives, Contaminants, Organisation and Responsibilities, Training, Laboratory Services, General Survey Plan, Tentative Schedule and Final Report
- Survey Plan including Instrumentation, Area Classification, Reference Grids, Surface Scans, Surface Activity Measurements, Exposure Rate Measurements, Soil/Sediment Sampling, Special Measurements, Background Level Determinations and Sample Analysis

- Data Interpretation
- Final Report

5.7.2 Survey Unit Classification

The survey unit classification process is a major tool for planning and management of the termination survey. The division of the facility into survey units and the classification of those survey units will be controlled by station procedure. This allows for thorough review and approval while providing for limited revisions to the Termination Survey Plan. The purpose of this classification is to show the breakdown of site structures, systems and areas into the principal survey units used to manage survey measurement and data collection efforts. Each survey unit is then classified according to the potential for residual radioactive contamination. This classification guides the level of measurement intensity applied in the survey design. Additionally, the survey design may further divide a survey unit into survey subunits with the appropriate classification given to each survey subunit. The classification for a survey subunit may indicate a lesser potential for residual contamination than the survey unit for which it is part, but in no case will a survey subunit be classified with a higher potential for residual contamination. The Survey Unit Classification Description contains a listing of each survey unit which identifies its classification. It also includes a series of general arrangement (plan view) drawings by principal elevation of the major buildings. The drawings will show the individual survey units and their classification. The Survey Unit Classification Description is the principal tool for communication of termination survey plans and interfacing with other decommissioning organizations to schedule survey activities.

5.8 Procedures

Many functions of the termination survey will be conducted under SNPS Health Physics, Radiochemistry and Radiological Environmental Monitoring Program procedures. These include operation and calibration of survey instruments. In addition, several processes unique to the Termination Survey Section have been identified and will be controlled by procedures. Termination survey procedures will be prepared in accordance with approved procedures for preparation, issuance, control and revision of Health Physics procedures. Topics which will be addressed in termination survey procedures include (but are not limited to):

Conduct of survey operations
History files
Release records
Survey measurement quality control
Survey Unit turnover for Termination Survey
Isolation & control of Termination Survey Survey Units
Survey data receipt and management
Document control and management
Survey Unit classification
Background determination and documentation

5.9 Work Instructions

Work instructions are used to describe and control processes which require some degree of standardization but less control than processes controlled by procedures. Work instructions are not used in cases where data integrity is affected. Examples are tasks performed by a limited number of personnel, tasks which may change fairly frequently or which may be performed for a limited period, and tasks for which only general guidance is required. Work instructions are not used to introduce new tasks or to expand work beyond the scope of existing procedures. Work instructions for termination survey will be prepared, issued, and controlled in accordance with the approved procedure for Health Physics work instructions.

6.0 INTERFACES

Principal programs and procedures that interface with the termination survey are identified below.

6.1 Quality Assurance

LIPA Quality Assurance Manual
LIPA Quality Assurance Procedures

6.2 Decommissioning Department

PDXDD-01 Decommissioning Program Description

6.3 Work Control

SP 12X010.02 Station Modification Activities
SP 12X011.01 Station Equipment Clearance Requests

SP 12X012.01 Radiation Work Permits
SP 12X013.01 Maintenance Work Requests

6.4 Safety Program

Shoreham Site Safety Manual

6.5 Fire Protection

PDXNE-11 Fire Protection Program
51X500.02 Organisation and Administration of Fire
Protection Program
SP 12X500.01 Fire Protection Program Description

6.6 Security Plan

6.7 Nuclear Engineering

Radiological Environmental Monitoring Program (REMP)
PDXNE-01 Intrim Management Control Program for
Station Modifications
NEX01-03 Preparation, Revision & Approval of
E&DCRs & ECRs

7.0 PROGRAM EVALUATION

7.1 Routine Feedback

The RCD Manager is responsible for maintaining this program description. He may delegate this responsibility to the Termination Survey Section Head. Persons having suggestions or comments on this program should present them to the RCD Manager or his designee. At the annual review, or sooner if required, the RCD Manager shall resolve problems that have arisen during the period, and ensure that this program is revised as necessary.

7.2 Periodic Evaluation

Periodic evaluations will be performed on the basis of major project milestones or other changes which could impact the program. The first comprehensive review of the program is planned prior to initiation of final survey phase measurements. This will be performed by the LIPA Nuclear Quality Assurance Department with the assistance of outside technical experts who are experienced in decommissioning surveys.

8.0 ATTACHMENTS

- 8.1 Criteria for Release of Shoreham Nuclear Power Station
for Unrestricted Use Following Decommissioning
- 8.2 Termination Survey Process Summary
- 8.3 Termination Survey Process Details
- 8.4 Termination Survey Organization Chart
- 8.5 Termination Survey Final Report Outline

LONG ISLAND POWER AUTHORITY

Criteria for Release of Shoreham Nuclear Power Station for Unrestricted Use Following Decommissioning

1.0 Summary

This document addresses criteria for termination of the U. S. Nuclear Regulatory Commission license for Shoreham Nuclear Power Station. A major condition for termination of the license is demonstration that the facility and the site are suitable for unrestricted use. Principal criteria for release of the facility are identified in the Shoreham Decommissioning Plan³. These are:

Limits for residual surface contamination levels contained in Regulatory Guide 1.86^{1,2}, and

A limit for gamma radiation exposure rate established by the NRC staff: 5 microR/hr above background measured at one meter from the surface^{3,3}.

Guidance for application of these criteria to nuclear power reactor facilities is not clearly spelled out in approved regulatory documents. Criteria have not been established for volume concentration limits on residual activity in building materials, equipment and soils. Due to factors which vary, such as the mix of radionuclides involved, radiation background and site conditions, interpretation of the criteria may vary when applied to different sites. This document provides interpretation of the criteria for application to the Shoreham Facility.

The following implementation principles are adopted to ensure that the criteria are satisfied and the demonstration is properly documented:

- 1.1 The applicable Regulatory Guide 1.86 surface contamination limits and the 5 microR per hour (above background) criterion are used as acceptance criteria for decommissioning remediation activities. These limits are used as maximum acceptable levels. Reasonable efforts will be made to eliminate residual contamination, i.e. to reduce levels well below these limits.

¹ This document applies to structures and equipment remaining fixed in place at the facility. All items to be removed from the facility which are potentially contaminated will be surveyed using Shoreham Nuclear Power Station Procedures. All items found to be contaminated will be packaged and shipped as radioactive materials for proper disposition (disposal or re-use under an appropriate radioactive materials license).

- 1.2 Satisfaction of the facility release criteria will be demonstrated by a comprehensive radiation survey program. This program, called the Termination Survey Program includes preliminary and final survey phases. The Termination Survey Program is based upon Section 4.0 of the LIPA Decommissioning Plan^{5.1}.
- 1.3. All areas subject to the facility license, and particularly those involved in or impacted by decommissioning activities are subject to thorough confirmation surveys prior to acceptance for termination survey. Areas not meeting the release criteria must be remediated and reconfirmed prior to acceptance for the Termination Survey.
- 1.4 Determination that each defined survey area satisfies the release criteria is based on an evaluation of all relevant information, including operational history, site characterization data, decommissioning records and confirmatory and termination survey measurements. This information will be compiled into a standardized format called the release record. The release record will be prepared by the Termination Survey Section.
- 1.5 The final determination by the Long Island Power Authority (LIPA) that an area satisfies the release criteria will be made based upon an independent review of the release record. This review will be performed by designated individuals within the LIPA Organization who are independent from the Termination Survey Section.
- 1.6 Quality control (QC) measures will be applied to the Termination Survey Program to ensure the integrity of the data and the accuracy of survey results. Survey procedures will incorporate quality control provisions. External QA oversight will be provided by the Shoreham Nuclear Quality Assurance Department.

2.0 Discussion

2.1 Regulatory Guide 1.86 Surface Contamination Limits

Table 1 of Regulatory Guide 1.86^{3.2} identifies acceptable contamination levels which must be satisfied for facilities to be released for unrestricted use. Table 1 limits are established for four radionuclide groups classified on the basis of potential biological risk. These limits are specified as levels above background. The Shoreham Characterization Study^{3.4}, determined that radionuclides in plant structures and systems (in-situ activation and surface contamination) are confined to

beta-gamma emitters. Thus, the following Table 1 limits apply:²

- a. Maximum fixed plus removable; 15,000 disintegrations per minute (dpm) per 100 cm², (within an area no greater than 100 cm²).
- b. Average fixed plus removable; 5000 dpm per 100 cm², (averaged over an area no greater than one m²).
- c. Removable; 1000 dpm per 100cm².

Areas where contamination by alpha-emitters is a potential as a result of removal of the nuclear fuel from the facility shall be demonstrated to be released at limits numerically equal to the above levels for gross alpha.

Surface contamination at Shoreham is comprised of mostly Co-60 and Fe-55. The remainder, which together contribute about five per cent of the total activity, is comprised primarily of Ni-63 and Mn-54. In radiation surveys to evaluate surface beta-gamma levels, Co-60 contributes about 99 per cent to the detector response, with the remainder due largely to Mn-54. Fe-55 and Ni-63 are not detectable with typical survey instruments. In determining facility surface contamination levels at Shoreham for evaluation against Regulatory Guide 1.86 Table 1 limits, the activity due to Fe-55 and Ni-63 is not included.

²

Regulatory Guide 1.86 defines beta-gamma emitters as "nuclides with decay modes other than alpha emission or spontaneous fission." Certain other beta-gamma emitters are specifically excluded from this category in the Table, e.g., Sr-90 and Iodines. These are listed in a more restrictive category which includes isotopes of Th, U, and Ra.

³

The Shoreham Spent Fuel Pool has not been characterized due to the presence of the spent fuel. When the pool is emptied, a radiological characterization will be performed and the appropriate limits from Regulatory Guide 1.86 Table 1 will be applied based upon the radionuclides found to be present.

2.2 Gamma Exposure Rate Criterion

The 5 microR/hr (above background) at one meter exposure rate criterion applies to radiation fields produced by residual gamma emitters. While there is no formal definition of this criterion, it is usually stated in Roentgens, the unit of radiation exposure^{3,5}. Exposure rate (in Roentgens) is not readily measurable with portable field instrumentation, however. A commonly accepted practice in facility termination surveys is to use sensitive rate meters (usually scintillation detectors) calibrated to measure absorbed dose rate (rad units).

At Shoreham, an appropriately calibrated pressurized ion chamber (PIC) will be used as the reference instrument for measuring gamma exposure rates. For convenience, other instruments such as scintillation rate meters will be used for the majority of measurements. Correlations will be established between scintillation detectors and the PIC for determining compliance with the 5 microR (above background) criterion. Since gamma radiation fields from contamination and neutron activated materials at Shoreham are dominated by Co-60, instruments will be calibrated with Co-60 or sources with comparable gamma energies.

2.3 Demonstration that Doses from Residual Activity are ALARA

The numerical limits on surface contamination and gamma exposure rate described above are chosen so that the radiation risk to individuals is negligible regardless of conditions of use or occupancy of the facility.

At present no regulatory consensus has been reached for determining acceptable radiation doses from residual activity from decommissioned facilities. The U. S. Nuclear Regulatory Commission (NRC) staff has stated that the 100 millirem (total effective dose equivalent) per year limit for members of the public in the recently issued 10CFR20 regulations^{3,5} will be applicable to decommissioned facilities^{3,6,7}. This is clearly a regulatory maximum limit and does not constitute an ALARA level. The NRC staff has proposed that 10 millirem to an individual, (the so called maximum exposed individual) be used as an ALARA benchmark for evaluation of decommissioned licensed facilities. However, this matter is still under review and is the subject of a proceeding to develop an interagency consensus between the NRC the Environmental Protection Agency and the Department of Energy^{3,7}.

Radiation doses have been calculated for post-decommissioning facility occupancy and use scenarios at Shoreham. These have been calculated using methods under

development by the U. S. Nuclear Regulatory Commission for purposes of evaluating facilities containing low levels of radioactive material in buildings and soil following decommissioning^{3,6}.

Doses were calculated which result from total surface contamination levels (fixed plus removable) equal to 5000 dpm/100 cm² (from the Regulatory Guide 1.86 Table 1 limits identified in Section 2.1 above). They were calculated for a mixture of radionuclides identified in the Shoreham Site Characterization Study^{3,4}. In this pathway analysis, the isotopic composition of facility residual contamination was inferred from neutron activation analysis results, from smear sample analysis and from environmental sample results. For this base case, the contributions of Co-60 and Fe-55 are assumed to be present in roughly equal proportions, comprising about 90 per cent of the total activity. The resultant doses are about 3 millirem per year to the maximum exposed individual from all pathways. It is noted that Fe-55 contributes less than one per cent of the calculated dose (total effective dose equivalent).

The dose pathway study cited above^{3,9} also evaluated doses using the assumption that Fe-55 was not present in residual facility contamination. This case approximates the situation where essentially all the activity is due to Co-60 as is implied in the methods used to measure surface contamination in the Termination Survey at Shoreham. As expected, the resulting calculated doses are approximately twice the base case results, yielding about 6 millirem per year to the maximum exposed individual.

The results summarized above represent conservative upper limits for doses expected from unrestricted use of the Shoreham facility following decommissioning. The exposure scenarios use conservative-generic assumptions and pathway models. The source terms are based on the assumption that residual contamination is at Regulatory Guide Table 1 limit values throughout the facility. It is expected that actual residual activity levels will be much less than this.

2.4 Residual Radioactivity Concentrations in Building Materials and Soil

Release limits have not been established for residual radioactivity concentrations in building materials and soil for decommissioned nuclear reactor facilities^{3,6}. Acceptability of building materials (e. g., neutron activated concrete), and soil containing residual radioactivity at Shoreham will be determined primarily by satisfaction of the 5 microR/hr above background criterion. That is, the gamma exposure rate measured at

one meter from the surface of soils or building materials shall be less than 5 microR/hr above the background radiation exposure rate.

2.5 Residual Radioactivity in Systems and Equipment

Surface contamination on plant systems and equipment left in place in the facility will be evaluated against the Regulatory Guide 1.86 Table 1 limits identified in Section 2.1 above. Gamma radiation fields from surface contamination and neutron induced gamma emitters in equipment must also satisfy the 5 microR/hr (above background) criterion. The gamma fields will be evaluated in locations (at one meter from surfaces) that are considered to be readily occupiable. Accessible equipment and components will be removed if contamination levels cannot be reduced below 5000 dpm per 100 cm² fixed plus removable activity (averaged over an area no larger than one m²) and below 1000 dpm per 100 cm² removable activity. Contamination levels of up to 15,000 dpm fixed plus removable will be acceptable in localized areas (less than 100 cm²) that are not readily accessible, e.g., within piping buried in concrete or localized areas in large fixed components such as heat exchangers or tanks.

2.6 Determination of Background Radiation Levels

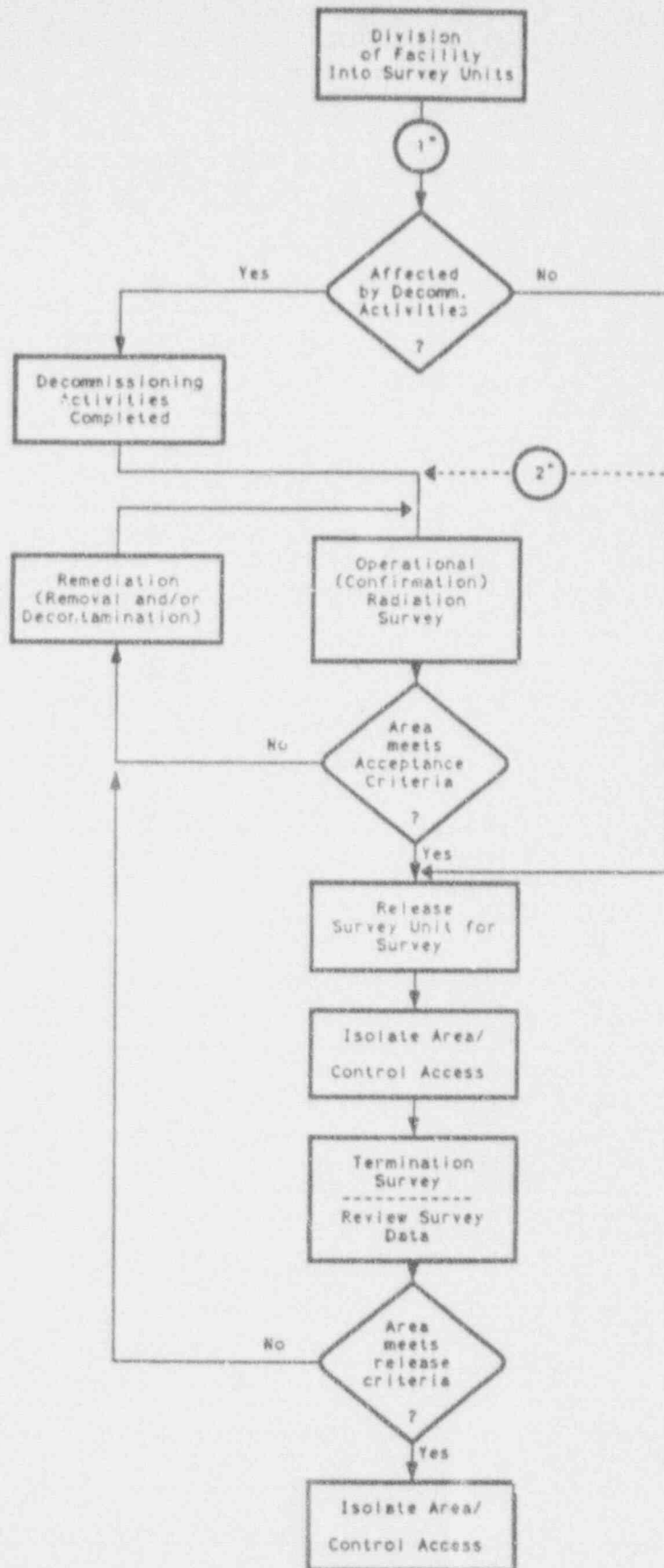
The criteria for release of the facility for unrestricted use are all specified as levels above background. Background count rate or dose rate levels (as the case may be) for the instruments used in the Termination Survey are comparable to the expected residual activity levels in the facility. The random nature of radioactive decay processes, errors and uncertainties in instrument responses, and errors inherent in measurement processes combine to produce uncertainties in measurements of background and in measurements of residual activity. The magnitude of the uncertainty associated with these measurements is in some cases comparable to the average values of a series of measurements. Thus it becomes essential to identify and properly account for the background (and its variation) for each type of measurement.

Backgrounds for each of the types of measurements and instruments used in the Termination Survey will be determined. Measurements will be made of background in a manner that eliminates possible contributions from Shoreham facility residual activity. The contribution of building materials of construction will be evaluated. Sufficient measurements will be taken to obtain valid statistical characterizations of background.

3.0 References

- 3.1 Long Island Power Authority, "Decommissioning Plan for Shoreham Nuclear Power Station", December, 1990, as amended.
- 3.2 U. S. Atomic Energy Commission, Regulatory Guide 1.86, "Termination of Operating Licenses for Nuclear Reactors", June 1974.
- 3.3 U. S. Nuclear Regulatory Commission, "Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities", NUREG-0586, August, 1988.
- 3.4 Long Island Lighting Company, "Shoreham Nuclear Power Station Site Characterization Program Final Report" May, 1990, (with addenda; June, 1990, October, 1990).
- 3.5 U. S. Nuclear Regulatory Commission, 10CFR Part 20, "Standards for Protection Against Radiation; Final Rule", Federal Register, May, 21, 1991.
- 3.6 J. C. Malero, U. S. Nuclear Regulatory Commission, "Residual Contamination Criteria for Decontamination of Nuclear Facilities", presented to the Health Physics Society Thirty Sixth Annual Meeting, Washington, D. C., July 1991.
- 3.7 R. A. Meck, U. S. Nuclear Regulatory Commission, "Status Report on Establishing Decommissioning Criteria", presented to the Health Physics Society Thirty Sixth Annual Meeting, Washington, D. C., July 1991.
- 3.8 W. E. Kennedy and R. A. Peloquin, "Residual Radioactive Contamination from Decommissioning," Prepared for the U. S. Nuclear Regulatory Commission, NUREG/CR-5512, Draft January, 1990.
- 3.9 M. Beer et. al., "Shoreham Nuclear Power Station Post-Decommissioning Dose Pathway Analysis Report", Long Island Lighting Company report to Long Island Power Authority, Draft, August 1991.

Termination Survey Process Summary



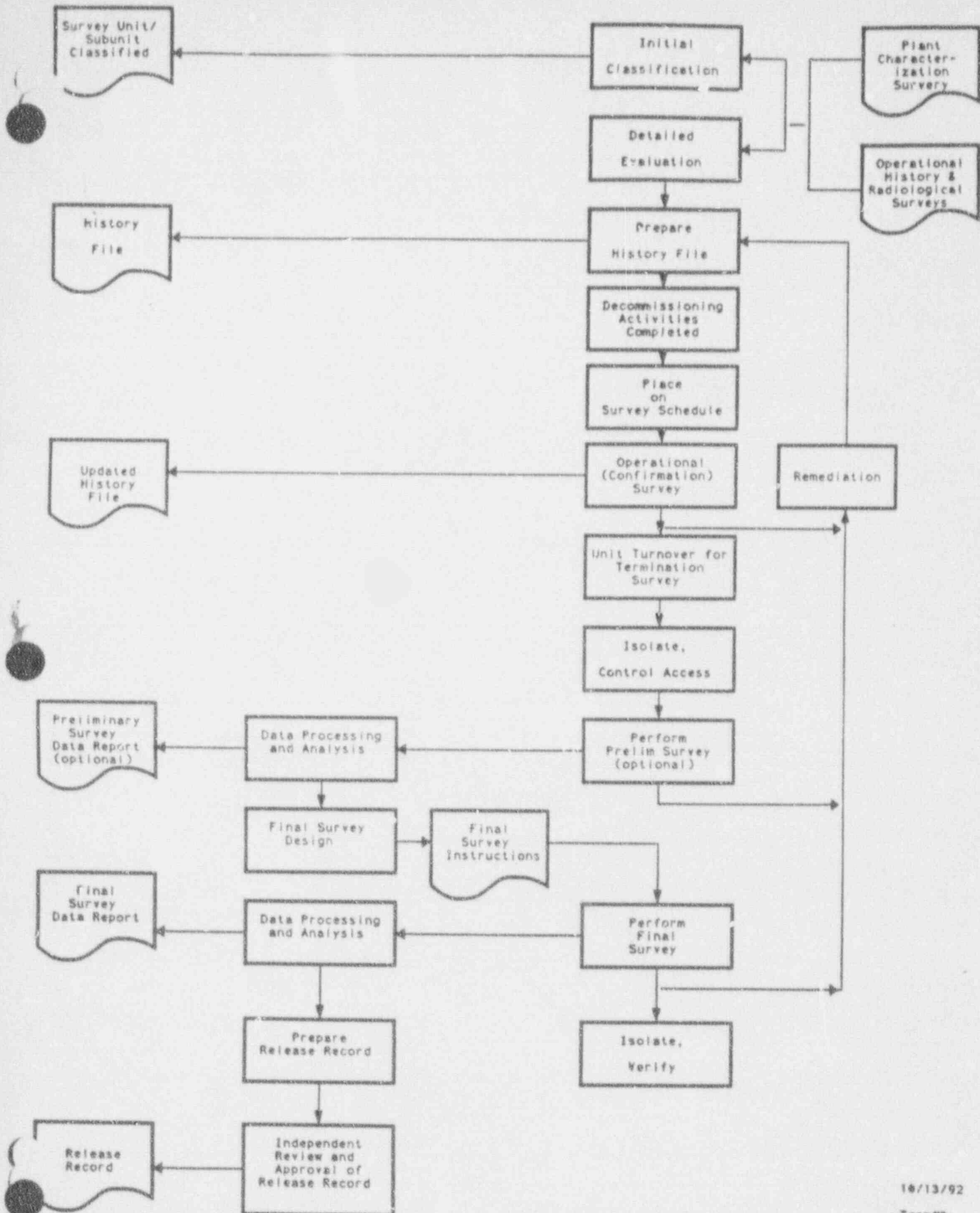
Notes:

1. Process described for individual survey unit.
2. Operational (confirmation) surveys performed on selected areas.

10/13/92

Term#2

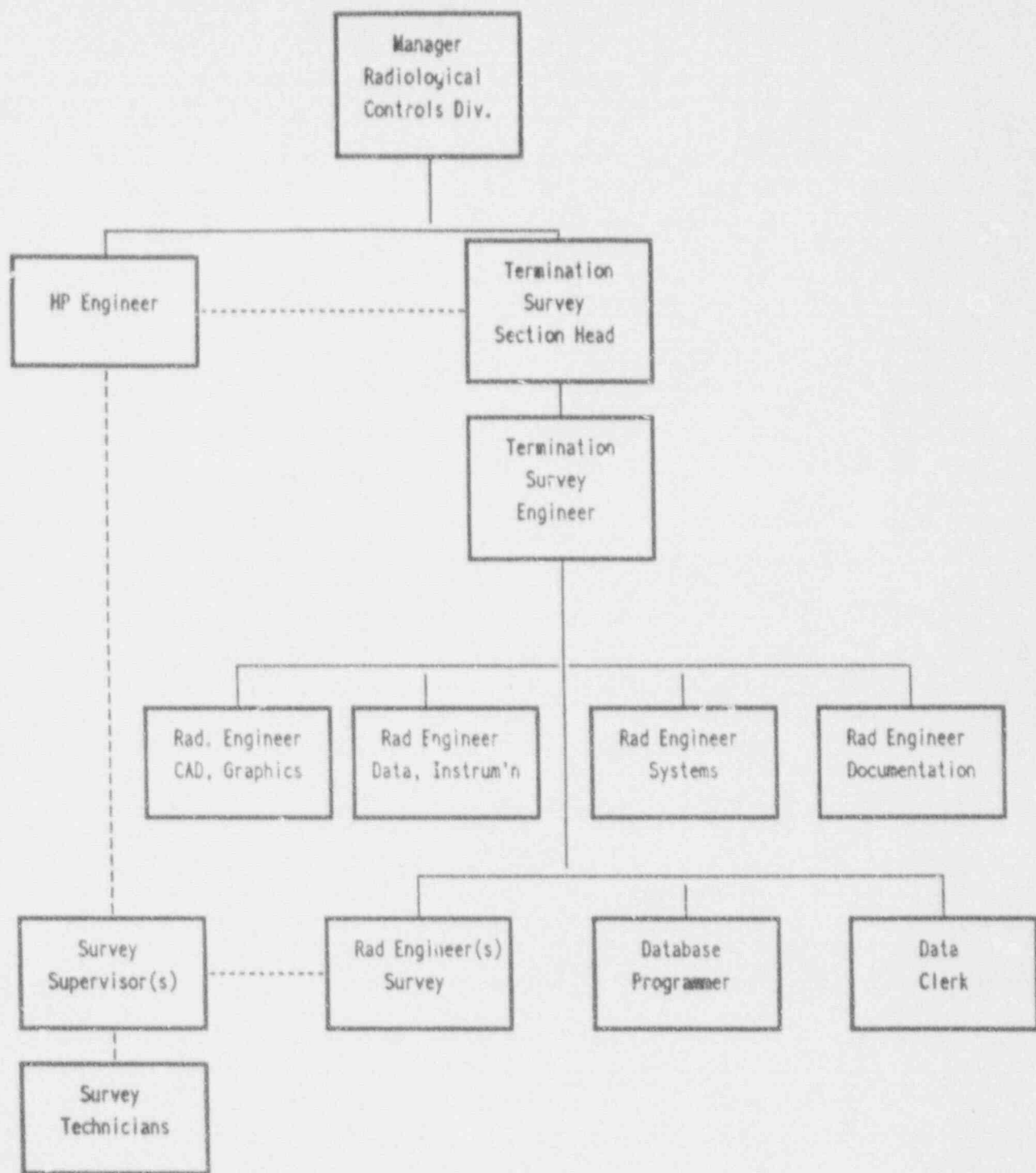
Termination Survey Process Details



16/13/92

Term#3

Termination Survey Organization Chart



9/21/92
Term#4

Termination Survey Final Report Outline

Shoreham Nuclear Power Station Decommissioning Termination Survey Final Report

- 1.0 Background Information
- 2.0 Site Information
 - 2.1 Site Description
 - 2.2 Site Conditions at Time of Final Survey
 - 2.3 Identity of Potential Contaminants and Release Guidelines
- 3.0 Final Status Survey Overview
 - 3.1 Survey Objectives
 - 3.2 Organization and Responsibilities
 - 3.3 Instrumentation
 - 3.4 Survey Procedures
 - 3.4.1 Area Classification
 - 3.4.2 Reference Grids
 - 3.4.3 Surface Scans
 - 3.4.4 Surface Activity Measurements
 - 3.4.5 Exposure Rate Measurements
 - 3.4.6 Soil/Sediment Sampling
 - 3.4.7 Special Measurements and Samples
 - 3.5 Background Level Determinations
 - 3.6 Sample Analysis
 - 3.7 Data Interpretation
 - 3.8 Records
- 4.0 Survey Findings and Results
 - 4.1 Background Levels

Termination Survey Final Report Outline

- 4.2 Building Surveys
- 4.3 Grounds Surveys
- 4.4 System Surveys
- 4.5 Data Evaluation
- 4.6 Residual Activity Inventory

5.0 Summary

6.0 Appendices

The final report will contain appendices of supporting data and information which include the following:

- 6.1 Tabulated Results for Individual Survey Units
- 6.2 Survey Map Index
- 6.3 Survey Procedures
- 6.4 Data Processing
- 6.5 Statistical Methods

7.0 Attachments

The Release Record for each Survey Unit or a summary of each will be included as attachments to the final report.



Long
Island
Power
Authority

NUCLEAR ORGANIZATION MANAGEMENT CONTROL PROGRAM MANUAL
PROGRAM DESCRIPTION DOCUMENT CHANGE NOTICE

PD-DCN NO. 93X002
SHEET 1 OF 2

AFFECTED DOCUMENT:

PDXOM-01, Rev. 1: Decommissioning Termination Survey Program Description

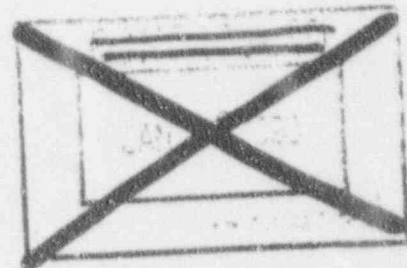
(2) DESCRIPTION OF CHANGE(S):

(3) EFFECTIVE DATE:
01-28-93

- a) Add section 5.7.2 entitled Plan Revisions to provide a method for administering changes to the Termination Survey Plan.
- b) Add Attachment 8.6: Termination Survey Plan Document Change Notice.
- c) Provide updated Table of Contents.
- d) Provide re-paginated pages of Revision 1.



INFORMATION COPY



(4) ORIGINATOR OF CHANGE:

M. P. Turner

DATE: 12/17/92

(5) RESPONSIBLE MANAGER:

J. A.

DATE: 12-17-92

(6) CONCURRENCES OF AFFECTED MANAGERS

L. B. H. *L. B. H.*

W. Maloney *W. Maloney*

L. Levin *L. Levin*

J. Wynne *J. Wynne*

E. Montgomery *E. Montgomery*

F. Petach *F. Petach*

N. N. Nelson

R. Patch, R. L. Patch 12-21-92

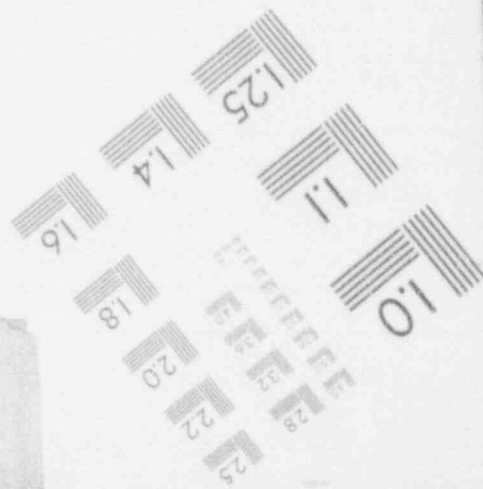
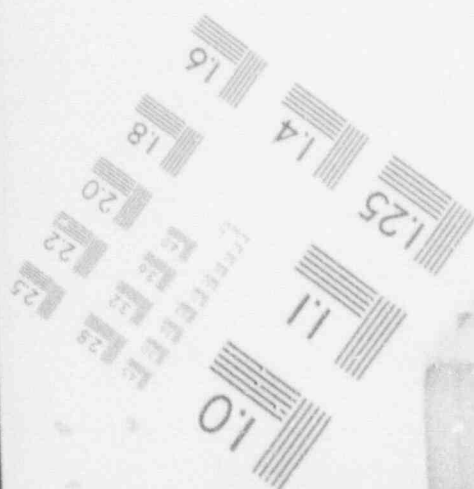
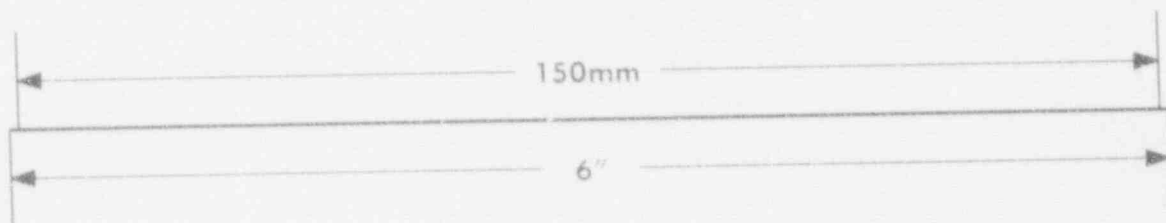
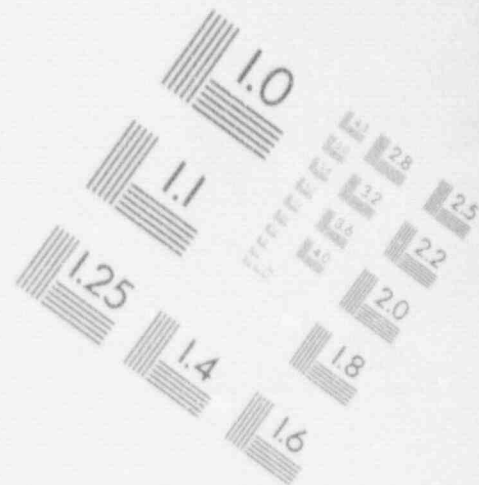
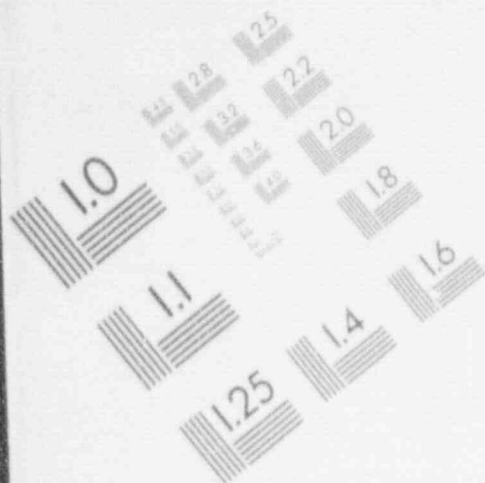
APPROVED:

J. A.

1/23/93
DATE

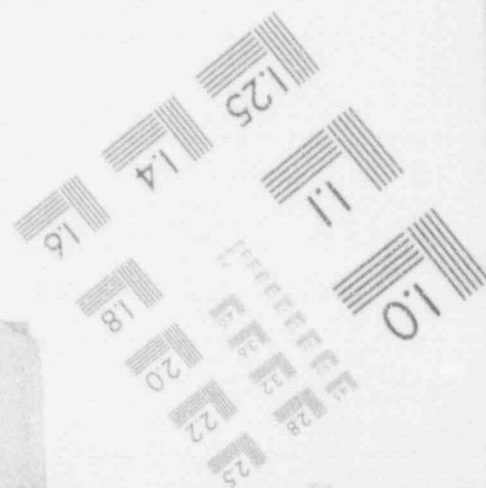
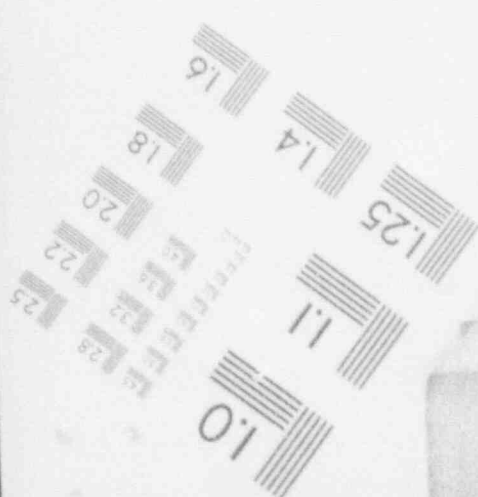
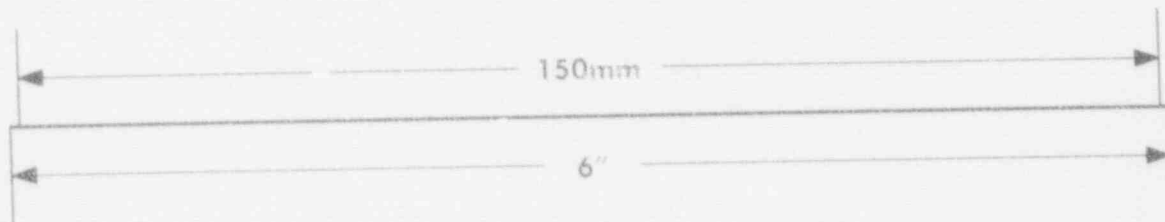
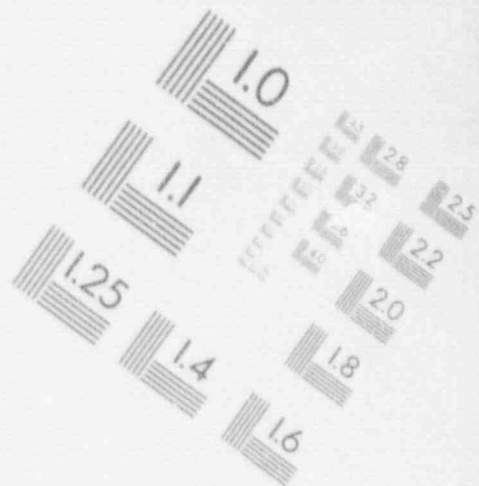
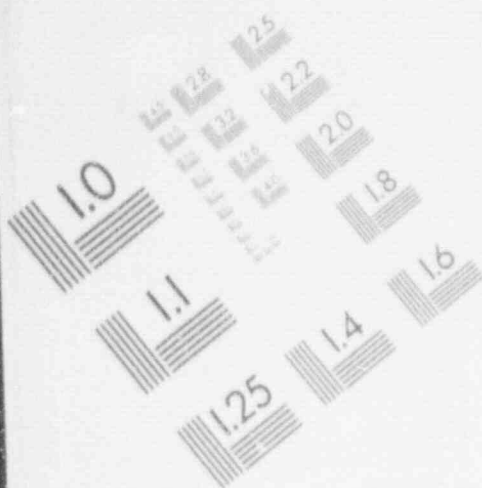
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IMAGE EVALUATION
TEST TARGET (MT-3)



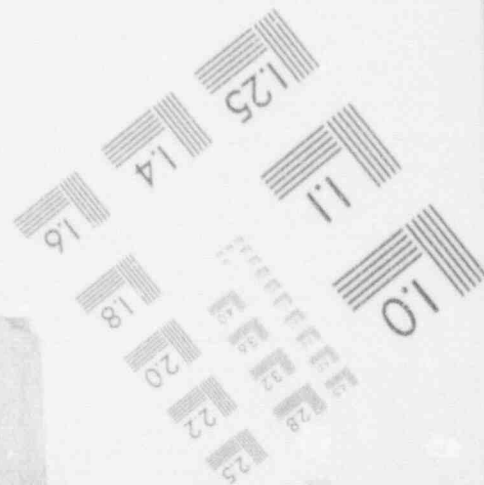
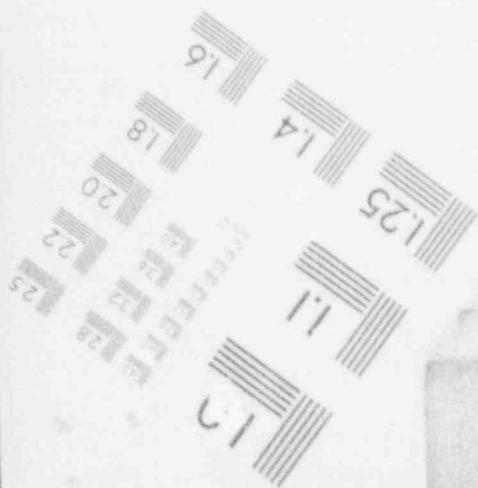
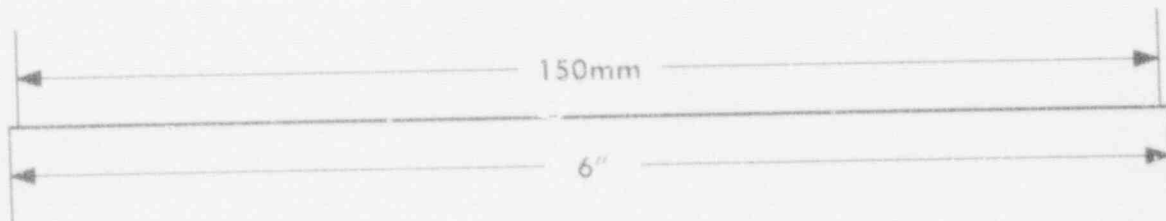
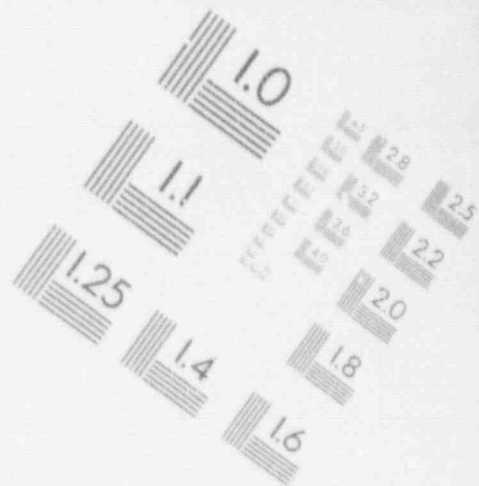
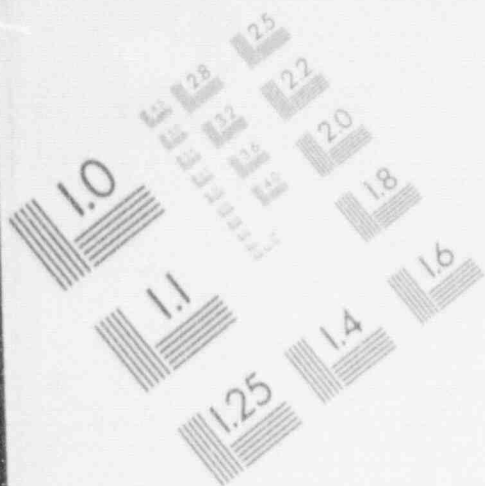
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IMAGE EVALUATION
TEST TARGET (MT-3)



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IMAGE EVALUATION
TEST TARGET (MT-3)



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- Data Interpretation
- Final Report

5.7.2 Plan Revisions

Revisions to the Termination Survey Plan may be originated by any appropriate department within LIPA. Proposed revisions shall be directed to the Termination Survey Section for processing. The Termination Survey Section Head shall be responsible for coordination and resolution of all proposed revisions to the Termination Survey Plan.

Similar to LIPA program descriptions, minor (non-programmatic) inaccuracies do not necessitate revision of the Termination Survey Plan. These changes shall be documented on a Termination Survey Plan Document Change Notice (TSP-DCN) and shall be incorporated during the next Plan revision. For major changes to the Termination Survey Plan, the Termination Survey Section Head shall determine whether the Termination Survey Plan is to be revised or if a TSP-DCN is to be issued.

Attachment 8.6 provides the Termination Survey Plan Document Change Notice form. Plan revisions and TSP-DCN's are administered in the manner prescribed for program description revisions and/or DCN's in Section 5.6.4 of the LIPA Nuclear Management Control Manual.^{2.2}

5.7.3 Survey Unit Classification

The survey unit classification process is a major tool for planning and management of the termination survey. The division of the facility into survey units and the classification of those survey units will be controlled by station procedure. This allows for thorough review and approval while providing for limited revisions to the Termination Survey Plan. The purpose of this classification is to show the breakdown of site structures, systems and areas into the principal survey units used to manage survey measurement and data collection efforts. Each survey unit is then classified according to the potential for residual radioactive contamination. This classification guides the level of measurement intensity applied in the survey design. Additionally, the survey design may further divide a survey unit into survey subunits with the appropriate classification given to each survey subunit. The classification for a survey subunit may indicate a lesser potential for residual contamination than the survey unit for which it is part, but in no case will a survey subunit be classified with a higher potential for

residual contamination. The Survey Unit Classification Description contains a listing of each survey unit which identifies its classification. It also includes a series of general arrangement (plan view) drawings by principal elevation of the major buildings. The drawings will show the individual survey units and their classification. The Survey Unit Classification Description is the principal tool for communication of termination survey plans and interfacing with other decommissioning organizations to schedule survey activities.

5.8 Procedures

Many functions of the termination survey will be conducted under SNPS Health Physics, Radiochemistry and Radiological Environmental Monitoring Program procedures. These include operation and calibration of survey instruments. In addition, several processes unique to the Termination Survey Section have been identified and will be controlled by procedures. Termination survey procedures will be prepared in accordance with approved procedures for preparation, issuance, control and revision of Health Physics procedures. Topics which will be addressed in termination survey procedures include (but are not limited to):

- Conduct of survey operations
- History files
- Release records
- Survey measurement quality control
- Survey Unit turnover for Termination Survey
- Isolation & control of Termination Survey Survey Units
- Survey data receipt and management
- Document control and management
- Survey Unit classification
- Background determination and documentation

5.9 Work Instructions

Work instructions are used to describe and control processes which require some degree of standardization but less control than processes controlled by procedures. Work instructions are not used in cases where data integrity is affected. Examples are tasks performed by a limited number of personnel, tasks which may change fairly frequently or which may be

performed for a limited period, and tasks for which only general guidance is required. Work instructions are not used to introduce new tasks or to expand work beyond the scope of existing procedures. Work instructions for termination survey will be prepared, issued, and controlled in accordance with the approved procedure for Health Physics work instructions.

6.0 INTERFACES

Principal programs and procedures that interface with the termination survey are identified below.

6.1 Quality Assurance

LIPA Quality Assurance Manual
LIPA Quality Assurance Procedures

6.2 Decommissioning Department

PDXDD-01 Decommissioning Program Description

6.3 Work Control

SP 12X010.02 Station Modification Activities
SP 12X011.01 Station Equipment Clearance Requests
SP 12X012.01 Radiation Work Permits
SP 12X013.01 Maintenance Work Requests

6.4 Safety Program

Shoreham Site Safety Manual

6.5 Fire Protection

PDXNE-11 Fire Protection Program
F1X500.01 Organization and Administration of Fire
Protection Program
SP 12X500.01 Fire Protection Program Description

6.6 Security Plan

6.7 Nuclear Engineering

Radiological Environmental Monitoring Program (REMP)
PDXNE-01 Intrim Management Control Program for
Station Modifications
NEX01-01 Preparation, Revision & Approval of
E&DCRs & ECRs

7.0 PROGRAM EVALUATION

7.1 Routine Feedback

The RCD Manager is responsible for maintaining this program description. He may delegate this responsibility to the Termination Survey Section Head. Persons having suggestions or comments on this program should present them to the RCD Manager or his designee. At the annual review, or sooner if required, the RCD Manager shall resolve problems that have arisen during the period, and ensure that this program is revised as necessary.

7.2 Periodic Evaluation

Periodic evaluations will be performed on the basis of major project milestones or other changes which could impact the program. The first comprehensive review of the program is planned prior to initiation of final survey phase measurements. This will be performed by the LIPA Nuclear Quality Assurance Department with the assistance of outside technical experts who are experienced in decommissioning surveys.

8.0 ATTACHMENTS

- 8.1 Criteria for Release of Shoreham Nuclear Power Station for Unrestricted Use Following Decommissioning
- 8.2 Termination Survey Process Summary
- 8.3 Termination Survey Process Details
- 8.4 Termination Survey Organization Chart
- 8.5 Termination Survey Final Report Outline
- 8.6 Termination Survey Plan Document Change Notice



TERMINATION SURVEY PLAN DOCUMENT CHANGE NOTICE

TSP-DCN NO. _____
SHEET _____ OF _____

(1) AFFECTED DOCUMENT:

(2) DESCRIPTION OF CHANGE(S):

(3) EFFECTIVE DATE:

(4) ORIGINATOR OF CHANGE:

DATE:

(5) RESPONSIBLE MANAGER:

DATE:

(6) CONCURRENCES OF AFFECTED MANAGERS

APPROVED: _____

DATE: _____

Termination Survey Report for Turbine System (N31)

APPENDIX D. TERMINATION SURVEY PLAN