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TERMINATION SURVEY DESIGN

1.0 PURPOSE

This procedure provides instructions for preparing and documenting the design of the Termination Surveys of systems, structures, and outside areas, for the Shoreham Nuclear Power Station Decommissioning Project.

2.0 RESPONSIBILITY

The Termination Survey Section Head is responsible for ensuring the proper implementation of this procedure.

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3.0 DISCUSSION

3.1 Survey design performed under this procedure is the process of establishing the number, type and location of measurements to be taken in the Shoreham Decommissioning Termination Survey.

3.2 Designs are prepared for each survey unit independently.

3.3 The output of the design process is the survey instructions for the survey unit.

3.4 The objective of survey design is to produce a set of measurements which will provide a high degree of assurance that the survey unit satisfies the facility release criteria contained in the Termination Survey Plan (Ref.11.1).

3.5 Survey designs are prepared by or under the direct supervision of a Termination Survey Radiological Engineer.

3.6 Survey designs are prepared using the Survey Design Guidelines in the Shoreham Termination Survey Plan Appendix A (Ref.11.1) as guidance.

3.7 The Design Guidelines are summarized and provided in tabular form as Appendices to this procedure (App.12.1 - 12.3).

3.8 This procedure contains:

4.0 PRECAUTIONS

N/A

5.0 PREREQUISITES

5.1 The survey unit is described in the Survey Unit Classification Description (Ref.11.2), and has been assigned a five character Survey Unit identification code.

5.2 The survey unit history file has been completed, the classification as either affected or unaffected assigned and verified in accordance with SP 67X001.01 (Ref.11.3).

5.3 The design responsibility has been assigned to a designated Radiological Engineer.

6.0 LIMITATIONS AND ACTIONS

N/A

7.0 MATERIALS AND/OR TEST EQUIPMENT

N/A

8.0 PROCEDURE

8.1 Design Process and General Requirements

8.1.1 Identify the overall survey design requirements based upon the category of the survey unit. Select the appropriate design guide for system, structure or outside area.

8.1.2 Evaluate the overall scope of the survey unit by reviewing the history file and supporting documentation, and conducting walkdowns as necessary. This evaluation determines the need for breakdown into subunits.

8.1.3 Establish the subunits needed to support the survey design considering the physical scope and characteristics of the survey unit. Guidance for establishing subunits is provided in Sections 8.2 (systems), 8.3 (structures), and 8.4 (outside areas).

8.1.4 Each subunit must be treated as a "population", i.e., the measurements selected for the subunit must show that the subunit independently satisfies the applicable release criteria.

8.1.5 The entire survey unit must be covered in the breakdown into subunits. The minimum number of subunits is zero; in the case where this occurs the survey unit consists of a single population which encompasses the entire survey unit.

8.1.6 Survey subunits are disjoint sets of objects, i.e., no item is contained in more than one subunit.

NOTE: The survey design may include multiple subunits which reside in the same physical territory, but each subunit "contains" unique objects. For example, on the upper walls of an equipment room one subunit may include wall surfaces only, another subunit may include all cable trays only, and another may include all excavated piping penetrations only.

8.1.7 Each subunit is evaluated to establish the appropriate classification: affected or unaffected. The necessary guidance for subunit classification is found in SP 67X001.08 (Ref.11.2). Normally, each subunit is classified the same as the parent survey unit. Exceptions may be made, for example, upper walls and ceilings of an affected structural survey unit may be classified as unaffected if it can be shown that there is no history of airborne or other contamination mechanism for upper walls and ceiling surfaces. The history file for the survey unit (Ref.11.3) provides the basis for this evaluation.

8.1.8 The appropriate method of measurement location selection (sampling) must be selected for each subunit: either systematic, biased or random. Refer to the appropriate survey design guide for selecting the sampling method for systems, structures, and outside areas.

8.1.9 Sampling method also depends on classification (affected or unaffected) and type of surface. Refer to the appropriate column in the selected design guide. Each subunit must satisfy the requirements for the minimum number of measurements.

8.1.10 Implementation of the sampling methods: systematic, biased or random for systems, structures and outside areas is discussed in sections 8.2, 8.3, and 8.4.

8.1.11 General instructions for random sampling selection of measurement locations are as follows:

.1 The population to be sampled is established as a list of all the items numbered sequentially from 1 to N, where N is the total number of items.

.2 The sample size, n, i.e., the required number of measurements (survey points or measurement locations) is determined, usually a minimum of 30.

.3 The required number of items is selected from the population list by using a random number table or a computer random number generator approved by the Termination Survey Engineer (Ref.11.9).

.4 The sample consists of n distinct items, i.e., the sample is obtained by sampling without replacement. This requires that if the random number generator selects a number which has been previously selected, a new number is selected.

8.1.12 Prepare the survey instructions in accordance with SP 67X001.02 (Ref.11.4).

8.1.13 Identification-coding of the design breakdown structure must follow the convention in Appendix 12.4. Observe the overall data structure for the survey design in the survey instructions and data sheets using the following hierarchy: Survey unit; Subunit; Survey location; measurement point. Guidance for applying this breakdown in a consistent fashion to systems, structures and outside areas is given in Appendix 12.4.

8.1.14 The basic content and assembly of survey packages is performed in accordance with SP67X001.02 (Ref.11.4). Survey packages are assembled in a manner which allows them to be divided into sub-packages, to allow performance of survey activities in parallel if necessary. Preparation and use of sub-packages is in accordance with the following:

.1 The division into sub-packages for structures and outside areas generally is by subunit.

.2 For system survey units, breakdown into sub-packages for individual components is acceptable.

.3 The survey design breakdown of the survey unit shall be clearly outlined on the cover page(s) (General Instruction Form, Ref.11.4) at the front of the survey package master.

.4 The design breakdown and survey unit description information shall be maintained in the survey unit file. The breakdown listing shall identify the existence of all sub-packages.

.5 Each sub-package shall be assembled in a separate folder labeled with the identification of the survey unit and subunit (or component) covered by the sub-package.

.6 Each sub-package shall contain the appropriate instructions and data sheets for the survey package covered by the sub-package. Each sub-package data sheet shall be labeled to properly identify the survey unit or sub-unit (or component) to which it belongs.

8.1.15 QC replicate surveys are designed for each survey unit. A separate survey package shall be prepared for each QC replicate survey in accordance with SP67X001.02 (Ref.11.4), maintaining conformance with the established criteria of the Termination Survey Quality Control Procedure (Ref.11.11) for replicate QC measurements.

8.2 Survey Design for Systems

This section provides the directions necessary for the design of a system survey and the approval process for this design. It is generally recognized, and has been noted during the Site Characterization Program, that contamination generally is not evenly distributed within a system. Therefore, a biased approach is used to select survey locations for systems. This approach to selection of survey locations favors those locations with the highest potential for deposition of corrosion products, taking into account the system design and configuration, operating history, and previous radiological survey results. The established criteria of the Termination Survey Plan (Ref.11.1) for system surveys shall be applied to the survey design.

NOTE: The term "component", as used in this section, refers not only to the conventional system operating components such as valves, pumps, or tanks, but to any survey location selected in a system, which may include runs of piping requiring destructive or non-destructive opening, pipe flanges, spool pieces adjacent to conventional components, etc.

8.2.1 The preliminary System Component Listing, Appendix 12.6, is prepared individually for each system survey unit by the designated survey designer, and reviewed by the Radiological Engineer for Systems. It identifies:

.1 the system by name and survey unit number, in accordance with SP67X001.08 (Ref.11.2);

.2 the system designator, in accordance with the File Code List (Ref.11.10);

.3 the classification of the system as Affected or Unaffected, in accordance with the history file for the survey unit (Ref.11.3);

.4 the sequential number of the component/location I.D. This corresponds to the survey instruction form number.

.5 components selected, identified by name and component identification number where applicable;

.6 the Survey Location Selection Criteria code number from Appendix 12.7, Survey Location Selection Criteria. <1

.7 component size (outside diameter);

.8 the number of measurements to be taken at the component. For measurements directly on the component, indicate the number required, and N/A the "Distance" space on the form.

.9 the number of measurements to be taken upstream and downstream of the identified component, and the distance from t e component for each.

8.2.2 The survey designer performs a walkdown of the system to prepare a final selection of components and survey locations. The following should be considered by the designer during the field walkdown:

.1 the criteria for system surveys and subunit identification established by Appendix A, Section 7.3, of the Termination Survey Plan (Ref.11.1);

.2 system interfaces:

.a In selecting survey locations for Unaffected systems, interfaces to Affected systems shall be surveyed;

.b In selecting survey locations for Affected systems, interfaces to Affected systems shall be surveyed;

.3 potential contamination locations, low points, system inlets and outlets, flow impingement areas, etc.;

.4 component accessibility.

8.2.3 Designer prepares a final System Component Listing using Appendix 12.6.

8.2.4 Designer marks up a flow diagram or drawing of the system, indicating the components selected for disassembly or removal.

.1 One copy of the marked up flow diagram is required for the Maintenance Work Request (MWR) work package, and one for the survey package.

.2 A copy of the marked up flow diagram may be included in the survey unit history file.

8.2.5 The Termination Survey Radiological Engineer Systems Specialist reviews the component selection before the survey package or MWRs are prepared.

8.2.6 Following review of the component selection, the survey designer should walk down the selected system components with maintenance personnel to evaluate the component selection and identify support requirements.

8.2.7 The survey designer should prepare the MWRs necessary to support the system survey, in accordance with SP12X013.01 (Ref.11.6).

.1 If removal of piping or components is necessary to provide access to systems for survey, removal shall be in accordance with Engineering Change Request (ECR) T-00201 (Ref.11.7).

8.2.8 The survey designer should prepare the Termination Survey Design Worksheet, Appendix 12.5.

8.2.9 The survey designer prepares the survey package in accordance with SP67X001.02 (Ref.11.4), maintaining conformance with the requirements of the Survey Design Guide - Systems (App.12.1). Where the design guide indicates:

.1 division into subunits as appropriate - guidance for establishing subunits is provided below:

a. Large components which provide the minimum number of measurement locations required for a system survey unit of the same classification, should be established as individual subunits; for example, the Main Condenser in the Condensate and Feedwater System.

b. A portion of the system which calls for a specific or unique survey design should be established as a subunit. Examples of this are the embedded piping portion of the Radwaste System, where the different survey techniques required (pipe crawlers) make this a logical subunit; or the halon, water, and carbon dioxide subsystems of the Fire Protection System, where the different process fluids require portions to be treated individually in the survey design.

.2 biased selection of measurement locations - the bias is towards the likely areas and mechanisms for deposition of residual contamination, considering the system process fluid, inlet and outlet points, low points, flow impingement areas, and system interfaces.

.3 systematic selection of measurement locations in embedded piping - a fixed distance between measurement points is established for each embedded piping system; the specific distance between measurement locations is a function of the piping length and inside diameter, such that a minimum of 25% of the embedded pipe will be surveyed.

8.3 Survey Design for Structures

The survey designer, designated by the Termination Survey Engineer, performs the following sequence of steps to prepare the survey design of the selected structural survey unit.

8.3.1 Review the history file and survey unit classification of the survey unit to determine the overall survey design requirements, summarized in App.12.2, Survey Design Guide - Structures.

8.3.2 Perform a walkdown of the survey unit to identify the support activities required for the survey, and to determine the need for division into subunits in accordance with the Termination Survey Plan Appendix A, Section 6.1 (Ref.11.1).

8.3.3 Results of the walkdown in step 8.3.2 should be documented on the Termination Survey Design Worksheet, including when applicable:

.1 scaffolding, tagouts, interference removal, and additional support needed;

.2 subunit identification; and

.3 gridding requirements.

8.3.4 Secure the necessary support through preparation of MWRs, Electric Production Work Requests (EPWRs), scheduling of gridding, etc.

8.3.5 Prepare the survey instruction package in accordance with SP67X001.02 (Ref.11.4), maintaining conformance with the survey requirements of the Survey Design Guide - Structures (App.12.2). Where the design guide indicates:

.1 surface scan 100% - the 100% applies to all surfaces of the specified area, e.g., "Affected Upper Walls and Ceilings Suspect", and not just to the minimum 30 fixed point measurement locations. Designer should indicate in the survey instructions that the technician performing the scan enter, alongside the first measurement point in the "Scan" column of the Survey Data Sheet, the highest value recorded during the scan, and to mark the reading with an asterisk. The technician should also be instructed to explain, in the Comments section of the Survey Data Sheet, that the value entered applies to all surfaces scanned, and not just to the fixed measurement point locations identified in the "Location" column of the Survey Data Sheet (Ref.11.4).

.2 systematic survey of every other grid block - for floors and lower walls of survey units classified as Affected, the starting point is selected at random from the first and second numbered grid blocks on the floor, continuing the sequence of every other numbered grid block through the entire floor and then carrying the system across to the numbered wall grid blocks. For example, when the highest numbered floor grid block falls into the systematic pattern, select the second numbered wall grid block to continue the sequential alternating pattern. A similar approach is applied to Suspect ceilings and upper walls in Affected survey units, where the starting point is selected at random from the first and second grid block of the ceiling, continuing the alternate selection through the ceiling and carrying the sequence across to the grid blocks of the upper walls.

.3 surface scan in the vicinity of each measurement location - the "vicinity" is generally an area of approximately 1 m^2, with the measurement location serving as the center point;

.4 biased selection of measurement locations for upper walls and ceilings, Not Suspect, in survey units classified as Affected - the bias is toward the likely areas for deposition of residual contamination. Generally, a separate subunit will be established for horizontal surfaces (and attachments) and another for vertical surfaces (and attachments), with a minimum 30 measurement locations for each. In cases where equipment rooms contain free standing equipment (multiple runs of suspended equipment such as piping, ducting, and cable trays) and complex structural members (grating, platforms, etc.), subunits are established, one for each distinct class of objects.

.5 optional gridding - when gridding is optional but desired, a grid size is selected from one to 10 m^2 which allows the selection of the required minimum number of measurement points, e.g., the greater of 30 total or one/50 m^2;

.6 surface scan of 10% minimum of floors along walkways - common travel paths should be selected in excess of the minimum 10%. These may be specified by the survey designer. If selected by the technician performing the survey, indicate in the survey instructions that the technician note the areas selected by recording them on the Comment section of the Survey Data Sheet (Ref.11.4), and that the highest reading be recorded in the "Scan" column as described above in 8.3.5.1.

.7 random selection of measurement locations - for gridded areas, the grid blocks of the floor and lower walls form a population of locations from which a finite sample of 3 is randomly selected, using a random number generator. For areas not gridded, a population (subunit) may be established using a set of distinct features, such as "All penetrations in the overhead", enumerating them, and selecting a random sample from among this population.

8.4 Survey Design for Outside Areas

The survey designer, designated by the Termination Survey Engineer, performs the following sequence of steps to prepare the survey design of the selected outside area survey unit.

8.4.1 Review the history file and survey unit classification of the survey unit to determine the overall survey design requirements, summarized in App.12.3, Survey Design Guide - Outside Areas.

8.4.2 Perform a walkdown of the survey unit to identify the support activities required for the survey, and to determine the need for division into subunits in accordance with the Termination Survey Plan Appendix A, Section 6.2 (Ref.11.1).

8.4.3 Results of the walkdown in step 8.4.2 should be documented on the Termination Survey Design Worksheet (App.12.5), including when applicable:

.7 surface scan of 10% of site grounds - common pedestrian or vehicular travel paths, if applicable, should be selected in excess of the minimum 10%. These may be specified by the survey designer. If selected by the technician performing the survey, indicate in the survey instructions that the technician note the areas selected by recording them on the Comment section of the Survey Data Sheet (Ref.11.4), and that the highest reading be recorded in the "Scan" column as described above in 8.3.5.1.

.8 surface scan of 10% of exterior wall surfaces - the areas selected should be distributed among all exterior walls, in excess of the minimum 10%. These may be specified by the survey designer. If selected by the technician performing the survey, indicate in the survey instructions that the technician note the areas selected by recording them on the Comment section of the Survey Data Sheet (Ref.11.4), and that the highest reading be recorded in the "Scan" column as described above in 8.3.5.1.

.9 random selection of measurement locations - for gridded areas, the grid blocks form a population of locations from which a finite sample of 30 may be randomly selected, using a random number generator. For areas not physically gridded, a division on paper may be established, using a scale plan view drawing, dividing the survey unit into imaginary grids to form a population of locations from which a finite sample of 30 is randomly selected, using a random number generator. These areas may then be marked off physically using temporary markings in accordance with Health Physics W.I.25-1 (Ref.11.8).

.10 roofs of Power Block and adjacent buildings - the four buildings which comprise the Power Block are the Control Building, Radwaste Building, Reactor Building, and Turbine Building. Adjacent buildings are those which are immediately adjacent to the Power Block, namely the O & S Building, the Office Building Annex, and the Electrical Cable Vault/Access Structure.

9.0 ACCEPTANCE CRITERIA

9.1 The survey design conforms with the Survey Design Guidelines in the Shoreham Termination Survey Plan Appendix A (Ref.11.1), which are summarized in appendices 12.1 - 12.3 of this procedure.

10.0 FINAL CONDITIONS

10.1 The survey design is documented in the Survey Instruction Package (Ref.11.4).

11.0 REFERENCES

11.1 "Shoreham Decommissioning Project Termination Survey Plan", Rev.0

11.2 SP67X001.08 - "Survey Unit Classification Description"

.1 scaffolding, tagouts, interference removal including landscaping, and additional support needed;

.2 subunit identification; and

.3 gridding or temporary marking requirements.

8.4.4 Secure the necessary support through preparation of MWRs, EPWRs, scheduling of gridding, etc.

8.4.5 Prepare the survey instruction package in accordance with SP67X001.02 (Ref.11.4), maintaining conformance with the survey requirements of the Survey Design Guide - Outside Areas (App.12.3). Where the design guide indicates:

.1 surface scan 100% - the 100% applies to all surfaces of the specified area, e.g., "Affected Building Exteriors", and not just to the minimum 30 fixed point measurement locations. Designer should indicate in the survey instructions that the highest measurement value be recorded as described above in step 8.3.5.1.

.2 ß - γ detector - preference should be given to the largest-area beta-gamma detector appropriate to the surface to be scanned. For example, for smooth evenly-paved areas indicate the use of the floor monitor rather than the 252 cm^2 probe; for wall surfaces, the use of the 252 cm^2 detector is preferred to the HP-210 probe.

.3 γ detector - the Bicron microRem meter is the instrument of preference for surface scans that call for only a gamma detector. The NaI detector may be used in areas where its extreme sensitivity to background fluctuations is an asset rather than an impediment to the survey.

.4 systematic survey of site grounds - for affected paved areas, measurement locations are selected to achieve an average of at least one per 10 m^2 and a minimum of 30 total locations. For affected unpaved areas, measurement locations are selected to achieve an average of at least one per 25 m^2 and a minimum of 30 total locations.

.5 biased selection of measurement locations on building exteriors classified as Affected - the bias is toward the likely areas for deposition of residual contamination, for example, penetrations, drains, ventilation intakes and exhausts, areas downwind of stacks, and areas adjacent to or included in former RCAs.

.6 optional grid size - when the grid size is optional and gridding is required or desired, a grid size is selected from within the appropriate range specified in Appendix 12.3, which allows the selection of the required minimum number of measurement points, e.g., the greater of 30 total or one per 20 m^2.

11.3 SP67X001.01 - "Termination Survey History File Content and Preparation"

11.4 SP67X001.02 - "Shoreham Decommissioning Project Termination Survey Procedure"

11.5 Long Island Lighting Company, "Shoreham Nuclear Power Station Site Characterization Program Final Report", May 1990 (with addenda, June 1990, October 1990).

11.6 SP12X013.01 - "Maintenance Work Requests"

11.7 ECR T-00201 - "System Dismantlement to Perform Termination Survey"

11.8 HP W.I. 25-1 - "Gridding for Termination Surveys"

11.9 LOM-TS-92-017 - "Random Number Generators for Termination Survey Design", Memorandum from Bruce Mann to Mike Tucker, 12/11/92

11.10 Shoreham Records Management - "File Code List"

11.11 SP67X001.03 - "Termination Survey Quality Control"

12.0 APPENDICES

12.1 Survey Design Guide - Systems

12.2 Survey Design Guide - Structures

12.3 Survey Design Guide - Outside Areas

12.4 Identification-Coding Guide

12.5 Termination Survey Design Worksheet - Sample

12.6 System Component Listing - Sample

12.7 Survey Location Selection Criteria

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SURVEY DESIGN GUIDE - SYSTEMS

DESIGN PARAMETERS	AFFECTED		UNAFFECTED
	Piping Systems, Mechanical Systems	Embedded Piping	Piping Systems, Mechanical Systems
Divide Into Subunits	As Appropriate	As Appropriate	As Appropriate
Grid	Tanks and Large Vessels	N/A	No
Grid Size	One m^2	N/A	N/A
Minimum No. of Measurement Locations	30 (If system size permits)	N/A	10 (If system size permits)
Minimum Fraction Surveyed	N/A	25%	N/A
How Selected	Biased, (System inlets, outlets, interfaces, low points)	Systematically	Biased, (System inlets, outlets, interfaces, low points)

SURVEY DESIGN GUIDE - STRUCTURES

DESIGN PARAMETERS	AFFECTED			UNAFFECTED			
	Floors & Lower Walls	Upper Walls & Ceilings		Inside Power Block		Outside Power Block	
		Suspect	Not Suspect	Floors & Lower Walls	Upper Walls & Ceilings	Floors	Walls (Including Lower Wall
Grid	YES	YES	NO	Optional	NO	Optional	NO
Grid Size	One m^2	One m^2	—	One to 10 m^2	—	One to 10 m^2	—
Surf. Scan	100%	100%	In vicinity of each measurement location	Walkways (floors only) 10% minimum	None	Walkways 10% minimum	None
Minimum No. of Measurements	30	30	30 Each on Horz. & Vert.	30	30	30	30
How Selected	Systematically	Systematically	Biased	Random	Random	Random	Random
Frequency	Every other grid block	Every other grid block	One / 20 m^2	One / 50 m^2	One / 50 m^2	One / 50 m^2	One / 50 m^2

SURVEY DESIGN GUIDE - OUTSIDE AREAS

DESIGN PARAMETERS	AFFECTED			UNAFFECTED			
	Site Grounds		Bldg. Exteriors	Site Grounds		Bldg. Exteriors	
	Paved Areas	Unpaved Areas		Paved Areas	Unpaved Areas	Exterior Wall Surfaces (2 Meters from ground)	oofs (Power Block Adj. bldgs.)
Grid	YES	YES	YES	Optional	Optional	Optional	Optional
Grid Size	10 m^2	10 m^2	1 to 5 m^2	≤ 30 m^2	≤ 30 m^2	≤ 10 m^2	≤ 10 m^2
Surf. Scan	100% (B - γ detector)	100% (γ detector)	100% (B - γ detector)	10% (B - γ detector)	10% (γ detector)	10% (B - γ detector)	No
Minimum No. of Measurements	30	30	30	30	30	30	30
How Selected	Systematically	Systematically	Biased	Random	Random	Random	Random
Frequency	One / 10 m^2	One / 25 m^2	One / 20 m^2	——	——	One / 50 m^2	One / 50 m^2

IDENTIFICATION - CODING GUIDE

BREAK DOWN LEVEL	SPECIFICATION	EXPLANATION / APPLICATION
SURVEY UNIT	XXnnn 3 Characters 2 Characters	SU019 Sequential number of survey unit within each class Alpha code for type or class
SUBUNIT	nn 2 Characters	SU019 x 04 A * Subunits within each survey unit numbered in sequence Lower case "x" used as separator
LOCATION (SYSTEM)	nnX - nn - nn 1 or 2 Characters 1 or 2 Characters 1 Character Up to 3 Characters	12A - 5 - 1 Sequential number of measurement point within location A5 Sequential number of location within major component or piping length Alpha I.D. code extension to identify direction (if needed) Major location or component sequentially numbered within subunit
LOCATION (STRUCTURES & OUTSIDE AREAS)	XXXnn - nn 1 or 2 Characters 1 or 2 Characters 1 to 3 Characters	F 1 - 2 Sequential number of measurement point within a block or designated location (not used unless multiple points in block) Sequential number of location or grid block with designated alpha code Alpha code for type of location, floor, wall etc.
POINT	nnnn Up to 4 Characters	387 Individual point numbered sequentially within entire survey unit.

* NOTE: Map codes assigned alphabetically by survey unit (or subunit if used)

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Shoreham Decommissioning Project
TERMINATION SURVEY DESIGN WORKSHEET (SAMPLE)

PART 1. DESCRIPTION			
Survey Unit No.	Classif.	Bldg.	El.
Unit Name:			Base Map No.
System No.	Indoor area		Outdoor area
Preliminary Survey	Final Survey		Other Survey
Gridding Instructions			
Scaffolding Needed			
Tag Outs Needed			
Interference Removal			
Additional Support			

SUBUNIT IDENTIFICATION

Subunits	No.	Code		Name - Description

DWM 12/4/92 formtool file: Desn wk

SAMPLE

SYSTEM COMPONENT LISTING

SYSTEM NAME: _____ PRINTS: _____

SURVEY UNIT NO: _____ CLASSIFICATION: U A (PLEASE CIRCLE ONE)

SYSTEM DESIGNATOR: _____ SELECTION: PREL. FINAL QC (PLEASE CIRCLE ONE)

PREPARED BY: _____ DATE: _____ REVIEWED BY: _____ DATE: _____

No.	COMPONENT / LOCATION I. D.	NAME	CRIT	SIZE (O.D.)	DISTANCE / MEASUREMENTS			
					UPSTREAM		DOWNSTREAM	

CTN 1/7/93

SURVEY LOCATION SELECTION CRITERIA

1. Inlet
2. Outlet
3. System Interface
4. Low Point
5. Process Stream
6. Crud Trap
7. Flow Impingement
8. Alternate/Replacement