	Nuclear Power Generation Humboldt Bay Power Plant	NUMBER **RCP-6Q** VOLUME **7** REVISION **0** EFFEC DATE **3-15-10** PAGE **1 of 6**
PG&E	TITLE **MARSAME DISPOSITION OF MATERIALS AND EQUIPMENT**	APPROVED BY **ORIGINAL SIGNED 3-10-10** DEPARTMENT MANAGER / DATE

(Procedure Classification - Quality Related)
Level of Use - Reference

1.0 SCOPE

1.1 This procedure describes the HBPP program for the disposition of materials and equipment utilizing the MARSAME protocol.

1.2 The scope of MARSAME is material and equipment (M&E) potentially affected by radioactivity, including metals, concrete, tools, equipment, piping, conduit, furniture and dispersible bulk materials such as trash, rubble, roofing materials, and sludge.

1.3 This procedure represents the methodology for determining the disposition of materials and equipment, as outlined in NUREG-1575, Supp. 1, "Multi-Agency Radiation Survey and Assessment of Materials and Equipment Manual (MARSAME)" [5.1].

2.0 DISCUSSION

2.1 NUREG-1575, Supp. 1 provides the following:

2.1.1 The technical information on approaches for planning, implementing, assessing, and documenting surveys to determine proper disposition of materials and equipment

2.1.2 The increased flexibility of MARSAME comes with increased complexity. The goal of the MARSAME roadmap is to assist the MARSAME user in negotiating the information in MARSAME and determining where important decisions need to be made on a project-specific basis, as summarized in Roadmap Figure 7.1.

2.1.3 Records of MARSAME dispositional analyses, the supporting surveys and documentation must be retained.

2.1.4 This procedure provides a formalized process for documenting evaluations for release of potentially radiologically impacted material and equipment from the HBPP site, including inside the RCA in accordance with RCP-6B, Release of Solid Materials from Radiologically Controlled Areas.

3.0 RESPONSIBILITIES

3.1 The Radiation Protection (RP) Manager is responsible for maintenance of records associated with the disposition of M&E.

3.2 Qualified Radiation Protection Technicians are responsible for surveys performed in support of MARSAME disposition of materials and equipment.

4.0 INSTRUCTIONS

> Note
> An approved standard procedure or an approved M&E-specific work package/plan should control MASAME release surveys. The approved standard procedure or the approved work package/plan should include the planning elements in steps 4.1 through 4.5.

4.1 Initial Assessment

4.1.1 Conduct an initial assessment (IA) of M&E:

- Review relevant operational and maintenance records
- Review previous survey results
- Review radiological incident reports
- Perform a visual inspection.

4.1.2 During the visual inspection, identify potential safety issues and required preparation activities associated with the M&E.

> Note
> Sentinel measurements are biased measurements performed at key locations to provide information specific to the objectives of the IA, which is to gather sufficient information to support a categorization decision.

4.1.3 Ensure the collection of enough information during the IA to clearly describe the M&E and support a categorization decision and potential disposition decisions for the M&E (e.g., release or burial).

4.2 Categorization

> Note
> Non-impacted is a MARSAME term that applies to M&E where there is no reasonable potential for the presence of radioactivity above background. Impacted M&E have a reasonable potential for radioactive contamination or there is not enough information to support a "non-impacted" categorization decision.

4.2.1 Based on information from the IA, categorize the M&E as either impacted or non-impacted.

4.2.2 Non-impacted M&E do not require additional investigation, but may require documentation of the justification for the non-impacted decision.

4.3 Classification

Note

Classification applies only to impacted M&E. Class 1 M&E have the highest potential for radioactivity above the action level. Class 2 M&E have low potential for radioactivity that exceeds the action level and little or no potential for small areas of elevated radioactivity. Class 3 M&E have little or no potential for radioactivity above background and insufficient evidence to support categorization as non-impacted.

4.3.1 Based on information from the IA, classify the impacted M&E as Class 1, 2, or 3.

4.4 Data quality objectives (DQOs):

Note

The DQO process, as described in MARSSIM [5.2], should be applied in planning for radiological surveys for disposition of M&E. DQOs are qualitative and quantitative statements that clarify technical and quality objectives of the survey, define the type of data, and specify tolerable levels for decision errors.

4.4.1 Initiate the DQO process and ensure that DQOs that must be met during the survey of the M&E are defined. Include the following in the DQO process:

1. Problem statement:
   - Develop a concise description of the problem
   - Identify team members and the decision-maker
   - Specify available resources for the survey
2. Identify the decision:
   - Define the question that the survey will resolve and identify alternative actions that may be taken based on the outcome of the survey.
3. Identify the input required for the decision
   - Type and sensitivity of measurements
   - Action level
4. Define the survey boundaries

5. Decision rule:
   - The decision rule is an "if...then..." statement consisting of three parts: the action level(s), parameter of interest, and alternative actions.
6. Limits on decision errors

4.5 Measurement quality objectives (MQOs):

4.5.1 Develop MQOs to evaluate the survey design, focusing on the following:

- The measurement method uncertainty at a specified concentration expressed as a standard deviation
- The measurement method's detection capability expressed as the minimum detectable concentration
- The measurement method's range, which defines the measurement method's ability to measure the radionuclide or radiation of concern over some specified range of concentration or activity
- The measurement method's specificity, which refers to the ability of the measurement method to measure the radionuclide or radiation of concern in the presence of interferences and
- The measurement method's ruggedness, which refers to the relative stability of measurement method performance for small variations in measurement method parameter values

4.6 Preliminary Surveys

Note
A preliminary survey is any survey performed prior to a MARSAME disposition survey and is generally performed to collect information required to support the design of the disposition survey. If the data are adequate, no additional data collection is required.

4.6.1 Based on information from the IA, determine if a preliminary survey is necessary to fill data gaps. .

4.6.2 If necessary, perform a preliminary survey in accordance with an applicable standard procedure or develop a preliminary survey plan using the planning elements in steps 4.1 through 4.5. Otherwise, proceed to step 4.7.

4.7 Disposition Survey

> Note
> Disposition survey designs will incorporate scans, static measurements, or a combination of both to support the disposition decision.

4.7.1 Perform the disposition survey in accordance with an applicable approved standard procedure or develop a disposition survey package/plan using the planning elements in steps 4.1 through 4.5. A sample format for the disposition survey package/plan is shown in Attachment 7.2.

4.7.2 Ensure that the disposition survey package/plan documents the following:

- Survey design
- Action level(s)
- Operational decision rule
- Classification of the M&E
- Number and type of measurements
- Quality requirements for the measurements

4.7.3 Conduct and document the disposition survey in accordance with the approved survey package/plan and/or the approved standard procedure.

> Note
> The results of sections 4.8 through 4.10 should be documented and affixed to the survey plan.

4.8 Evaluate the Results

> Note
> The data quality assessment (DQA) process is a scientific and statistical evaluation that determines whether data are the type, quality, and quantity to support their intended use. When individual measurement results are not recorded, as allowed in some scan-only survey designs, the preliminary data review will be brief and based primarily on the results of quality control (QC) measurements.

4.8.1 Initiate the DQA process to evaluate the survey results:

- Verify that the DQOs were met in the survey
- Review QA and QC reports
- Verify MDC and MQOs were met
- Verify that the appropriate number of measurements were collected

4.8.2 Conduct a preliminary data review:

- Perform a graphical review of the data, if applicable
- Calculate basic statistical quantities
- Compare survey results to release criteria

4.8.3 Draw conclusion from the data.

4.9 Disposition Decision

4.9.1 Based on the outcome of step 4.8, make a decision regarding the planned disposition option or alternative actions for the M&E.

4.10 Documentation

4.10.1 All documentation including the IA, preliminary surveys, sentential surveys, disposition survey and disposition decision will be archived as permanent RP survey records.

5.0 REFERENCES

5.1 NUREG-1575, Supp. 1, "Multi-Agency Radiation Survey and Assessment of Materials and Equipment Manual (MARSAME)"

5.2 NUREG-1575, "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)"

6.0 APPENDICES

None.

7.0 ATTACHMENTS

7.1 Overview of MARSAME Process
7.2 Sample format for Disposition Survey Package/Plan

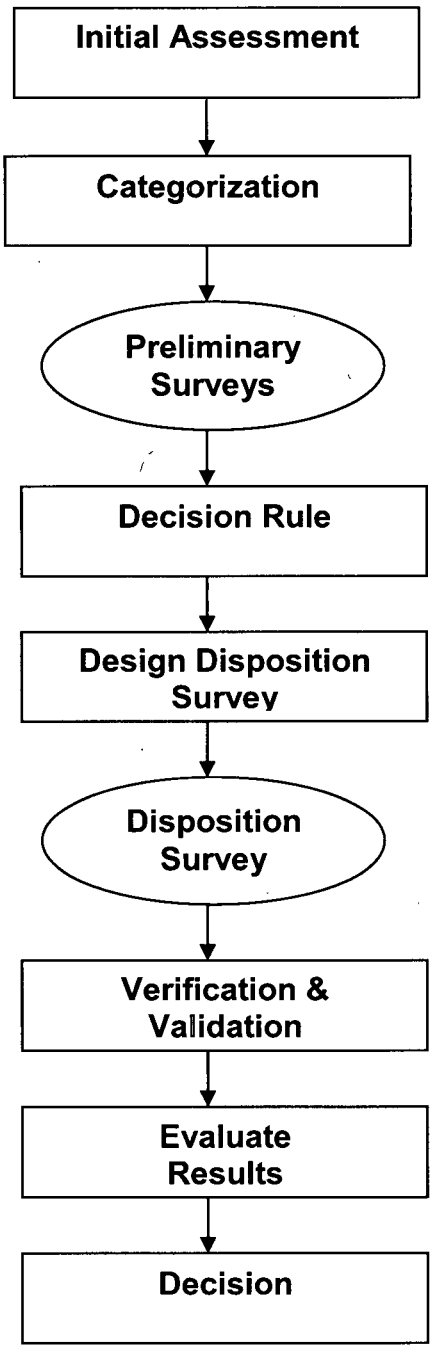
8.0 RECORDS

Records created as described in this procedure are quality records and shall be processed as described in HBAP E-1, "Retention and Storage of HBPP Unit 3 and ISFSI Records".

9.0 RESPONSIBLE ORGANIZATION

Radiation Protection

Attachment 7.1
Overview of MARSAME Process



Attachment 7.2
Sample Format for Disposition Survey Package/Plan

Title Page

1.0 INTRODUCTION

2.0 OBJECTIVE

3.0 INITIAL ASSESSMENT

4.0 CATEGORIZATION

5.0 CLASSIFICATION

6.0 DESCRIPTION

Table 6. 1 Physical Attributes of M&E

Attribute	Description
Dimensions: Height (ft) Diameter (ft) Volume (gal)	
Complexity	
Accessibility	
Inherent value	

Table 6. 2 Radiological Attributes of M&E

Attribute	Description		Data Gaps
Radionuclides	Principle Emission Particle	Emission Energy (MeV)	
Activity			
Distribution			
Location			

7.0 PRELIMINARY SURVEYS

8.0 DISPOSITION OPTION

9.0 SURVEY DESIGN
9.1 *Null Hypothesis*

9.2 *Limits on Decision Errors*

9.3 *Decision Rule*

9.4 *Alternative Actions*

9.45 *Radionuclides-of- Concern*

9.56 *Action Levels*

9.67 *Survey Type*
9.67.1 Measurement Techniques

9.6.2 Special Instructions

9.6.3 Measurement Quality Options

9.6.3.1 Measurement Uncertainty

9.6.3.2 Detection Capability
Critical Value:
Minimum Detectable Net Instrument Count:
MDC for static measurement:
Minimum Detectable Count Rate for Scans:
Minimum Detectable Concentration for Scans:

9.6.3.3 Range

9.6.3.4 Specificity

9.6.3.5 Ruggedness

9.78 *Survey Boundaries*

9.9 *Preparation and Special Instructions*

9.810 *QA Requirements*

9.911 *Survey Units*

9.1012 *Inputs for the Selection of Provisional Measurement Methods*

9.1113 *Reference Area*

9.1214 *Optimization of the Survey Design*

9.1315 *Documentation of the Survey Design*

10.0 SURVEY IMPLEMENTATION

10.1 *Job Hazard Analysis*

10.2 *Survey Area Preparation Verification*

11.0 SURVEY RESULTS

11.1 *Survey Data*

11.2 *Data Quality Assessment*

12.0 DECISION

Prepared By: _____ Date: _____

Reviewed By: _____ Date: _____

Approved By: _____ Date: _____