

ADVANCED MEDICAL SYSTEMS OPERATING PROCEDURE TABLE OF CONTENTS

REVISION - 01/95

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Prepared by: Robert Meschter

Approved by: *R Meschter*

Date: 1-24-97

ADVANCED MEDICAL SYSTEMS OPERATING PROCEDURE

AREA SURVEY PROCEDURE

ISP-2 Rev. 11/95

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1.0 PURPOSE: To standardize the method used for performing radiation and contamination surveys.

2.0 PRECAUTIONS AND LIMITATIONS:

2.1 Observe all posted requirements for Restricted Areas.

2.2 Ensure survey instruments are in calibration and good working order prior to use.

2.3 Care must be used when handling smear samples to prevent spreading contamination or cross-contaminating samples.

2.4 The following information should be recorded for each survey performed:

ALL SURVEYS

Date
Time
Performed by
Reason for survey
Area surveyed
Instrument(s) used
(Serial #, Calibration due date)

CONTAMINATION SURVEYS

Background cpm
Counter Efficiency
Counting time

2.5 All surveys are Legal Records, therefore, it is of the utmost importance that all information is neatly and accurately recorded.

2.6 Do not hesitate to add additional information onto survey forms (i.e. oil on floor, lights burnt out, etc.).

Prepared by: Robert Meschter

Approved by: *R. Meschter*

Date: 1-24-95

3.0 INSTRUCTIONS:

3.1 Radiation Surveys.

- 3.1.1 For general area dose rates, walk slowly around the area being surveyed while holding the probe at waist level. Record the highest dose rate in the appropriate units (normally mR/hr).
- 3.1.2 For contact readings, hold the probe within one (1) inch of the surface and record the dose rate, noting that it is a contact reading.
- 3.1.3 All readings less than 0.1 millirem per hour should be recorded as <0.1mR/hr.
- 3.1.4 For Hot Spot surveys, walk slowly around the area to be surveyed, determine the area of highest radiation, obtain a contact reading and record the location and dose rate.

3.2 Contamination Surveys.

- 3.2.1 Using moderate pressure, wipe a dry smear over a 100 cm² area (100 cm² = 4" x 4" area or a 16" long S-shape of that area).
- 3.2.2 Record the smear locations using one of the following methods:
 - a. List: Accurately record the location on a list of smear locations for the survey being performed.
 - b. Map: Use a number to indicate the smear location on a map of the area being surveyed. Smears should be noted on maps in the following manner:
 - Circle - horizontal surfaces
 - Square - vertical surfaces

3.3 Action Levels.

3.3.1 Loose Surface Contamination:

- a. Restricted Areas - 40,000 dpm/100 cm².
- b. Controlled Areas - 1,000 dpm/100 cm².
- c. Unrestricted Areas - 1,000 dpm/100 cm².

3.3.2 Radiation Levels:

- a. Controlled Areas - 0.5mR/hr general area.
- b. Unrestricted Areas - Not to exceed one hundred (100) mrem exposure to the general public in one (1) year.

3.3.3 Actions required if limits are exceeded.

- a. Restrict access to the area.
- b. Notify the RSO.
- c. Determine the cause of the excess radiation or contamination levels.
- d. Decontaminate and resurvey.
- e. Shield or remove the source of radiation and resurvey.
- f. If the above actions cannot be accomplished before the end of the day, the area should be posted and secured according to the degree of the hazard.

NOTE:

In the event that levels cannot be immediately reduced, all actions taken should be recorded and forwarded to the RSO for review. The RSO shall conduct and document an investigation of the conditions and circumstances involved.

3.3.4 Frequency of Surveys.

- a. Controlled Areas should be surveyed semi-monthly.
- b. Restricted Areas should be surveyed at least monthly.
- c. Any area in which radioactive material is in use should be surveyed at least weekly.

3.3.5 Areas to be Surveyed.

- a. The attached data sheets list the minimum areas to be surveyed. These surveys should be completed in their entirety at the specified frequency regardless of other surveys performed.
- b. Surveys performed in addition to the minimum areas and frequencies should be recorded on separate data sheets.
- c. All surveys should be forwarded to the RSC for review and filing.

ISP-2A

<u>RAD</u>	<u>LEVEL</u>	<u>GCPM</u>	<u>CCPM</u>	<u>DPM</u>
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
10	10	10	10	10
11	11	11	11	11
12	12	12	12	12
13	13	13	13	13
14	14	14	14	14
15	15	15	15	15
16	16	16	16	16
17	17	17	17	17
18	18	18	18	18
19	19	19	19	19
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21	21	21	21	21
22	22	22	22	22
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82	82	82	82	82
83	83	83	83	83
84	84	84	84	84
85	85	85	85	85
86	86	86	86	86
87	87			

1. Outside Clean Equipment Room
2. Top Landing of Front Stairwell
3. Entrance Level of Stairwell
4. Basement Level of Stairwell
5. Outside Change Room Interlock Door
6. Manipulator Control Station
7. Cell Control Office
8. Hall in Front of Office
9. Doorway Outside Shielded Work Room
10. Conference Room - East
11. Conference Room - West
12. Hallway to Cage Area
13. Outside Airlock Doors
14. Outside Counting Room
15. South of Counting Station
16. Counting Station
17. West Doorway Inside Counting Room
18. Outside Isotope Warehouse Overhead Door
19. Loading Dock Area
20. Scale Area
21. Fire Door to Warehouse
22. East Side of LLWS Area
23. Middle of LLWS Area
24. West Side of LLWS Area

Performed by: _____ Date: _____

SURVEY METER: _____ S/N: _____ CAL DUE: _____

COUNTING INST.: _____ S/N: _____ CAL DUE: _____

COUNTING EFFICIENCY: _____ % BACKGROUND: _____ CPM

ACTION LEVELS: 1000 DPM/100CM²
0.5MR/HR

Reviewed by RSO: _____ Date: _____

CONTROLLED AREA SURVEY DATA SHEET

ISP-2B

LOCATION

RAD LEVEL GCPM CCPM DPM

FIRST FLOOR

1. Change Room Near Lockers
2. Change Room Near Showers
3. Change Room Near Sinks
4. Change Room Entrance to ISA
5. Warehouse Office - East
6. Warehouse Office - Center
7. Warehouse Office - West
8. Cage Area - East
9. Cage Area - Center
10. Cage Area - West
11. Outside Isotope Warehouse

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

SECOND FLOOR

1. Outside Washroom Door
2. Office at Southeast Corner
3. East Wall Near Stairwell
4. Center of Office Area
5. Northwest Corner of Office
6. Outside Clean Equipment Room

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Performed by: _____ Date: _____

SURVEY METER: _____ S/N: _____ CAL DUE: _____

COUNTING INST.: _____ S/N: _____ CAL DUE: _____

COUNTING EFFICIENCY: _____ % BACKGROUND: _____ CPM

ACTION LEVELS: 1000 DPM/100CM²
0.5MR/HR

Reviewed by RSO: _____ Date: _____

RESTRICTED AREA SURVEY DATA SHEET

ISP-2C

LOCATION	HOT SPOT	RAD LEVEL	GCPM	CCPM	DPM
1. HEPA Room North	_____	_____	_____	_____	_____
2. HEPA Room Middle	_____	_____	_____	_____	_____
3. HEPA Room South	_____	_____	_____	_____	_____
4. Stairs to HEPA Room	_____	_____	_____	_____	_____
5. Doorway to Washroom	_____	_____	_____	_____	_____
6. Doorway to Frisking Station	_____	_____	_____	_____	_____
7. Middle of Large Office	_____	_____	_____	_____	_____
8. Inside Doorway to Stairwell	_____	_____	_____	_____	_____
9. Inside Doorway of CER	_____	_____	_____	_____	_____
10. West of Boiler in CER	_____	_____	_____	_____	_____
11. Inside Doorway to Roof of CER	_____	_____	_____	_____	_____
12. Outside ISA Door	_____	_____	_____	_____	_____
13. ISA/Cell Wall	_____	_____	_____	_____	_____
14. ISA/Decon Room Wall	_____	_____	_____	_____	_____
15. West Wall Near SEC	_____	_____	_____	_____	_____
16. Source Garden	_____	_____	_____	_____	_____
17. Top Landing to Basement	_____	_____	_____	_____	_____
18. ISA/Landing to Basement	_____	_____	_____	_____	_____
19. Outside Basement Door	_____	_____	_____	_____	_____
20. Hallway Outside WHUT Room	_____	_____	_____	_____	_____
21. By WHUT Room Entrance	_____	_____	_____	_____	_____
22. North Side of Back Basement	_____	_____	_____	_____	_____
23. West Side of Back Basement	_____	_____	_____	_____	_____
24. Outside Decon Room Doors	_____	_____	_____	_____	_____
25. By Hot Cell Door in Decon Rm.	_____	_____	_____	_____	_____
26. Outside Airlock Doors	_____	_____	_____	_____	_____
27. Dirty Side of Airlock	_____	_____	_____	_____	_____
28. Clean Side of Airlock	_____	_____	_____	_____	_____
29. Inside Airlock Doors to Cage	_____	_____	_____	_____	_____
30. By Airlock Doors in Isotope Warehouse	_____	_____	_____	_____	_____
31. East of Isotope Warehouse	_____	_____	_____	_____	_____
32. Middle of Isotope Warehouse	_____	_____	_____	_____	_____
33. West of Isotope Warehouse	_____	_____	_____	_____	_____
34. Tank Room Front Basement	_____	_____	_____	_____	_____
35. Entrance Hall of Front Bsmt.	_____	_____	_____	_____	_____
36. Chart Room in Front Basement	_____	_____	_____	_____	_____
37. Back Entrance to Front Bsmt.	_____	_____	_____	_____	_____

Performed by: _____ Date: _____

SURVEY METER: _____ S/N: _____ CAL DUE: _____
COUNTING INST.: _____ S/N: _____ CAL DUE: _____
COUNTING EFFICIENCY: _____ % BACKGROUND: _____ cpm

ACTION LEVELS: 40,000 dpm/100cm²

Areas >100MR/HR must be locked and posted as a High Radiation Area.

Reviewed by RSO: _____ Date: _____