

THE MARTIN COMPANY  
BALTIMORE 3, MARYLAND

DOCKET NO. 70-144-70-58

Mail No. W-722  
Nuclear Division

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Director  
Division of Licensing and Regulation  
U. S. Atomic Energy Commission  
Washington 25, D. C.

Attention: Mr. Joseph Delaney

Gentlemen:



Pursuant to Title 10 Code of Federal Regulations, Part 70 - SPECIAL NUCLEAR MATERIAL - amended November 11, 1958, we are submitting our plans for the installation of the radiation monitoring system and a description of our procedures for evacuating personnel in the event of any emergency.

I understand from the conversation between you and Joe Loppert that we can expect your comments, probably in about a month, regarding the plans and procedures enclosed. Since it was requested that a tentative date for installing the system be submitted at this time, our estimate of time is based upon the receipt of your reply. Because the equipment to be employed is a Martin capital investment, amounting to a significant quantity, procurement action will be initiated as soon as we hear from your office. Allowing a maximum of 90 days for delivery plus an additional 30 days for installation and testing, it can be assumed that approximately four (4) months will elapse from the time of ordering equipment and materials to the time of accepted usage.

The enclosed floor plan shows the entire wiring scheme and the location of the currently planned stations. The receptacles, noted in red, are plug-in types which can accommodate one monitoring unit each.

For example, in the Waste Disposal Area work is performed only a few days per month. Any permanent station would therefore remain idle for the most part. Whenever work is to be performed in this area, a portable unit will be employed. By this means it will reduce our total inventory of monitoring units and allow flexibility in operations. Six permanent stations are currently planned with an additional two portable units to be used to monitor work in the areas where work is sporadic.

*A/33*

Enclosed is a listing of the units to be employed in the Manufacturing and Research Areas, and the Critical Facility Vault. We have not enclosed a plan for the Critical Facility. At the present time our test reactors are equipped, as required, with monitoring devices. The only additional coverage will be to install a unit in the Critical Facility Vault and include it in the circuit system now employed.

A copy of emergency procedures is also enclosed for your review and comment.

Very truly yours,

THE MARTIN COMPANY

*/s/ F. G. Myers*

F. G. Myers  
Operations Manager

FGM:JVL pfb

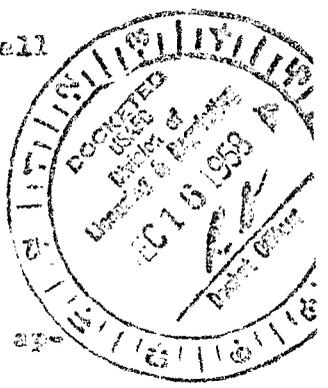
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EMERGENCY PROCEDURES

I High radiation fields

Created as a result of a criticality incident or removal of an intense radiation source from a shielded to unshielded position.

- A. Detected by observing the audible and visual alarms of the radiation monitoring equipment.
- B. Personnel involved will:
  - 1. Immediately leave the area taking advantage of all possible shielding and using nearest exit.
  - 2. Notify Health Physics.
  - 3. Keep other personnel from entering the area.
- D. Health Physics will:
  - 1. Establish the magnitude of the hazard by making appropriate instrument surveys.
  - 2. Keep personnel at a safe distance from the source.
  - 3. Check area for radioactive contamination.
  - 4. Assist operating personnel in taking corrective action.



II High level spill

Created as a result of the breaking of a container of highly radioactive liquids or fine solids or as a result of an explosion, failure of ventilation system, etc.

- A. The spill is detected by being observed by one or more operating personnel or by the audible-visual alarms of the radiation monitors.
- B. Personnel involved in the spill will:
  - 1. Leave the area and warn other personnel of the spill. If floor contamination is suspected, remove shoes to avoid spreading of contamination.
  - 2. Call Health Physics.
  - 3. Permit no one to enter the spill area until cleared by Health Physics.

C. Health Physics will:

1. Monitor the area to determine levels of contamination and to evaluate the potential hazards.
2. Establish the protective clothing that is needed and whether respirators should be worn.
3. Aid personnel in decontamination.
4. Determine the levels of radiation exposures and initiate urinalysis requests if internal exposures are suspected.

III Low level spills

Created by the dropping or breaking of a container of low-level radioactive liquids or solids or due to failures in ventilation system, fires, etc.

A. Detected by observation of operating personnel. May or may not be alarms from radiation monitoring equipment.

B. Personnel involved will:

1. Take immediate corrective action such as covering the spill with paper.
2. Leave the area taking precautions to minimize the spread of contamination.
3. Notify Health Physics.
4. Prevent other personnel from entering the area until cleared by Health Physics.

C. Health Physics will:

1. Establish the magnitude of the hazard.
2. Establish controls to prevent the spreading of contamination.
3. Assist in decontamination of personnel and equipment.
4. Determine the levels of radiation exposures and initiate urinalysis requests if internal exposures are suspected.

IV Air contamination

Created by fires, explosions, spills, failure in the ventilation system, etc.

A. Detected by the constant air monitor which gives an audible and visual alarm. May or may not be alarms if

monitoring equipment in the area.

B. Personnel involved will:

1. Leave the area immediately and shut doors behind them.
2. Notify Health Physics.
3. Keep other personnel out of the area until cleared by Health Physics.
4. Decontaminate the entire area.

C. Health Physics will:

1. Evaluate the hazard and make recommendations concerning respiratory protection.
2. Aid operating personnel in finding the source of air contamination.
3. Establish controls to prevent the spread of contamination.
4. Aid in decontamination of personnel and equipment.
5. Determine levels of radiation exposures and initiate urinalysis requests if internal exposures are suspected.

V Fires involving radioactive materials

Fires of this type are divided into two categories:

- A. Those that occur in areas containing low level sources and materials and,
- B. Those that occur in areas containing high level sources and materials.

The procedures to be followed are as follows:

(A) Low level sources and materials:

These areas are all posted with a radiation sign reading, "CAUTION RADIOACTIVE MATERIALS":

1. Personnel involved will:
  - a. Notify fire department.
  - b. Attempt to extinguish fire by using approved fire fighting methods.

- c. Avoid breathing of fumes or dusts created by the fire. Scott Air PAC respirators should be worn if air contamination is suspected.
- d. Keep all personnel not needed to fight fire away from the scene.
- e. Decontaminate area after fire is out.

2. Health Physics will:

- a. Determine as quickly as possible the air contamination levels.
- b. Check all personnel and equipment for contamination before they are permitted to leave the area.
- c. Assist personnel in decontamination of area.
- d. Determine levels of personnel exposures and initiate urinalysis requests if internal exposures are suspected.

(E) High level sources or materials:

These areas are all posted with a radiation sign reading, "CAUTION - RADIATION HAZARD".

1. Personnel involved will:

- a. Notify Health Physics.
- b. Notify fire department.
- c. Attempt to extinguish blaze if there is good reason to believe that external radiation levels or air contamination levels are not excessive. Otherwise leave area immediately.
- d. Keep all personnel away from scene except those needed to combat fire.
- e. Decontaminate area after fire is out.

2. Health Physics will:

- a. Determine radiation levels as quickly as possible. Stay with fire fighting crew until fire is out.
- b. Determine contamination levels of entire area and of all fire fighting equipment.

- c. Assist personnel in decontamination of area and equipment.
- d. Determine levels of personnel exposures. If internal exposures are suspected, initiate urinalysis requests.

#### VI Emergencies during off shift hours

The outlined procedures will expedite emergency situations during off-shift hours by permitting firemen and others to safely enter certain areas without unnecessary and perhaps costly delays. The areas are identified as follows:

##### Radioactive Material Areas

These areas are identified by a 8" x 10½" magenta and yellow sign at each entrance reading RADIOACTIVE MATERIALS. The only conceivable way during off-shift hours of receiving an over-exposure to radiation in these areas is by breathing or swallowing dusts, fumes, or liquids, during such emergencies as a fire, an explosion, or failure in the ventilation system. Thus, the only protection needed by emergency personnel would be a Scott Air Pack, or similar type, respirator. Emergency personnel may enter these areas without waiting for the approval of the responsible supervisor. Emergency directors in each area will be notified by the Dispatcher after notifying emergency crews.

All personnel, before leaving these areas or removing any equipment following an emergency, must contact a Health Physics representative who will make any necessary contamination checks. These Radioactive Materials Areas are listed on the attached sheet.

##### Radiation Areas

These areas are identified by a 8" x 10½" yellow and magenta sign at each entrance reading RADIATION AREA. These areas must not be entered by emergency personnel unless authorized by the responsible supervisor or a Health Physicist. These areas are identified on the attached sheet.

All other areas not marked by one of the two signs above, will be free of radiation hazards and normal emergency procedures will apply.

EMERGENCY PROCEDURES IN AREAS CONTAINING  
RADIOACTIVE MATERIALS AND SOURCES

Radioactive Material Areas

1. Identified by a 8" x 10½" magenta and yellow radiation sign at each entrance reading "RADIOACTIVE MATERIALS".
2. May be entered in emergencies if Scott Air Pac or similar type respirators are worn. Respirators must be worn until the responsible supervisor or Health Physicist determines they are not needed.
3. Dispatcher must notify responsible supervisor after sending emergency crews to the scene.
4. Personnel must notify Health Physics before removing equipment or leaving the area.
5. Location:
  - (1) The Nuclear Engineering Materials Laboratory and Pilot Plant Manufacturing Area, except for the Vault. Located in "D" building basement.
  - (2) The Waste Room. This is an annex outside the south side of "D" building basement.
  - (3) The Filter Room. This is an annex outside the south side of "D" building basement.

Radiation Areas

1. Identified by 8" x 10½" magenta and yellow radiation sign at each entrance reading "RADIATION AREA".
2. Must not be entered except on approval of the responsible supervisor or a Health Physicist.
3. Dispatcher must notify responsible supervisor immediately of any emergencies in these areas.
4. Personnel must notify Health Physics before removing equipment or leaving the area.
5. The door to all radiation areas are locked during "off shift" hours.

6. Location:

- (1) The Vault. Located in the Pilot Plant Manufacturing Area.
- (2) The test cell in the Radioisotopes Laboratory. Located in the SW corner of the "D" building basement annex.
- (3) KC building or "O" test facility.
- (4) The Gamma Pool. Located at column E-2, "D" building basement. The Gamma Pool has a special warning instrument outside the entrance door. A sign over the instrument explains how this area may be entered in the event of an intermittent alarm. If the Gamma Pool alarm sounds continuously, no entrance should be permitted without authorization from the responsible supervisor or a Health Physics representative.

DESCRIPTION OF MONITORING SYSTEM FOR

NUCLEAR FACILITIES (D BLDG.)

<u>Nomenclature</u>	<u>Description</u>
Basic Control Unit Victoreen Model 712	Provides power for up to 20 detector stations
Auxiliary chassis Victoreen model 713	Provides extra space for 6-10 detectors in addition to the 5 in the basic control unit
Sensing elements (detectors) Victoreen Model 716A	Gamma detectors Range 0.1 to 100 mr/hr built in calibration source. Logarithmic output, monitors 3 adjacent decades of radiation intensity on a single scale. Complete with audio- visual alarm
Sensing element (detector) Victoreen Model 716A	Gamma detector Range 1 to 10,000 mr/hr built in calibra- tion source. Logarithmic output, monitors 3 adjacent decades of radiation intensity on a single scale. Complete with audio-visual alarm.
Plug in stations Victoreen Model 7153	Contains indicating and alarm meter, indicator light, remote calibration button. Should contain buzzer alarm.

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*C. J. [unclear]*

AISLE

PILOT MANUFACTURING AREA

X-RAY ROOM

DARK ROOM

ELEV. #4

HEATER ROOM  
#2

AIR HANDLING ROOM

13

14

15

16

17

# LEGEND

- PERMANENT
- RECEPTACLES FOR ADDITIONAL



A.N.P. AREA

E)

TEST LAB ROOM

D)

310  
OFFICE

LAB

PROJ.  
215  
OFFICE

C)

SAMPLES

GENERAL ENGINEERING  
TEST LAB.

B)

INSTRUMENTS LAB

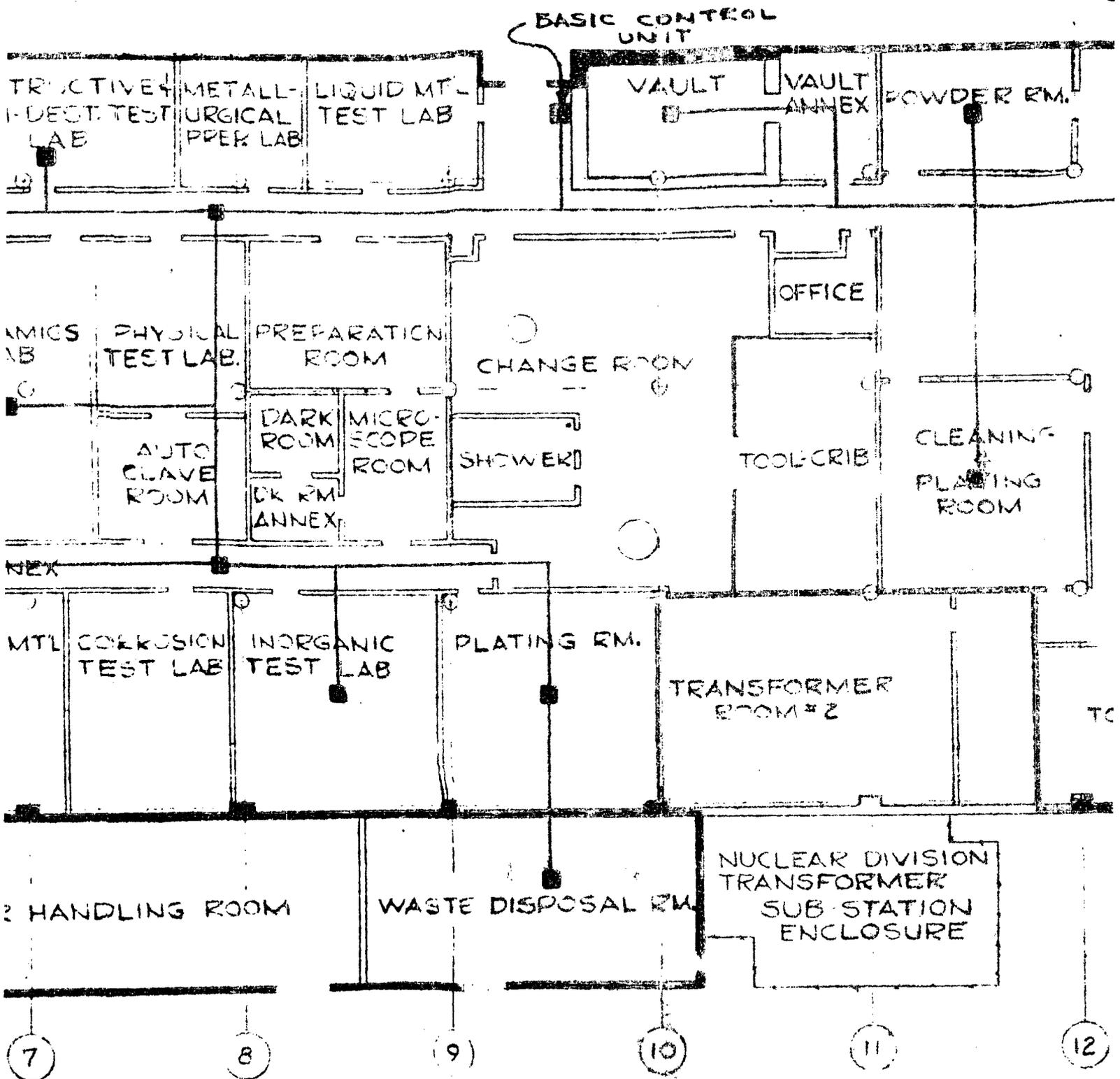
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MARTIN RESEARCH  
& DEVELOPMENT

1

2

3



LAYOUT & DETECTOR LOCATION  
 FOR  
 DIATION MONITOR SYSTEM  
 NUCLEAR AREAS