



37-17860-01  
30-15573  
107

June 7, 1985

RETURN ORIGINAL TO  
REGION I

Mr. John D. Kinneman, Chief  
Nuclear Materials Section  
Division of Engineering & Technical Programs  
United States N.R.C.  
Region 1  
631 Park Avenue  
King of Prussia, PA 19406

Re: License No. 37-17860-01

Dear Mr. Kinneman:

PermaGrain Products is pleased to report that we returned to full production operation at 6:00 a.m. on June 4. There was no release during this period of time of chemical contaminants or radioactive material to the environment. Per the request of your Inspector, Mr. Frank Costello, the following will summarize the incident.

At 8:05 on the evening of May 31, the Quehanna production facilities were subjected to the forces of a wide group of tornadoes. To ease the explanation, I will first refer to Figure 4.1. The group of the tornadoes were flowing from west to east. The swath pattern was approximately 1.5 miles wide. The northern edge of the swath was approximately 300 yards from the lobby entrance on the far side of the home of the resident Vice President of Manufacturing, Mr. Larry Griest. As indicated previously, the tornado direction is west to east. On the west end of the building, the wall near the word "open" was torn off with an area of approximately 8 feet wide, 30 feet high. The roof over this entire process area was damaged so that it was leaking. The wall in the conference room on the west end, and the woodworking shop wall were penetrated. Ventilators from the top of the mechanical equipment room, the top of the process area, and the electrical equipment room were blown in a southeasterly direction. The entrance lobby door was pulled out. The finishing department west wall was damaged, and total replacement will be necessary. A full summary of the damaged items is given in attachment 1; and the total estimated damage is between \$100,000 and \$150,000.

The cobalt 60 is contained in the pool area. There was no water loss, nor any other damage to the pool or the pool superstructure. Other radioactive contaminants are located in the hot cells in the isolation area. There was no damage of any kind in this area. At 8:05, power was lost, and PermaGrain proceeded to operate on emergency power.

Mr. Costello requested information on our organization which is given on Figure 3.1 (attached) from our license. The key person, the Plant Manager, who is actually the Vice President of Production, is Mr. Larry Griest. Immediately after the accident, Mr. Griest, who was onsite in his trailer, communicated with his two operating personnel in the plant and instructed them to immediately do a perimeter damage check. At this point in time, the plant was on emergency power, and no radiation alarms had activated. Mr. Griest then contacted me via telephone. At

8702130228 870206  
PDR FOIA  
BUFFINGT87-42 PDR

RETURN ORIGINAL TO  
REGION I

22 West State Street, Media, Pa. 19063 (215) 565-1575 Telex 834-696

X15  
JUN 12 1985

B17

this point in time, we only had one telephone line, and it was only acting erratically. Mr. Griest began to call his emergency team, but because of difficulty, he was able only to contact the State Police, and the State Police continued the calls. Assistance was also given from Media by Mrs. A. E. Witt in calling key staff people. The summary of Mr. Paul Rowles, the Emergency Health and Safety Supervisor, is given on attachment 2. A. E. Witt immediately left the Media area for the Karthaus facility. L. G. Griest and A. E. Witt maintained contact throughout this trip.

As soon as the health and safety and electrical staff arrived at the plant at 10:30, surveys throughout the building were made. In all cases, these surveys were below background. This survey summary is included as part of attachment 2.

L. W. Griest, through his contacts with the State Police, established contact with the emergency preparedness group of Clearfield County. At this point in time, it was questionable whether power would be able to be restored to the facility for several days. The emergency preparedness group, after discussions with Mr. Griest, arranged for the National Guard to bring to the facilities a backup generator to operate as a standby for our emergency generator in case of some type of failure before power was restored. This generator arrived on site early Saturday morning and was placed in a standby position by the National Guard, and it stayed in that position until after full power was restored. It was not used.

A. E. Witt arrived at the plant facility approximately 12:30 and, in the company of Mr. Griest, did a complete plant review. Mr. Griest reported that the guards in their 8:15 perimeter check had found one fire started by a transformer short, and this fire was extinguished using chemical extinguishers. It did not proceed far enough to set off the sprinkler system; it was located in the finishing area.

After this review, Mr. Rowles, the Health and Safety Supervisor, reported to the N.R.C. King of Prussia office that the incident had occurred and that we were on emergency power.

Upon full first light, the Health and Safety Department took radiation and contamination surveys of the roof and exhaust fans. All readings were below background. Two environmental water samples were taken from below the plant. Both samples were less than background.

On Saturday, June 1, PermaGrain staff began cleanup operations. We were inspected by Roger Grimm at the request of D.E.R. At approximately 1:30., Mr. Frank Costello of the N.R.C. inspected the facilities. During this inspection, Mr. Costello discussed our overall response plan and activities in some detail. He did express some questions relative to our ventilation system. Figure 8.2 from our license is attached. This attachment shows the location of the cell 3 final filter, as well as the flow throughout the system. Mr. Costello was concerned over the fact that there was a negative pressure reading across this filter. Thus, we agreed to pull this filter as soon as possible and check for damage. Based on our other radiation instruments, as well as the radiation surveys, we were confident that this filter had not been breached, but due to the fact there is very little particulate in

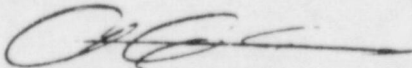
Mr. John D. Kinneman  
June 7, 1985  
Page 3

this cell, this filter effectively has no film buildup, and thus, the readings of the pressure drop across it are extremely low and basically unreadable. Attachment 3 is the summary from the Health and Safety Supervisor. This filter was removed on June 4 and replaced. It was visually inspected and found to be intact. There was no radiation level on the face of the filter. This filter is being stored for examination by the N.R.C. if desired.

As part of our overall contamination check, attachment 4 shows where contamination surveys were made on June 3. In the exterior of the plant at distances up to 200 yards away, 24 sample points were identified, and samples taken. In no case was a sample reading above background found.

At approximately 8:30 on Saturday, June 2, PENELEC was able to restore full power to the facility. After bringing all electrical systems onstream and checking out the various electrical components, the National Guard emergency team was released. PermaGrain Products continued cleanup and repair operations. All essential building holes and roof leaks were temporarily secured, and full operation was resumed on June 4. If you desire any additional information, please contact this office.

Yours very truly,



A. E. Witt  
President

AEW/cbs7

Enclosures

cc: L. W. Griest  
P. Costello



# FINISHING DEPARTMENT

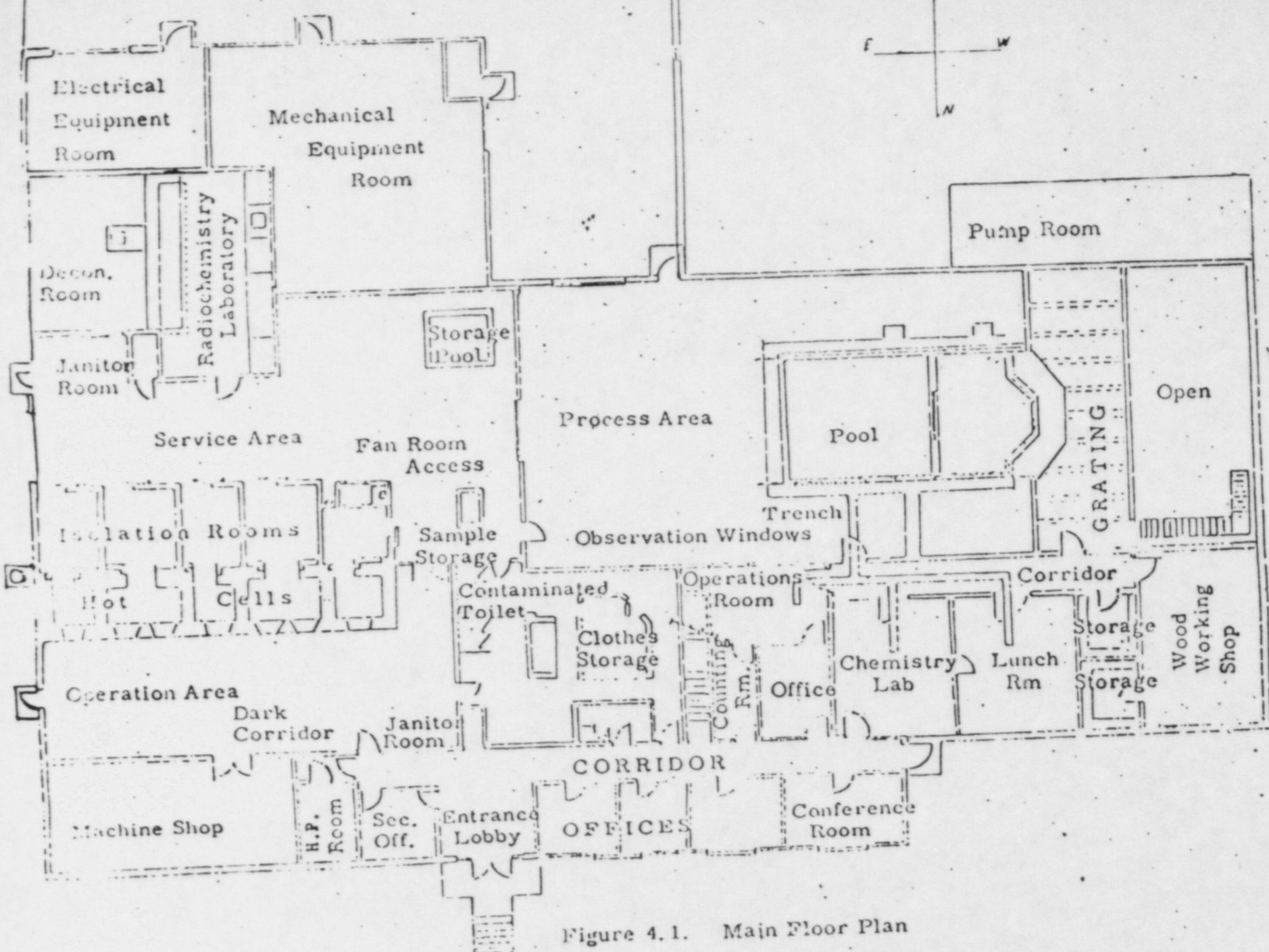
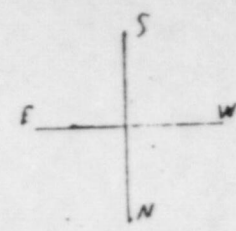
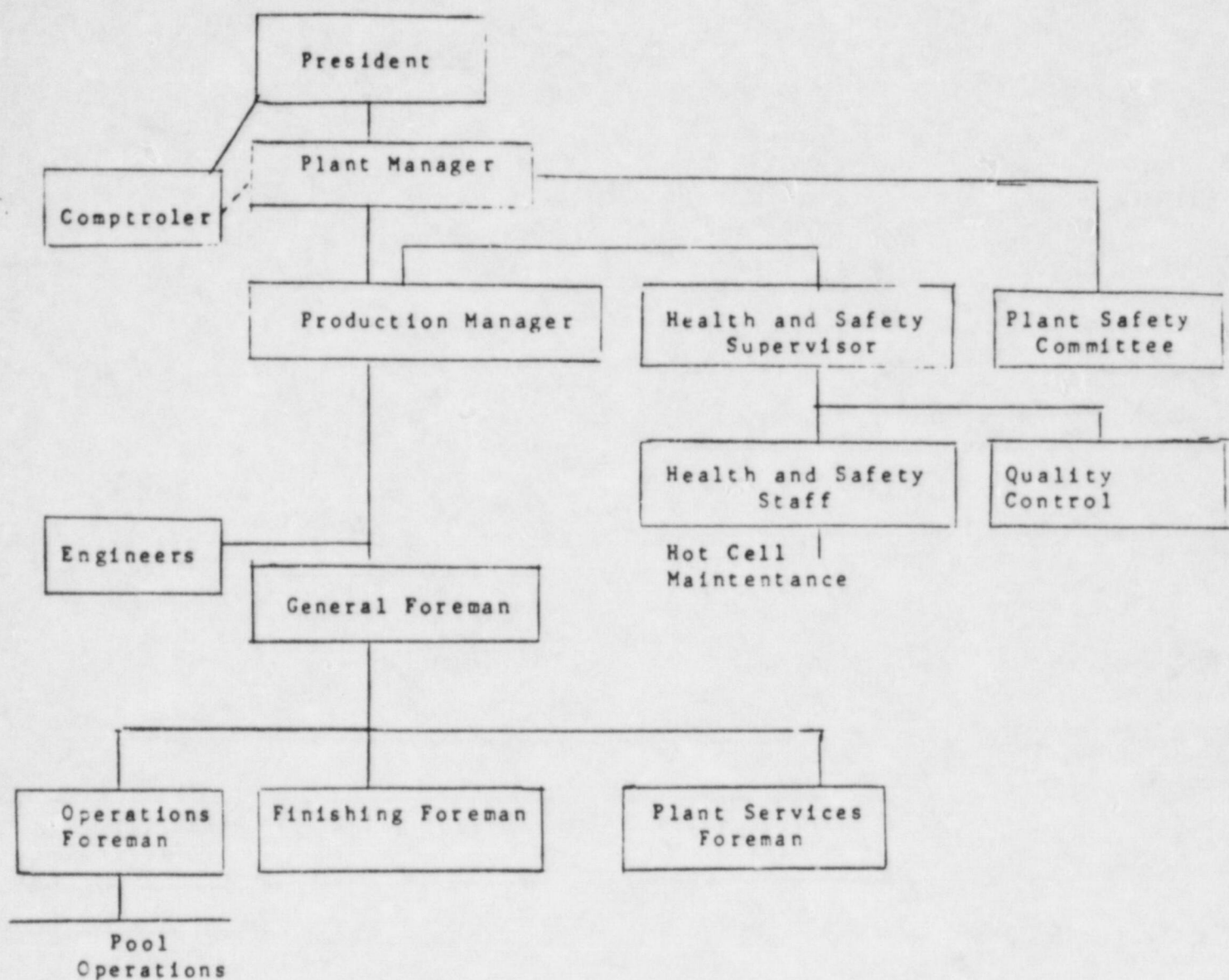


Figure 4.1. Main Floor Plan



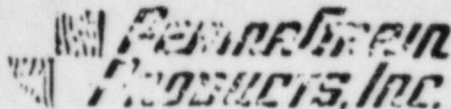


PPI Radiation Process Center  
Functional Responsibility

Figure 3.1

Revised 1/84

2



TORNADO DAMAGE

I. Inside

WAG Office

1. Hole in wall
2. Curtains
3. GenuWood floor mat
4. Wall & Panelling damage
5. Suspended ceiling & light damage (2 lights)

Wood Shop

1. Water Clean-up
2. One broken window

Fred's Office

1. Water Clean-up
2. Reinstall air conditioners
3. Retile ceiling

Health & Safety

1. Water Clean-up

Finishing

1. Dust line kinked (down but put back up)
2. Debris strewn everywhere.
3. Five lights down (repaired)
4. Transformer fire and out of service
5. Need insulation from fire
6. Five panes glass
7. West wall caved in (single door and 1 double door BAD)
8. One bad door - South wall

Service Area

1. Overhead doors - ~~2 outside~~  
1 outside - terrible

Bay

1. Lots of water to clean-up
2. Two overhead doors stuck

Lunch Room

1. Water clean-up

II. Outside

1. Scaffold supports and planks
2. Stairs bent
3. Hole in Boiler Room Wall and scarring on building side.
4. One Fire Shed gone:  
     Foam dumped, 2-5 gal. containers  
     2" Nozzle and 1 1/2" Adapter  
     Three (3) fire hoses ruined - each 50' of 1 1/2"
5. Service Area overhead door bent.
6. Loading dock sheet metal repair and 1 sheet gone.
7. One support damaged.
8. Door repairs (2)
9. Down spout gone.
10. Entryway and door to Operations - East side, minor damage and closure
11. Dust Building
  - a. Five (5) broken windows and 1 door (buckled)
  - b. Fan screen loose
  - c. Trim repair
  - d. Roof supports broken
  - e. Two (2) sides caps and few dents in West side.
12. TOW's Shed
  - a. Disintegrated
  - b. Bent dryer inside
13. Finishing
  - a. Wall caved in about 3'
14. Laundry Bldg.
  - a. Steam lines down
  - b. Sides of Bldg. numerous dents - West - most of all
15. Outside pile dust line and pole down.
16. Well subsidance
17. Dust Collector
  - a. Fire shunt dented
  - b. Sheet steel missing from blown motor enclosure
  - c. Fire door down (repaired)
18. Fence
  - a. Back gate bent in
  - b. Front gate and fence smashed - posts and moorings damaged.
  - c. Jr.'s gate bent in and minor breaks.
  - d. Tree bent in on new part.
  - e. Tank farm - junk bent



19. Steps to aquatower loosened (put back loose)
20. #1 Vent fan duct gone
21. Nitrogen line kinked (Linde repaired)
22. Bay
  - a. High Bay hole in wall, 10'x 40' , structure and trim damage
  - b. Multiple dents and scars in High Bay wall
23. Drum Shed - Destroyed
24. Penn Elec.
  - a. All work being done by Penna Elec..

Outdoor lights all out, 2 line down.  
One main fuse blew  
Two lightening arrestors off

25. Right and front door blown off.

26. Small trailer

- a. Updumped - seams split
- b. Roof loose
- c. Contents listed separately
- 26' A ~~B~~ 12 x 60 offices - blown to heck
- B ~~C~~ Contents listed separately
- C ~~D~~ Two sets of steps and porches gone.
- 26' ~~B~~ Door to Jr.'s trailer jammed in.
- 27 ~~A~~ Wall bent in at end of hall.

~~27. Separate list for Mobile Home~~

28. Building Front:

- a. Light at West end
  - b. Dents around Lunch room window
  - c. Dents around Woodshop window
  - d. West end flashing gone.
  - e. Trim damage and dents around West door
29. Bent truck bumper post (semi-repaired)
  30. Three trees out.
  31. Flag pole bent flat (repaired)
  32. Solid drums over mountainside.

33. Hole in radiator - Guard's car.
34. Plymouth (trunk - rt. rear), radio ant. and courtesy light
35. Tornado (Rt. front)
36. Toyota (Top - Rt. front)
37. Honda Bike (frame bars) - Gears, Transm.
38. Bent toy wagon
39. Twisted propane charcoal grille.
40. Jr.'s business files scattered - (Separate list)
41. Brush Cleaning:

1. Trailer
2. Fences
3. Autos
4. Water supply roof
5. Lost Run Road to Meeker Water Pump
6. Main plant drive
7. Parking lot and driveways

42. Roofs

1. Upper West roof - Bay - Totalled
2. Upper East roof - needs patched
3. TV antenna and mast and amplifier destroyed
4. Lower West roof - tree holes
5. High Bay big vents: 1 gone, 1 loose and dented
6. High Bay - one stack leaning
7. Rain gutters and down spouts over Finishing - all bad
8. Bay furnace room - flashing up
9. Bay furnace room stack bent
10. Aquatower roof sheet gone
11. Laundry Bldg. roof busted out on West edge.
12. Wood burner stack gone
13. Large duct facing North-dented on side
14. H & S Vent blown off (repaired temporary)
15. Boiler room trap door blown off (repaired)
16. Compressor air intake shaken loose.
17. Bent radio antenna and mast (repaired)
18. Dust Building holes in roof.
19. Dust building cyclone dented & loose.
20. Boiler room roof ladder cover
21. Boiler room roof vent
22. Finishing roof trim loose and gone.



Date: June 3, 1985  
To: Plant Management  
From: P. A. Rowles *PR*  
Subject: Tornado Emergency Response

Received call at home in Philipsburg, PA at 9:05 PM from Shirley Bloom that there is an emergency at the plant. The second call was to report power failure which I informed Penna Elec. Mrs. Barbara Witt and Pat Hodge called - "tornado hit plant". Left Philipsburg at 9:30 P.M. with Peter Henise. Picked up Jack Andrejczik at Morrisdale and arrived at Perma Grain at 10:30 PM. Radiation survey of building, all readings normal. Contamination survey of Cell Face, Operation, and Service Area are  $\leq 105$  dpm/100 cm<sup>2</sup> "background."

Tornado damaged building at 8:10 PM, May 31, 1985.  
NRC Regulation: Title 10 Part 20 Sec. 20.403 (b) 3,4 requires NRC be notified of the incident. Reported the information to Region I, King of Prussia, PA 251-337-5000. Transferred call to 202-951-0550 at 2:30 A.M. June 1, 1985.

Collected two environmental water samples from Reactor Run below the plant. One effluent sample from the duck pond and one sample down-stream. Samples recorded  $\leq 6.3$  pci/l.

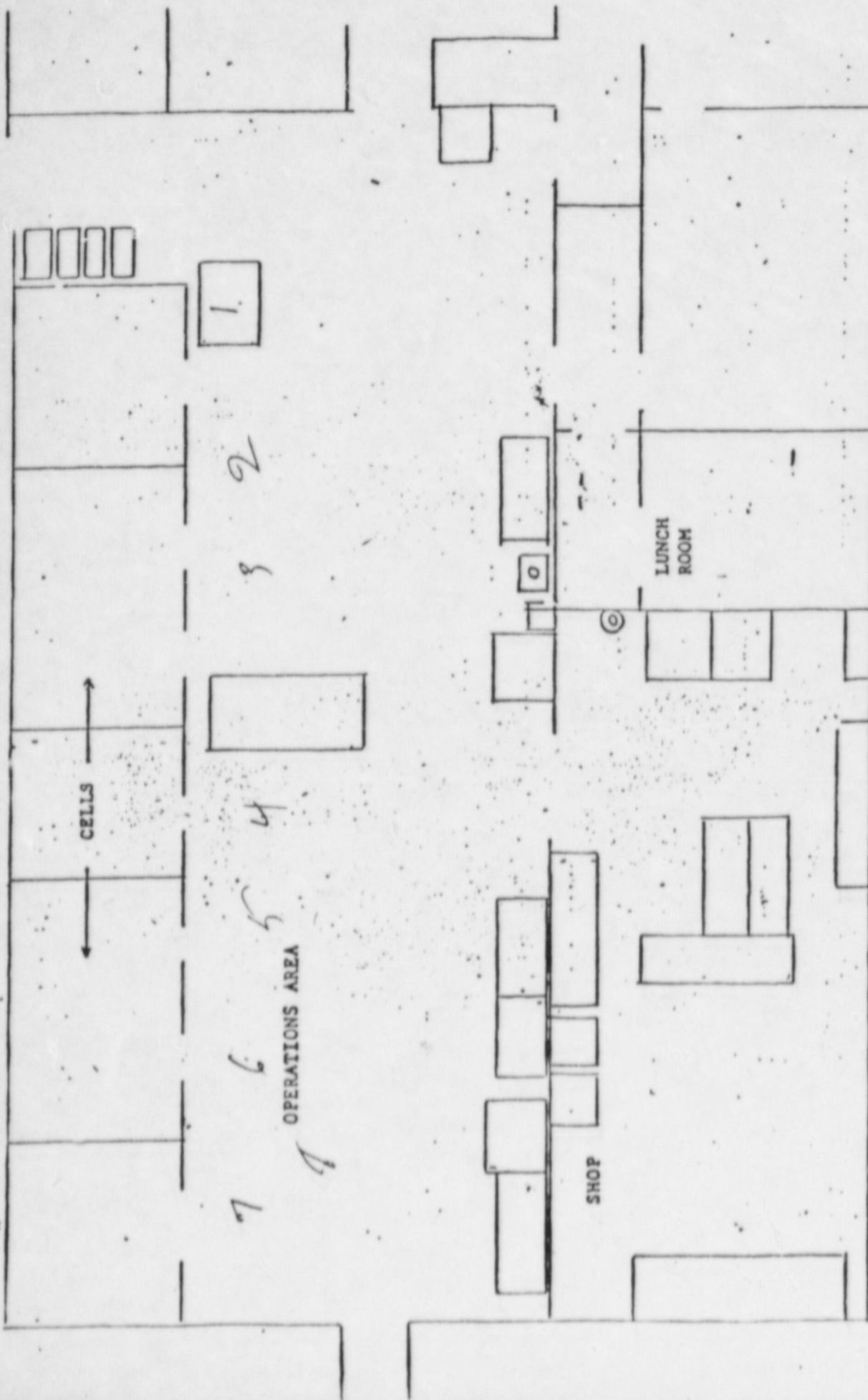
At 7:30 A.M. June 1, 1985, I took radiation and contamination surveys of roof exhaust fans. Radiation readings normal and contamination survey reading  $\leq 105$  dpm/100 cm<sup>2</sup>.

Electric power return at 8:30 P.M. June 2, 1985.

ph



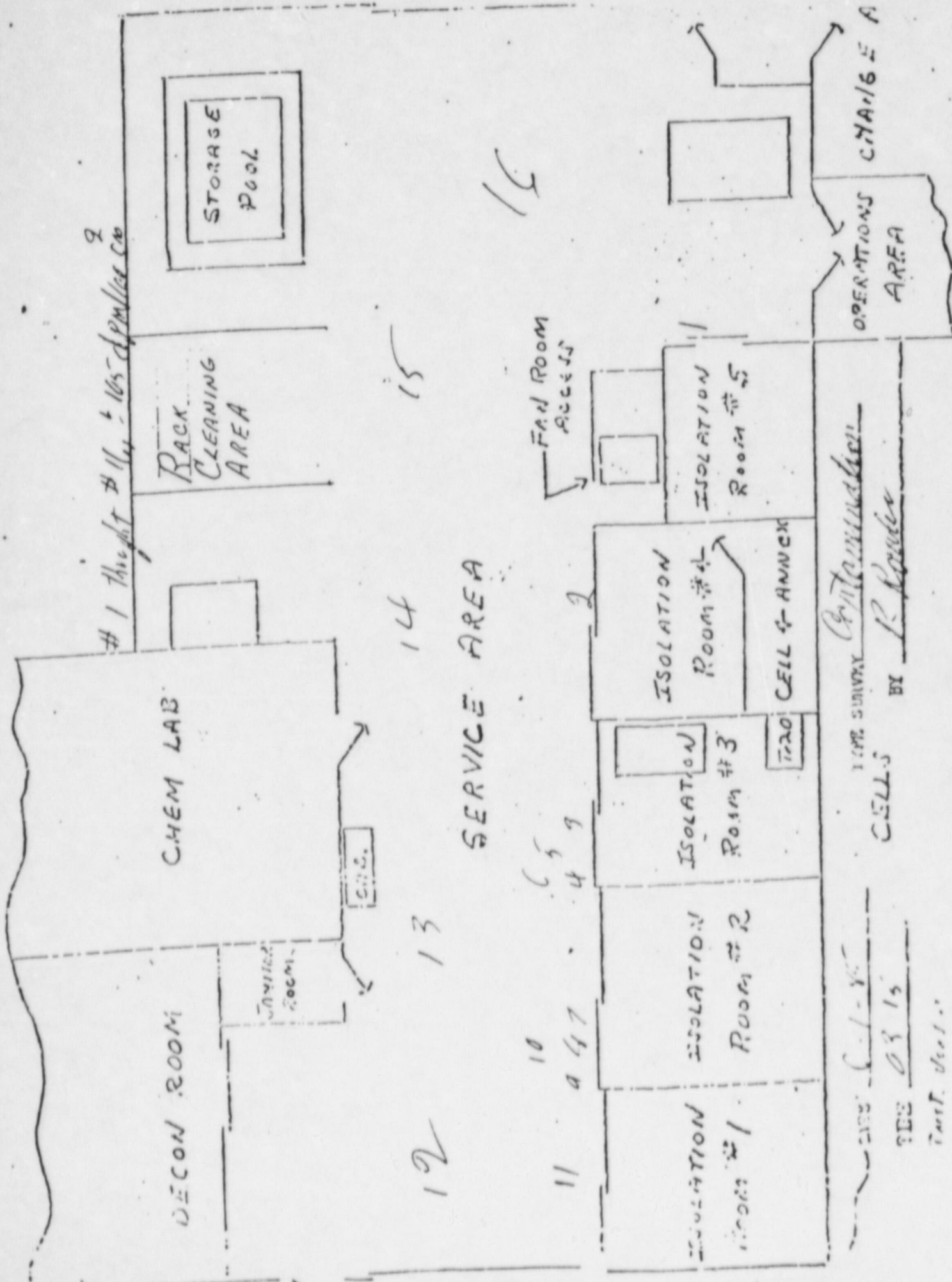




DATE 6-1-85 TYPE SURVEY Containment

TIME 01:00 AM BY P. Roper

#1 through #4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100



CONTINUATION

100% SURVY

CELLS

BY R. R. R. R.

DATE 03/15

TIME 0315

TIME 0315

## 1543

12

C4

二

54

53m

Inst. Used

DATE 6-1-85

TYPE SURVEY

TIME 17:48 AM

BY J. J. Jones

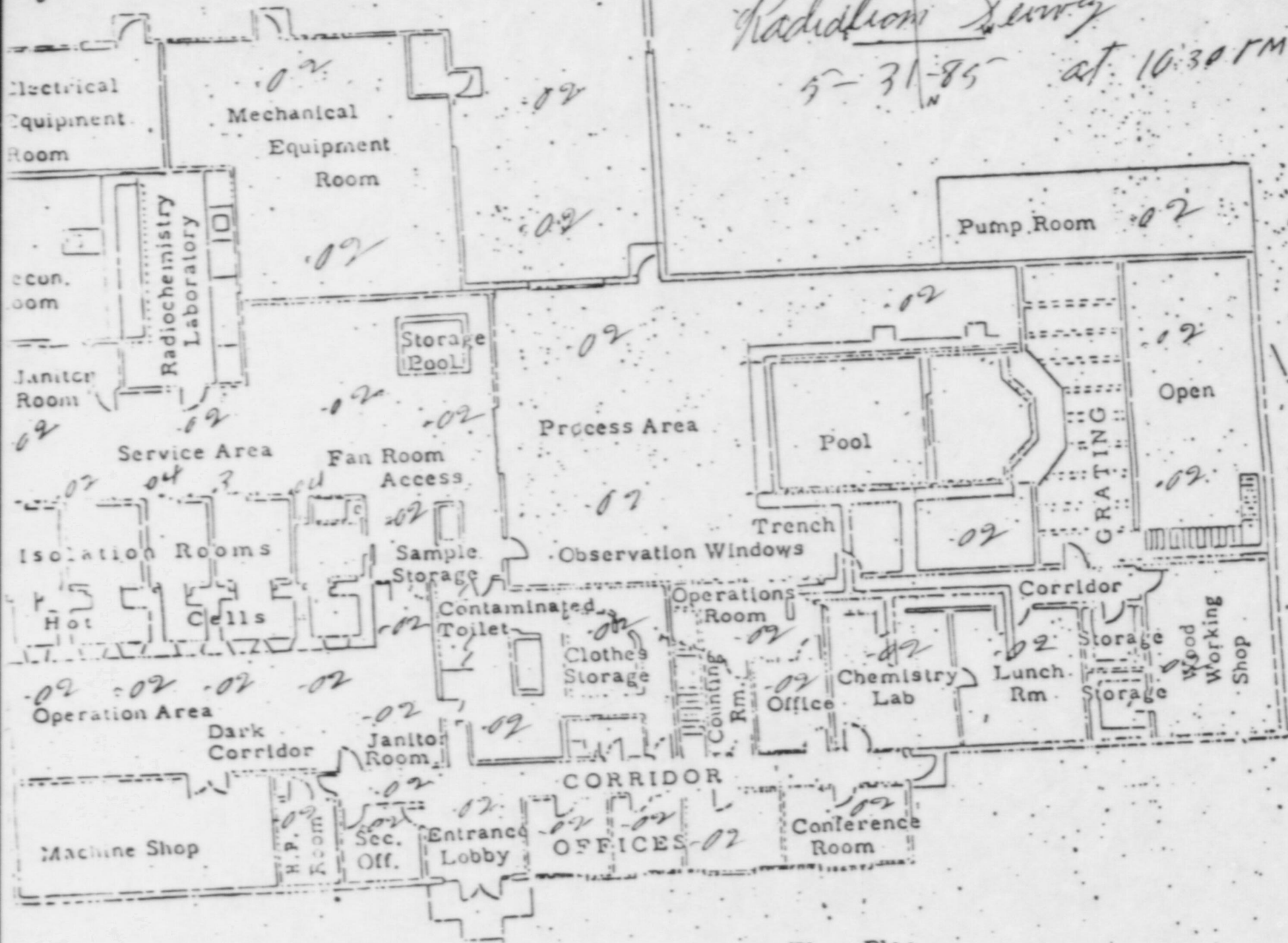
REMARKS: #1 thought it was sampled on 2



FINISHING DEPARTMENT

*All readings in Mv/Hr  
Radiation Survey*

*5-31-85 at 10:30 PM*



07:30 AM

07:30 AM

PAGE 27 HEIGHT 12" ABOVE STL. OCEAN

2" ALUM CAP. METAL CANT STRIP

150

---

1

LEV. 100.0

ELEV 137.2' N

✓ 2 THIS AREA RECENTLY RE ROOFED

ELEV 140.8'

22

ELEV 112.7'

172

12.

55

102

20'

-02

20.

-02

102

-02

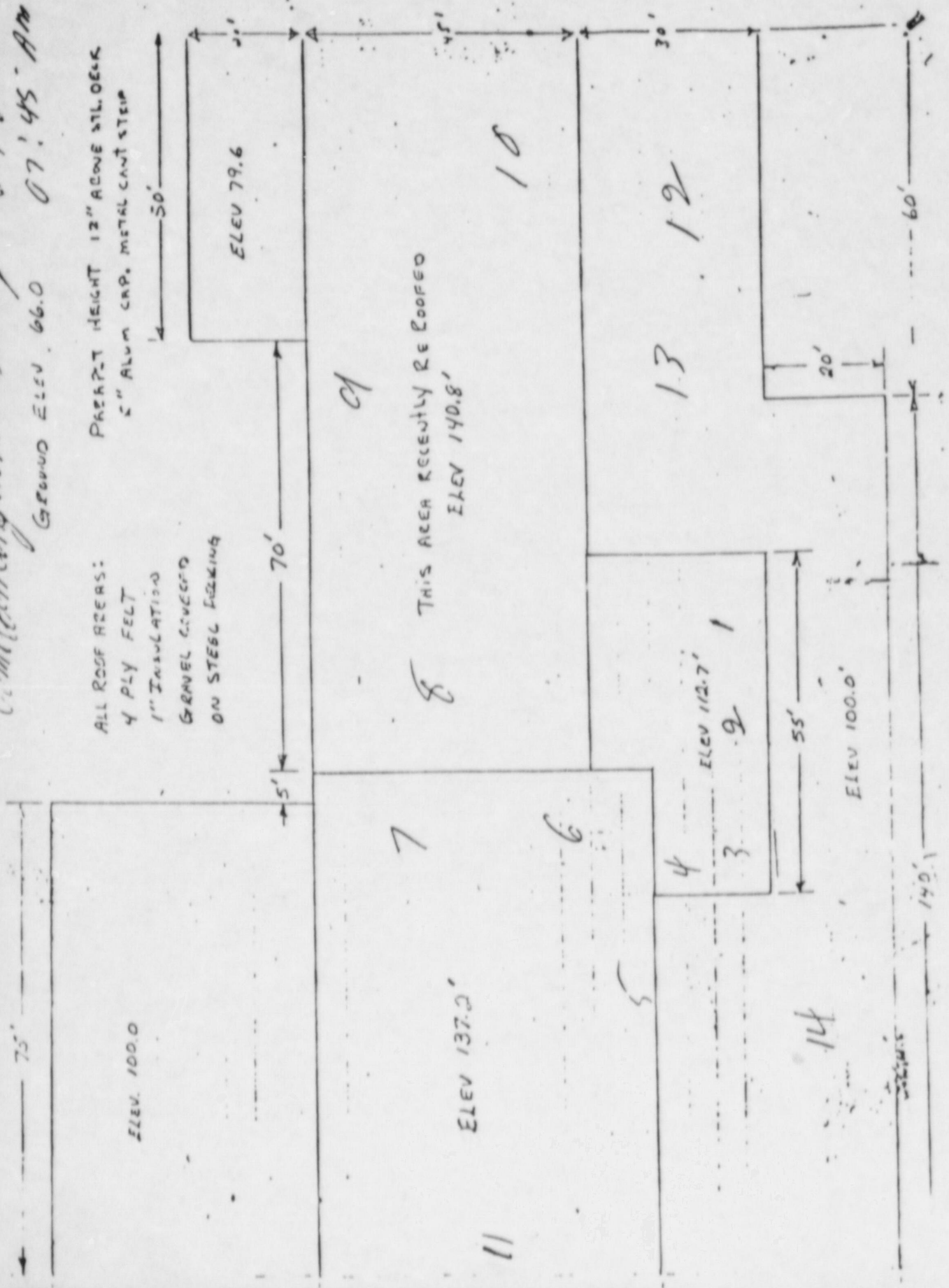
1491

-60'-

San Francisco Survey 6-1-85  
GROUND ELEV. 66.0 07:45 AM

ALL ROOF AREAS:  
4 PLY FELT  
1" INSULATION  
GRAVEL COVERED  
ON STEEL FLOORING

PARAPET HEIGHT 12" ABOVE STL. DECK  
5" ALUM. CAP. METAL CANT STAIR





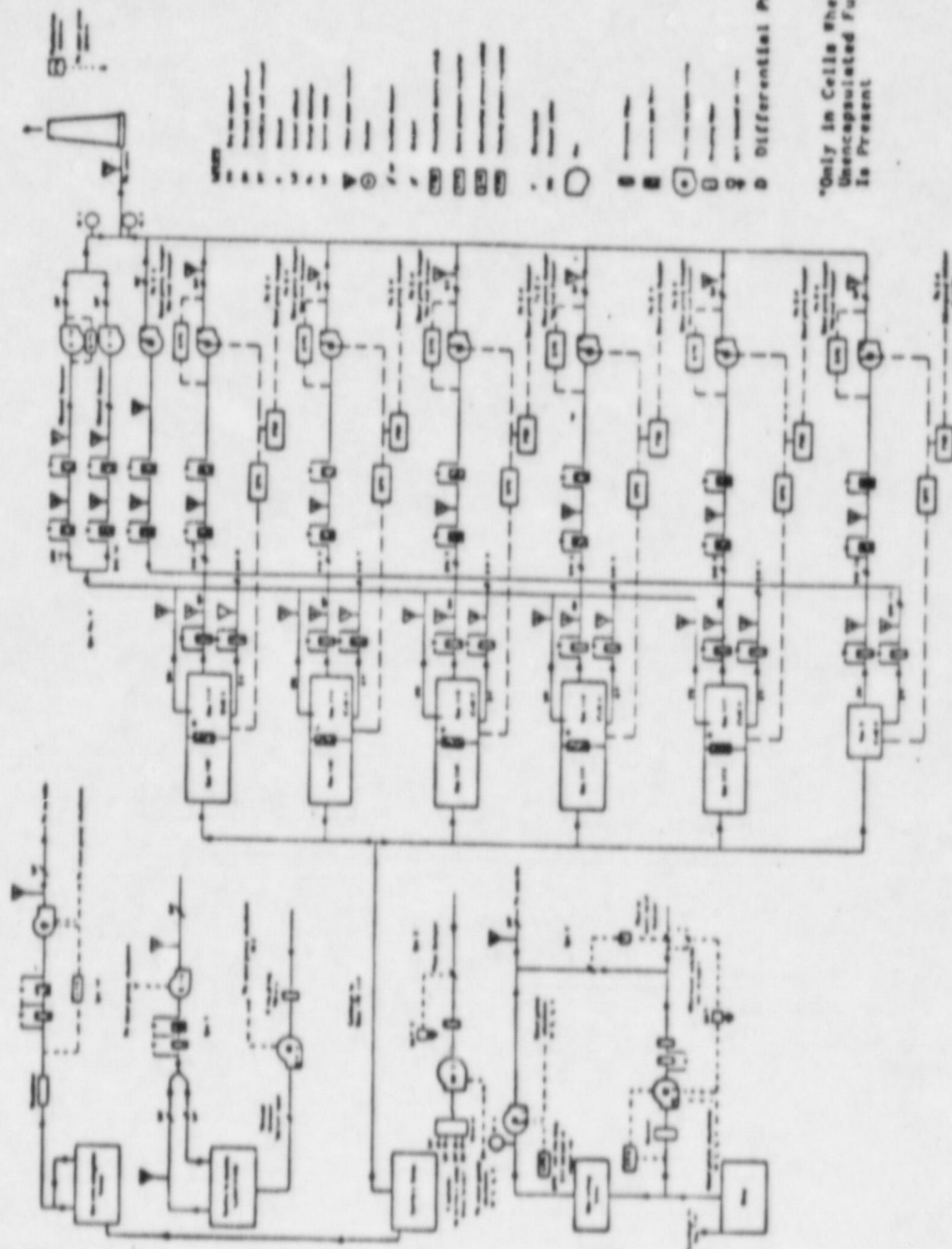


Figure 8.2. Air Ventilation System.

(3)



Date: June 4, 1985  
To: Plant Management  
From: P. A. Rowles /*PR*  
Subject: Cell #3 Final Filter

Radiation Work Permit was received June 4, 1985 at 11:00 A.M. to replace Cell #3 Final Filter. No radiation level recorded using Eberline Geiger Counter E-400 on face of filter. Filter was double bagged when removed from housing and placed in Decon. Room for inspection. Filter is in good condition.

ph

# RADIATION WORK PERMIT

Supervisor Responsible Don Regish Date 6-4-1985  
 Department Health and Safety Location FOX KERN  
 Job Description (MI #       ) Hydrazine Cell #3 Seal Tills

Maximum Work Time 1 Hr  
 Time Started 11:00 Time Completed 11:50  
 Operations Supervisor's  
 Signature [Signature]

For Health and Safety Dept. Only

## PREVIOUS DATA ON OPERATION:

1. Airborne Levels (Date) 6.9 x 10<sup>-12</sup> uc/ml (6-4-85)
2. Contamination Levels (Date) 1105 DPM/100 cm<sup>2</sup> (6-4-85)
3. Radiation Levels (Date) 1.2 mR/hr (6-4-85)

## REQUIRED PROTECTIVE EQUIPMENT AND INSTRUMENTATION:

- |                         |          |                         |              |
|-------------------------|----------|-------------------------|--------------|
| 1. Lab Coat             | _____    | 9. Plastic Suits        | _____        |
| 2. Coveralls            | <u>✓</u> | 10. Safety Hats/Glasses | _____        |
| 3. Shoe Covers          | <u>✓</u> | 11. Dosimeter           | <u>✓</u>     |
| 4. Rubber Gloves        | <u>✓</u> | 12. Film Badge          | <u>✓</u>     |
| 5. Hood                 | <u>✓</u> | 13. TLD                 | <u>None</u>  |
| 6. Respirator           | _____    | 14. Instruments (1)     | <u>F-400</u> |
| 7. Full Face Respirator | <u>✓</u> | (2)                     | _____        |
| 8. Breathing Air        | _____    | 15 Other (1)            | _____        |
|                         |          | (2)                     | _____        |

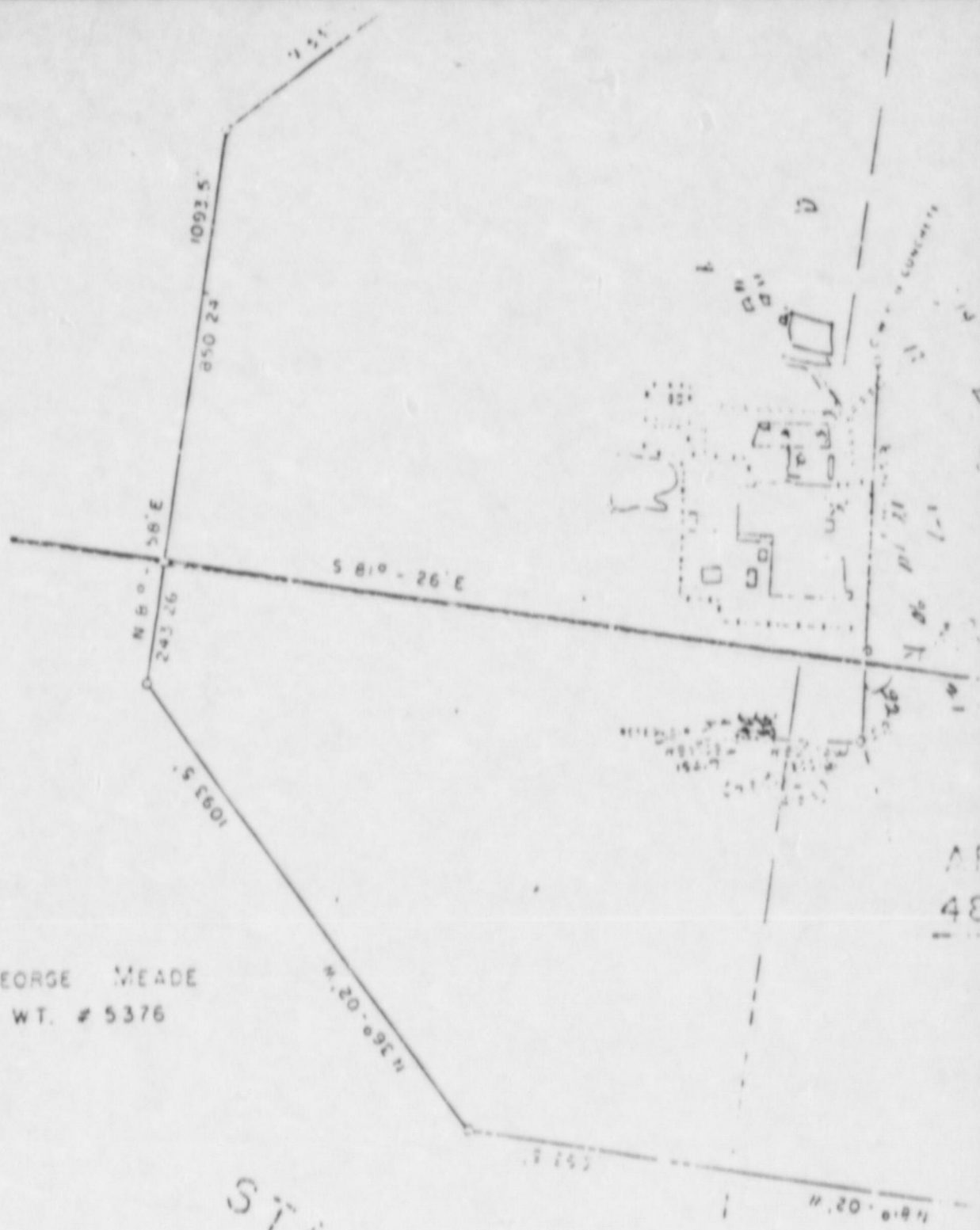
SPECIAL HAZARDS NONE

Comments No Radiation readings on face of tills.

Health Physicist Paul A Rowley DATE 6-4-1985



4



GEORGE MEADE  
WT. # 5376

STATE

GAME

1. Initial Control Data

Licensor TEC MAGNAD PRODUCTS INC.

Event Description TORNADO DAMAGE

Event Date 5-31-85

Report Date 6-7-85

2. Reporting Requirement

☐ 10 CFR 20.402 - theft or loss

☐ 10 CFR 35.42 Therapeutic Misadventure

☒ 10 CFR 20.403 (a)(6) overexposure/  
release

☐ 10 CFR 35.43 Diagnostic Misadventure

☐ 10 CFR 20.405 - 30 day report

☐ License Condition

☐ Other \_\_\_\_\_

Region I Response

☐ Immediate Site Inspection

Inspector \_\_\_\_\_ Date \_\_\_\_\_

☒ Special Inspection

Inspector E. Costello Date 6-4-85

☐ Telephone Inquiry

Inspector \_\_\_\_\_ Date \_\_\_\_\_

Licensor Representative and Title \_\_\_\_\_

☐ IR ☐ Daily Report

☐ Information entered - Region I log and Outstanding Items List.

☐ Review at next routine inspection.

Report Evaluation

☒ Description of Event

☐ Corrective Actions

☒ Details of NRC Involvement

☐ Evaluation Comments

☒ Cause of Event

☐ Letter to Licensor requesting additional information

Completed by R. J. Collins

Date 7/4/85

Reviewed by J. Kenne

Date 8/6/85

Special Agent

*Unrecorded*

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION I

IRRADIATOR INSPECTION

(Field Notes)

Licensee <i>Permagrain, Inc</i>		Facility <i>Karthus</i>
License No. <i>37-17860-01</i> <i>37-12307-02</i>		Inspection Date <i>8/8/78</i>
Principal Inspector <i>Slabodien</i>		Other Accompanying Persons <i>NONE</i>
Individuals Interviewed	Titles	Date of Interview
a.	e.	
b.	f.	Place of Interview
c.	g.	
d.	h.	
Name of RSO		Telephone No. of RSO

Enforcement Action(s)

*B/9*

*CMC/LSA*



A. Scope of Program

1. Number of individuals occupationally exposed 28.
2. Type of Irradiator (eg. Pool, Pit, etc.)                     .
3. Number of Curies 1,500,000 of <sup>60</sup>Co.
4. Frequency of use: continuous times per                     .

B. Exposure Evaluation

1. Personnel

- a. Film Badge ✓
- b. Dosimeter ✓
- c. Other TLD for special

2. Facility

- a. Independent area radiation monitor Victoreen Vamp
- b. Survey meter when enter HRA N/A personnel have no access except

C. Surveys

1. Radiation levels in unrestricted areas E-120 w/HP-150 ide
2. Contamination smears in restricted area qdy.
3. Leak Tests
  - a. Frequency daily per
  - b. Method adequate pool water 1l evapor counted gross B&J
4. Interlocks into HRA Hot cells are sealed. There is no access
  - a. Frequency of Testing
  - b. Functional at time of inspection

c. Are they intentionally bypassed or deleted. Yes No

N/A

(1) Procedure if yes

d. In accordance with license?

e. Adequate?

5. Routine maintenance of Hot cell equipment adequate. Yes No

D. Instrumentation

1. Adequate type and number: Yes No

2. Calibration as required: Yes No

E. Evaluation of Effluent

1. Liquid - *gross BS 1 l of pool ever to dryrun*

2. Airborne

F. Training

1. Std. Procedures *yr*

2. Emergency Procedures *yes*

3. NRC Regulations *ytd*

*all conducted by R.S.O.  
records of training are kept in personnel file*

G. Signs/Posting

1. CRM *com*

2. CHRA *ady*

3. 19.11 *ady*

H. Evaluation of Incoming Packages (20,205)

*No record receipt*

I. Disposal

*No disposals*

J. Evaluation of Outgoing Shipments - (DOT)

*None*

K. Unusual Occurrences or Events

L. Independent Measurements (Van, Inspector)



For irradiations not completely self-shielded containing:

379 Ci cobalt-60

1042 Ci iridium-192

1515 Ci cesium-137 or more, the following must be determined:

M. Control Devices

1. What control device will prevent entry of individuals into the irradiator when the source is exposed? *Double locks, admin*
2. What control device will retract the source if an individual attempts entry? *NA facil not in use*
3. What control device prevents operation of the source if an individual is present in the irradiator? *facility not in use*
4. Do any of the above control devices prevent egress from the irradiator? *No*

N. If the Entry Control Devices Fails:

1. What control device will retract the source?

2. Are visible and audible alarm signals generated to warn individuals entering of the hazard, and to alert another knowledgeable individual?
0. If there is credible probability, the physical radiation barriers can fail: *liquid shield*
1. What control device will cause the source to retract?  
*N/A*
  2. Are visible and audible alarms signals generated to warn individuals entering of the hazard, and to alert another knowledgeable individual? *yes*
- P. If the Source Is Stored In A Liquid Shield:
1. Is loss of liquid level adequately signaled for immediate action? *yes*
- Q. Exposing the Source
1. What device will automatically generate visible and audible alarm signals to alert individuals before exposing the source?  
*N/A*
  2. What clearly identified device can be activated from inside the irradiator which will prevent the source from becoming exposed?
  3. Is there a procedure to assure that the area is clear of individuals prior to exposing the source?

R. Physical Radiation Measurements

1. Is a physical radiation measurement made upon entry to the irradiator after source operation?

S. Tests of Entry Control Devices

1. Are tests of the entry control devices conducted routinely prior to operation of the source?

T. Control of Portals Into Irradiator

1. What safety devices and administrative procedures are used to prevent entry by individuals through portals that convey materials in and out? *portals are sealed*

2. Are exit portals equipped to detect and signal presence of loose radiation sources and to automatically prevent them from being carried out?

U. Independent Measurements

1. Take water sample and split with licensee.
  - a. Licensee results
  - b. IE:I results



2. Planchet or bottle source standard.

a. Value

b. Licensee's results

3. Results of interlock checks

4. Is water continuously circulating through demineralizer? *yes*

5. Results of surveys around demineralizer. *2.5 mR/hr  
E-120 / H-180*

6. Demineralized conductivity measurement *70  $\mu$ mho/cm*

7. Results of PH check with litmus paper *5-6*

8. Restricted area survey results with meter *OK*

9. Restricted area survey results with wipes *licensee*

10. Unrestricted area survey results *OK*

11. Results of check of liquid level indicator *OK*