

# PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION

P. O. BOX A

SANATOGA, PENNSYLVANIA 19454

(215) 327-1200 EXT. 2000

January 26, 1990

M. J. McCORMICK, JR., P.E.  
PLANT MANAGER  
LIMERICK GENERATING STATION

Docket Nos. 50-352  
50-353  
License Nos. NPF-39  
NPF-85

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

Subject: Limerick Generating Station, Units 1 and 2  
Transmittal of Radiological and Meteorological  
Monitoring System (RMMS) Instructions for Remote  
Interrogation Capability.

Dear Sir:

This letter transmits the Limerick Generating Station (LGS), Units 1 and 2 Radiological and Meteorological Monitoring System (RMMS) instructions for remote interrogation capability for the meteorological measurement system. The LGS meteorological measurement system complies with the guidelines of Regulatory Guide (RG) 1.23, Proposed Revision 1, "Onsite Meteorological Programs." This RG stipulates that the NRC should have remote interrogation capability of utility - maintained meteorological systems during emergency situations. Information concerning this capability was provided to the NRC prior to LGS Unit 1 Licensing, however, documentation verifying this transmittal cannot be located. Therefore, we are forwarding the following attachments which will provide the necessary information to obtain LGS data through RMMS remote interrogation access.

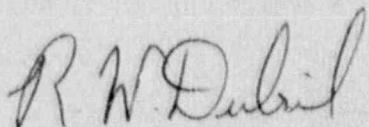
1. Attachment 1 - Communication settings, modem dial-up phone numbers, user names and passwords.
2. Attachment 2 - Remote Interrogation Instructions from RMMS User's manual.
3. Attachment 3 - RMMS-201, "Emergency Gaseous Dose Calculations - Interrogator Mode," Rev. 4, the controlling procedure in current use at LGS.

9002050017 900126  
PDR ADDCK 05000352 PDC  
F

4009 Add: NRR/NREP/PEPB 11  
Hr End

If you have any further questions regarding this issue,  
please do not hesitate to contact R. K. Barclay at (215) 327-1200  
X2213.

Very truly yours,

  
*R.W. Dubril*  
for M. J. McCormick, Jr.  
Plant Manager

WGS:aj

Attachments

cc: W. T. Russell, Administrator, Region I, USNRC  
T. J. Kenny, USNRC Senior Resident Inspector, LGS (w/o Attachments)

ATTACHMENT 1

Limerick Generating Station  
Radiological and Meteorological Monitoring System (RMMS)

Remote Interrogation  
Access Instructions

COMMUNICATION SETTINGS

BAUD RATE :	1200	PARITY :	None
DATA BITS :	8	STOP BITS :	1
*EMULATION :	VT-100	*DELAY :	1

\* Additional Crosstalk settings.

PHONE NUMBERS

(215) 326 - 9710	Term ID : TXA7
(215) 326 - 9720	Term ID : TXB0
(215) 326 - 9780	Term ID : TXB2

USERNAMES

(PASSWORD)

REMOTE1	(Broadcast)
REMOTE2	(Broadcast)
REMOTE3	(Broadcast)

## 14. REMOTE INTERROGATION

## 14.1. OVERVIEW

The interrogation capability is provided to anyone logging on to an interrogation account. Immediately upon log on, the interrogator is prompted for the type terminal being used. This is significant since there may be graphics as part of the report and this type of data can only be output successfully to a graphics terminal Tektronix 4014. Interrogation is also allowed from hard copy (LA120) and nongraphics CRTs (VT100) but only the textual portion of reports is output to these types of terminals.

Only one function is provided to the interrogator: the viewing of approved versions of up to five types of reports. Despite the apparent simplicity of this function, some behavioral characteristics make the reading of this section important for the user of the interrogation system.

## 14.2. INTERROGATION

After logging onto an interrogation account, the user is prompted for the type of terminal being used. Following this, the list of accessible report types is displayed on the terminal. Some users may only access certain reports as indicated on the list of reports. This list either shows the date of the interrogation version or the phrase "not available", signifying that no interrogation version exists for that report type. The interrogator then selects the desired report. If graphics output exists for the report and the terminal specified upon entry to the interrogation account is a graphics type terminal, the screen of graphics is output, followed by the text portion of the report. For nongraphics terminal types, only the text is output.

After each screen of display is output, a "continue" prompt is output at the bottom of the screen. The entry of "C" results in the next screen of data being output. Any entry other than "C" results in the report list being redisplayed. If the hardcopy type terminal is being used, the entire text is output prior to the "continue" prompt.

An important characteristic of the interrogation system is the automatic update of the display when a different version of the report being viewed becomes the interrogation version. If an interrogator is viewing one of the reports and the broadcast control operator approves a new version of that same report, the screen will clear by itself (no interaction necessary from the interrogator) and the newly approved version will begin being displayed. This will occur whenever a new version is approved, whether by manual approval or under automatic approval. Note that this kind of automatic screen update occurs only if a new version of the type of report being viewed is approved. That is, the control operator can be approving other types of reports than the one being viewed and no changes will occur to the interrogator's screen.

If the interrogator wishes to view a different report type, it is necessary to return to the report list and select the desired report type. When finished with the interrogation, option 1 of the interrogation menu (Terminate) will log the user off of the computer.

#### Examples

The following pages present some examples of the interrogation interface.

Username: REMOTE1  
Password:

Welcome to GA Electronic Systems Division RM-21A System (VAX/VMS V3.3)

VAXVMSVAXVMSVAXVMSVAXVMSVAXVMSVAXVMSVAXVMSVAXVMSVAXVMSVAXVMS  
VAX VMS  
VAX System Messages VMS  
VAX VMS  
VAXVMSVAXVMSVAXVMSVAXVMSVAXVMSVAXVMSVAXVMSVAXVMSVAXVMSVAXVMS

- 1 -- TEKTRONICS 4014
- 2 -- LA-120
- 3 -- VT-100

ENTER TYPE OF DEVICE YOU ARE USING [1-3] : 2

Current reports are based on test data and do not reflect actual condition at the LIMERICK generating station.

REPORT INTERROGATION (LEVEL 1)

1 -- TERMINATE	
2 -- CLASS A MODEL	2-NOV-83 13:03:30
3 -- DOSE ACCUMULATION	4-NOV-83 09:35:00
4 -- NRC METEOROLOGICAL REPORT	Not Available
5 -- NRC X/Q REPORT	2-NOV-83 14:39:00
6 -- R.G. 1.97 REPORT	3-NOV-83 17:11:00

ENTER REPORT SELECTION : 2

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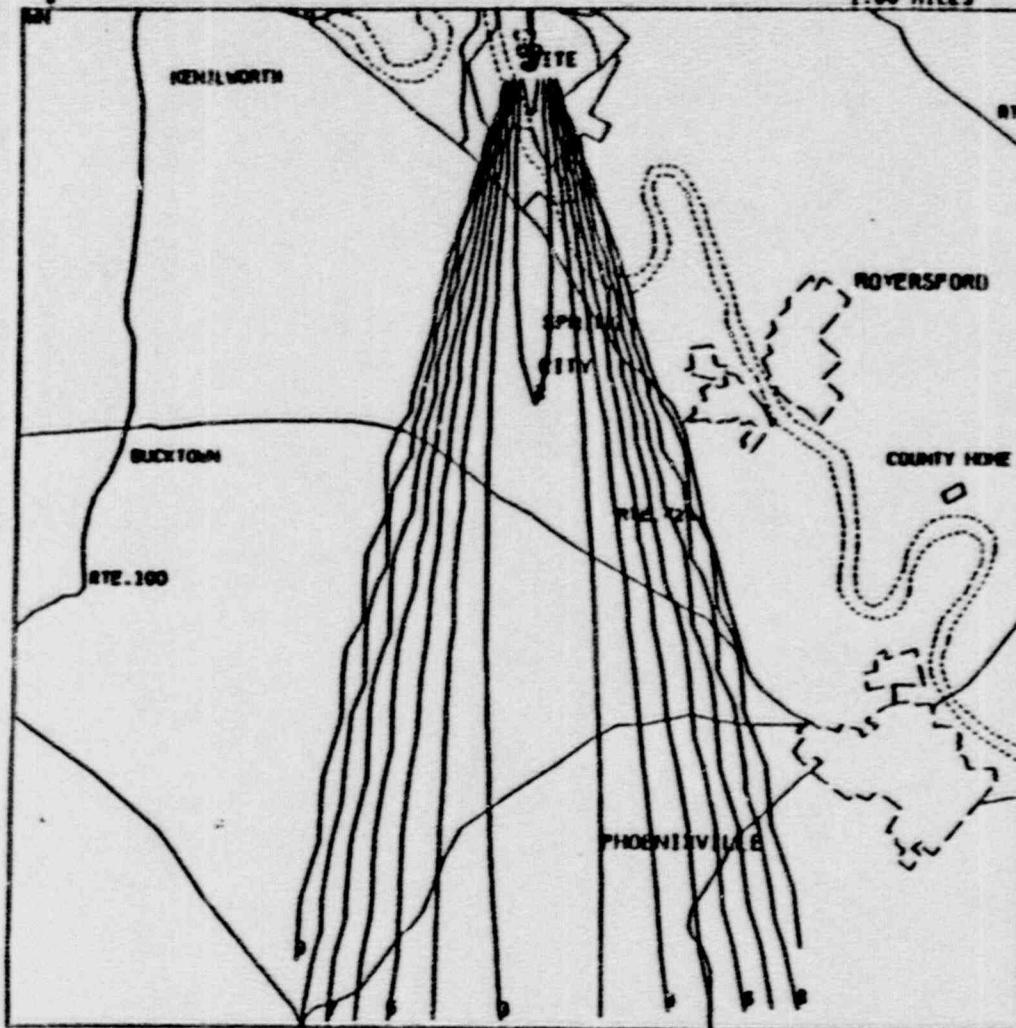
Fig. 14-1. Remote interrogation, logon example with terminal specification and Class A model selection (page 1 of 13)

SITE: LIMERICK

UNIT: UL 11/08/83 13164

HOST RECENT NET

RAU DATA

SCALE: 1  
1.00 MILES

TIME AFTER ACCIDENT 0.0 HOURS  
 GAMMA DOSE (ABJ. FACTOR) 1.00  
 DATE OF NET 11/08/83 13164  
 RELEASE PT 3  
 SPEED(MPH) 22  
 DIR FROM 358  
 VERT STAB 0  
 HORIZ STAB 0  
 RELEASE TYPE SPLIT  
 EXFL CFM/1000 234  
 MIXED NODE 0.62  
 PLUME MOT(R) 106  
 PEAK (REN/HR) 9.06E-03  
 DST TO PK 7.6E+02(R), 0.5(HR)  
 TERRAIN AT PEAK(H) 0.00E+00  
 DECAYED RELEASE(CI/SEC) 2.78E+00

## LEGEND

REN/HR

- |   |          |
|---|----------|
| 1 | 1.00E-02 |
| 2 | 1.00E-03 |
| 3 | 1.00E-04 |
| 4 | 1.00E-05 |
| 5 | 1.00E-06 |
| 6 | 1.00E-07 |
| 7 | 1.00E-08 |
| 8 | 1.00E-09 |
| 9 | 1.00E-10 |

ISOTOPIC REL.  
CI/SEC

XE133	4.50E-01
XE135M	4.40E-01
XE137	4.10E-01
XE138	3.91E-01
KR89	3.25E-01
FR88	8.62E-01
KR87	1.91E-01
XE136	1.27E-01

888 EAL 181 SITE EMERGENCY

ENTER 'C' TO CONTINUE DISPLAYING !

Fig. 14-1. Remote interrogation, Class A model graph obtained only from 4014 graphics terminal (page 2 of 13)

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GAMMA DOSE  
 TIME OF RUN: 11/02/83 13:03 ST  
 TIME OF REACTOR TRIP OR ACCIDENT: 11/02/83 12:45 ST  
 TIME OF MET USED: 11/02/83 12:45 ST  
 TIME RELEASE STARTS AFTER ACCIDENT 0.0 (HRS)  
 REMAINING DURATION (HOURS) 1.00

WIND TOWARD DIRECTION SECTOR: S  
 WIND SPD AT REF HT (M/SEC): 9.57  
 RELEASE PT 3  
 RELEASE TYPE SPLIT

\*\*\*\*  
 \* W BODY PAG OF 1.0 REM \*  
 \* REACHED AT GT 24 HOURS \*  
 \* THYROID PAG OF 5.0 REM \*  
 \* REACHED AT GT 24 HOURS \*  
 \*\*\*\*

PROJECTED DOSE (REM) AT FOUR CLOCK TIMES  
 DOWNWIND DIST (M) 1400 ST 1500 ST 1700 ST 2100 ST  
 200. 6.92E-03 2.84E-02 2.84E-02 2.84E-02  
 400. 4.30E-03 1.80E-02 1.80E-02 1.80E-02  
 600. 2.95E-03 1.27E-02 1.27E-02 1.27E-02  
 800. 2.15E-03 9.48E-03 9.48E-03 9.48E-03  
 1000. 1.63E-03 7.37E-03 7.37E-03 7.37E-03  
 1200. 1.22E-03 5.92E-03 5.92E-03 5.92E-03  
 1400. 1.03E-03 4.91E-03 4.91E-03 4.91E-03  
 1600. 8.62E-04 4.23E-03 4.23E-03 4.23E-03  
 1800. 7.41E-04 3.75E-03 3.75E-03 3.75E-03  
 2000. 6.45E-04 3.36E-03 3.36E-03 3.36E-03  
 2500. 4.65E-04 2.62E-03 2.62E-03 2.62E-03  
 3000. 3.58E-04 2.19E-03 2.19E-03 2.19E-03  
 3500. 2.73E-04 1.84E-03 1.84E-03 1.84E-03  
 4000. 2.07E-04 1.54E-03 1.54E-03 1.54E-03  
 4500. 1.52E-04 1.27E-03 1.27E-03 1.27E-03  
 5000. 1.12E-04 1.06E-03 1.06E-03 1.06E-03  
 5500. 8.11E-05 8.97E-04 8.97E-04 8.97E-04  
 6000. 5.87E-05 7.74E-04 7.74E-04 7.74E-04  
 6500. 4.17E-05 6.79E-04 6.79E-04 6.79E-04  
 7000. 2.82E-05 6.01E-04 6.01E-04 6.01E-04  
 7500. 1.73E-05 5.36E-04 5.36E-04 5.36E-04  
 8000. 8.60E-06 4.81E-04 4.81E-04 4.81E-04  
 8500. 1.46E-06 4.33E-04 4.33E-04 4.33E-04  
 9000. 0.00E+00 3.88E-04 3.92E-04 3.92E-04  
 9500. 0.00E+00 3.47E-04 3.56E-04 3.56E-04  
 10000. 0.00E+00 3.14E-04 3.27E-04 3.27E-04  
 11000. 0.00E+00 2.63E-04 2.82E-04 2.82E-04  
 12000. 0.00E+00 2.21E-04 2.46E-04 2.46E-04  
 13000. 0.00E+00 1.88E-04 2.15E-04 2.15E-04  
 14000. 0.00E+00 1.60E-04 1.90E-04 1.90E-04  
 15000. 0.00E+00 1.38E-04 1.69E-04 1.69E-04  
 16000. 0.00E+00 1.19E-04 1.51E-04 1.51E-04

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Fig. 14-1. Remote interrogation, Class a model gamma projected dose report  
(page 10 of 13)





--- DOSE PROJECTIONS ---

PROJECTION TIME PERIOD (HRS FROM NOW) (NOW=11/02/83 12:45)	0.3	1.3	3.3	7.3	PLUME FROM ARVL/ NOW TO LEAVE REACH TIME PAG#	TIME (ST) (ST)
CLOCK TIME (ST)	1300	1400	1600	2000		
SITE BDRY					DAHRMN DAHRMN	
W B DOSE(REM)	2.3E-03	1.0E-02	1.0E-02	1.0E-02	021246/	
THY DOSE(REM)	8.8E-03	3.9E-02	3.9E-02	3.9E-02	021346	NOT REACHED
2 MILES					021251/	
W B DOSE(REM)	3.2E-04	2.0E-03	2.0E-03	2.0E-03	021351	NOT REACHED
THY DOSE(REM)	1.6E-03	1.0E-02	1.0E-02	1.0E-02		NOT REACHED
5 MILES					021259/	
W B DOSE(REM)	7.9E-06	4.8E-04	4.8E-04	4.8E-04	021359	NOT REACHED
THY DOSE(REM)	4.7E-05	2.9E-03	2.9E-03	2.9E-03		NOT REACHED
10 MILES					021313/	
W B DOSE(REM)	0.0E+00	1.2E-04	1.5E-04	1.5E-04	021413	NOT REACHED
THY DOSE(REM)	0.0E+00	8.4E-04	1.1E-03	1.1E-03		NOT REACHED

\*PAG - W.BODY=1 REM, THY=5 REM  
\*\* - NOT CALCULATED

ENTER 'C' TO CONTINUE DISPLAYING : C

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Fig. 14-1. Remote interrogation, Class A model dose projections report  
(page 13 of 13)

Current reports are based on test data and do not reflect actual conditions at the LIMERICK generating station.

REPORT INTERROGATION (LEVEL 1)

1	-- TERMINATE	2-NOV-83 13:03:30
2	-- CLASS A MODEL	4-NOV-83 09:55:00
3	-- DOSE ACCUMULATION	4-NOV-83 11:32:01
4	-- NRC METEOROLOGICAL REPORT	2-NOV-83 14:09:00
5	-- NRC X/Q REPORT	3-NOV-83 16:56:00
6	-- R.G. 1.97 REPORT	

ENTER REPORT SELECTION : 3

\*\*\* ERROR READING 15-MIN Q-DATA FILE. IER = 0 \*\*\*

SITE: LIMERICK  
UNIT: U1  
USER: GM  
DATE: 11/ 4/83 9:35  
MET DATA FOR: 11/ 4/83 8:30 RELEASE POINT: 3 RELEASE TYPE: WAKE-SPLIT  
RAD DATA FOR: 0/ 0/ 0 0:0  
SUMMARY OF METEOROLOGICAL DATA

	GROUND	ELEVATED
WIND SPEED (MPH):	9.6 P	8.4 P
WIND DIRECTION (DEG):	W P	WSW P
DELTA-TEMP (DEG-F):	-1.3 P	-1.3 P
SIGMA-THETA (DEG):	0.0 P	0.0 P
AMBIENT TEMP (DEG-F):	0.0 S	68.4 P
HORIZ STABILITY:	D	D
VERT STABILITY:	D	D

SUMMARY OF ISOTOPIC RELEASE RATE DATA (MICRO-CI/SEC)

ISOTOPES NOT PRINTED ARE ZERO

\*\*\* RAD DATA NOT AVAILABLE FOR THIS DATE/TIME \*\*\*

SUMMARY OF EFFLUENT DISCHARGE RATE

VENT FLOW RATE (CFM): 2.3415E+05  
15-MIN PEAK X/Q AND DOSE RATE

X/Q,X/QD (SEC/M3)	DISTANCE (METERS)	DOSE RATE (REM/HR)	DISTANCE (METERS)
X/Q WK SPLT: 5.061E-06	1609.0	W.B. GAMMA: 0.00E+00	72405.0
DEPLETION: 4.943E-06	1609.0	SKIN: 0.00E+00	72405.0
D/Q (1/M2)	DISTANCE (METERS)	INHAL. THY.: 0.00E+00	72405.0
DEPOSITION: 7.990E-08	804.0	INGES. THY.: 0.00E+00	72405.0

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Fig. 14-2. Remote interrogation dose accumulation report for 1 hr  
(page 1 of 3)

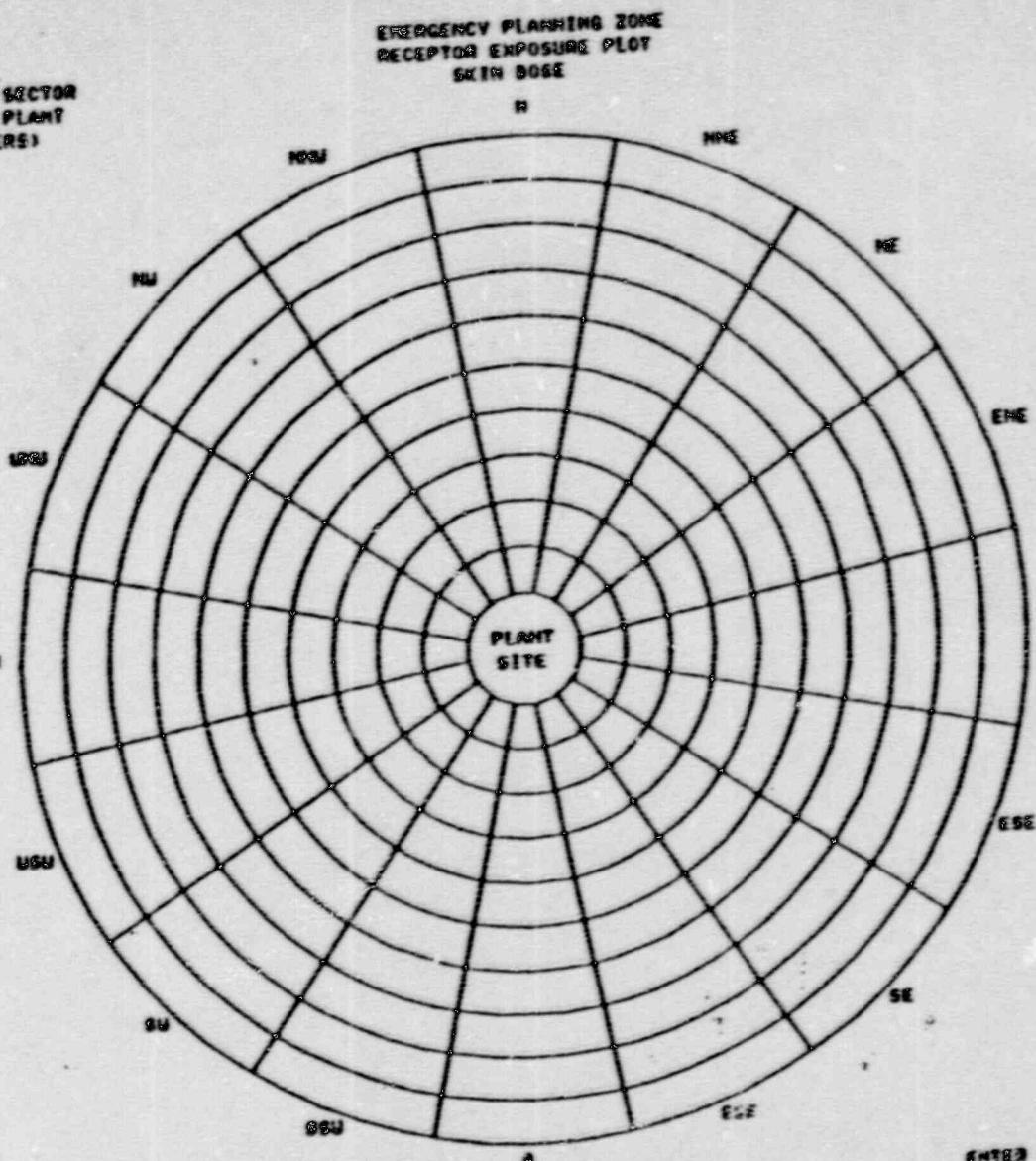


SITE: LIPERICK  
UNIT: U1  
USER: CR  
DATE: 11/04/03 00:30

TOTAL ACCUMULATION  
START DATE: 11/4/03 0:30  
END DATE: 11/4/03 0:15  
ALL RELEASE POINTS

DISTANCE TO SECTOR  
CENTER FROM PLANT  
CENTER (METERS)

15200.  
13670.  
12070.  
10461.  
8851.  
7240.  
5633.  
4023.  
2414.  
805.  
005.  
2414.  
4023.  
5633.  
7240.  
8851.  
10461.  
12070.  
13670.  
15200.



LEGEND:  
PERCENT OF SEEKING SHELTER LIMIT  
(SKIN DOSE: 1000 MILLIRAD)

[Solid black square]	10-100 %
[Hatched square]	1-10 %
[Dotted square]	0.1-1 %
[Cross-hatched square]	0.01-0.1 %
[Empty square]	< 0.01 %

Fig. 14-2. Remote interrogation dose accumulation receptor exposure plot  
(page 3 of 3)

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Current reports are based on test data and do not reflect actual conditions at the LIMERICK generating station.

REPORT INTERROGATION (LEVEL 1)

1	-- TERMINATE	
2	-- CLASS A MODEL	2-NOV-83 13:03:30
3	-- DOSE ACCUMULATION	4-NOV-83 09:35:00
4	-- NRC METEOROLOGICAL REPORT	4-NOV-83 11:32:01
5	-- NRC X/O REPORT	2-NOV-83 14:39:00
6	-- R.G. 1.97 REPORT	3-NOV-83 16:56:00

ENTER REPORT SELECTION : 6

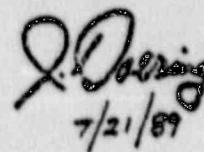
GROUP	1	R.G. 1.97 MONITORS	3-NOV-83 16:56:00
NAME	DESCRIPTION	VALUE UNITS	V V V V ALARM
1ME076	N STACK MID RANGE EFL	0.00E+00	V
2LE076	N STACK LOW RANGE EFL	0.00E+00	V
3HE076	N STACK HIGH RANGE EFL	0.00E+00	V
4TE076	N STACK TOTAL EFFLUENT	0.00E+00	V
1RA191	DRYWELL AREA POST LOCA	0.00E+00	V
2RA191	DRYWELL AREA POST LOCA	0.00E+00	V
3RA191	DRYWELL AREA POST LOCA	0.00E+00	V
4RA191	DRYWELL AREA POST LOCA	0.00E+00	V
1RA291	DRYWELL AREA POST LOCA	0.00E+00	V
2RA291	DRYWELL AREA POST LOCA	0.00E+00	V
3RA291	DRYWELL AREA POST LOCA	0.00E+00	V
4RA291	DRYWELL AREA POST LOCA	0.00E+00	V

ENTER 'C' TO CONTINUE DISPLAYING :

EL-5771

Fig. 14-5. Remote interrogation R.G. 1.97 report (group 1 summary channels)

3891020740

PHILADELPHIA ELECTRIC COMPANY  
LIMERICK GENERATING STATION  
J. Dering  
7/21/89RMMS-201 EMERGENCY GASEOUS DOSE CALCULATIONS - INTERROGATOR MODE**CONTROLLED COPY**1.0 PURPOSE

- 1.1 To interrogate most recent approved version of up to five (5) types of reports generated by Broadcast Control Mode.

**WHEN RED**2.0 RESPONSIBILITIES

- 2.1 The Interrogator (RM-21A Operator) shall:

- 2.1.1 Ensure the bases for each report is documented AND attached to the back of each report.
- 2.1.2 Transmit all generated reports to appropriate supervisor for evaluation.

3.0 PREREQUISITES

- 3.1 Logon to the INTERROGATING mode of Broadcast Control using INTERROGATOR Username AND Password, per RMMS-102.

4.0 PRECAUTIONS

- 4.1 Reports are generated every 15 minutes. The most current version of a report is updated 15 minutes after being generated.

5.0 APPARATUS

- 5.1 RMMS/RM-21A Console and Tektronix hardcopy unit.

## 6.0 PROCEDURE

### | 6.1 Enter in response to prompts

<u>RM-21A Prompt</u>	<u>Operator Response</u>
1. Message previously entered into system by the Broadcast Controller will be displayed on screen.	
2. Report Interrogation (Level 1) List of available reports displayed on screen.  Note: Only these reports with date <u>AND</u> time flags are available for interrogation.	Select available report of interest. Depress RETURN.
3. Reports displayed on screen.	Take hardcopy of screen. <u>IF</u> class A model is chosen <u>THEN</u> enter C to continue, depress RETURN, <u>OR</u> enter E to Exit. Depress RETURN. <u>IF</u> continue option was chosen, <u>THEN</u> further reports will be displayed in sequence. Enter E to Exit. Depress RETURN.
4. Report Interrogation (Level 1) Logout indicated.	Enter 1 - Terminate.

## 7.0 REFERENCES

- | 7.1 RMMS/RM-21A Operator's Guide  
| 7.2 RMMS-102

## 8.0 ATTACHMENTS

| None