



Florida Power & Light Company, 6501 S. Ocean Drive, Jensen Beach, FL 34957

January 12, 2004

L-2004-002  
10 CFR 50 Appendix E

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D. C. 20555

Re: St. Lucie Units 1 and 2  
Docket Nos. 50-335 and 50-389  
Emergency Plan Implementing Procedure

In accordance with 10 CFR 50 Appendix E, enclosed is a copy of a procedure that implements the St. Lucie Plant Radiological Emergency Plan.

<u>Number</u>	<u>Title</u>	<u>Revision</u>	<u>Implementation Date</u>
HP-202	Environmental Monitoring During Emergencies	30B	December 18, 2003

HP-202 Revision 30B incorporated a procedure change request (PCR) to correct 1311 to I-131, place gross counts per minute on Appendix A, and delete references to steps in Appendix A. Please contact us if there are any questions regarding this procedure.

Very truly yours,

A handwritten signature in black ink, appearing to read 'WJ', is written over the signature line.

William Jefferson, Jr.  
Vice President  
St. Lucie Plant

WJ/tt

Enclosure

ADLS



**FPL**

# ST. LUCIE PLANT

## HEALTH PHYSICS PROCEDURE

SAFETY RELATED

Procedure No.

**HP-202**

Current Revision No.

**30B**

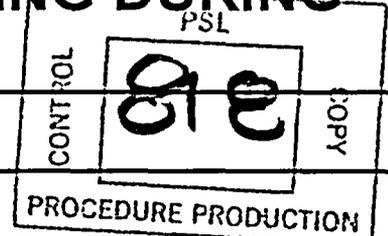
Effective Date

**12/18/03**

Title:

# ENVIRONMENTAL MONITORING DURING EMERGENCIES

Responsible Department: **HEALTH PHYSICS**



### REVISION SUMMARY:

**Revision 30B** - Incorporated PCR 03-3415 to correct 1311 to I-131, place gross counts per minute on Appendix A and delete references to steps in Appendix A. (A. B. Sexton, 12/10/03)

**Revision 30A** - Incorporated PCR 03-2655 to change references in Appendix A. (Bruce Somers, 09/26/03)

**Revision 30** - Incorporated PCR 03-0143 to revise site map and location of monitor point red 5. (J. R. Walker, 02/17/03)

**Revision 29** - Added reference to Ludlum 2200, added steps and renumbered accordingly. (Bruce Somers, 05/09/02)

**Revision 28** - Changed to reflect relocating emergency kits to south service bldg. at OSC area. (D. Reisinger, 11/12/01)

**Revision 27** - Corrected on-site monitoring locations 15 & 16 on Figure in Appendix B. (J. R. Walker, 09/21/00)

**Revision 26** - Changed NCPM to GCPM. (Don Reisinger, 01/13/99)

**Revision 25** - Added Red Team survey points. (Don Reisinger, 09/16/99)

Revision	FRG Review Date	Approved By	Approval Date	S__OPS
0	07/07/81	C. M. Wethy Plant General Manager	07/13/81	DATE DOCT PROCEDURE DOCN HP-202 SYS COM COMPLETED ITM 30B
30B	02/13/03	R. E. Rose Plant General Manager N/A	02/17/03	
		Designated Approver Donna Calabrese	12/10/03	
		Designated Approver (Minor Correction)		

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## 1.0 PURPOSE

To provide a method for the determination of radioiodine concentrations and dose rates in the environment due to releases of radioactive materials from the plant under accident conditions.

1.1 The off-site Field Monitoring Teams monitor releases in the Emergency Planning Zone (EPZ) from the plant out to a distance of approximately 10 miles.

1.2 The on-site Field Monitoring Team monitors releases outside the plant PROTECTED AREA but within the OWNER-CONTROLLED AREA.

## 2.0 LIMITS AND PRECAUTIONS

2.1 Off-site monitoring within the Plume Exposure Pathway EPZ shall be performed by St. Lucie Field Monitoring Teams.

2.2 Field Monitoring Teams shall be under the direction of the TSC HP Supervisor (TSCHPS) in the Technical Support Center (TSC).

2.3 One member of each Field Monitoring Team shall be a qualified Health Physics Technician (HPT).

2.4 All Field Monitoring Team members shall wear personal dosimetry while doing monitoring.

2.5 Field Monitoring Teams should obtain FPL vehicles equipped with a cigarette lighter (power supply for portable radio) to use for transportation. Vehicles should have their engines on (running) and radios on during field activities.

2.6 The Field Monitoring Teams shall drive out of the release plume to count samples.

2.7 Respiratory protection equipment is available for each Field Monitoring Team and shall be used when the team is in the release plume.

2.8 The FPL Field Monitoring Teams shall communicate sample analysis data only to the plant unless otherwise directed by the TSCHPS.

2.9 The responsibility of the on-site Field Monitoring Team is to monitor releases on the FPL owned property as directed by the TSCHPS.

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2.10 The TSCHPS shall deploy the Field Monitoring Teams according to the following emergency classifications:

ALERT	Onsite	1 Team
SITE AREA / GENERAL EMERGENCY	Onsite1 Offsite	Team (if not previously deployed) 2 Teams

2.11 Ensure all personnel using / handling the radios are familiar with the warnings / precautions contained in Appendix A to this procedure.

### 3.0 RELATED SYSTEMS STATUS

None

### 4.0 REFERENCES

#### NOTE

One or more of the following symbols may be used in this procedure:

§ Indicates a Regulatory commitment made by Technical Specifications, Condition of License, Audit, LER, Bulletin, Operating Experience, License Renewal, etc. and shall NOT be revised without Facility Review Group review and Plant General Manager approval.

¶ Indicates a management directive, vendor recommendation, plant practice or other non-regulatory commitment that should NOT be revised without consultation with the plant staff.

Ψ Indicates a step that requires a sign off on an attachment.

4.1 St. Lucie Plant Radiological Emergency Plan (E-Plan)

4.2 HP-200, Health Physics Emergency Organization

4.3 EPIP-10, Off-site Radiological Monitoring

4.4 FP&L Environmental Survey Team Map (10 mile EPZ)

### 5.0 RECORDS REQUIRED

5.1 Field Monitoring Team Log Book

5.2 Table 1, Field Monitoring Team Check List

5.3 The following document when completed shall be maintained in the plant files in accordance with QI-17-PSL-1, Quality Assurance Records.

1. Form HP 202.1, Environmental Airborne Activity Calculation Form

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**6.0 INSTRUCTIONS**

**6.1** The TSCHPS directs the staffing and deployment of the Field Monitoring Teams. Upon the declaration of an ALERT level emergency the on-site out-of-plant Field Monitoring Team shall be activated and the off-site Field Monitoring Teams may be activated at the discretion of the Emergency Coordinator. If the classification is a SITE AREA or GENERAL EMERGENCY the on-site out-of-plant Field Monitoring Team and the off-site Field Monitoring Teams shall be activated.

- |   |
|---|
| <b>NOTE</b>   |
| <ol style="list-style-type: none"> <li>1. Verify respirator qualification of all field team members - consult the Radiation Exposure Summary Report.</li> <li>2. Verify vehicle has cigarette lighter.</li> <li>3. SAS keys are at the North Security Building, if needed.</li> </ol> |

**6.2** The HP Supervisor in the Operational Support Center (HPOSC) is responsible for the deployment of the Field Monitoring Teams and ensuring each HPT is:

1. Paired with a driver
2. Provided a vehicle
3. Red Team only
  - Given a hand-held radio
  - Given a pair of boltcutters (from the OSC HP Emergency kit)

- |   |
|---|
| <b>NOTE</b>   |
| The first team to complete Table 1, Field Monitoring Team Checklist, becomes the Red Team and is the first dispatched to the field. |

**6.3** Upon completion of inventory / checkout of equipment the Field Monitoring Teams call the Technical Support Center (TSC). The TSCHPS designates the on-site Field Monitoring Team as the Red Team, the off-site Field Monitoring Team as the Blue Team and the other off-site Field Monitoring Team as the Orange Team.

**6.4** Each Field Monitoring Team shall inventory their respective Emergency Kit and complete the Field Monitoring Team Checklist (see Table 1).

**6.5** Equipment operability shall be verified in accordance with Appendix A, Operability Instructions.

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**NOTE**

Supplemental or replacement equipment and / or instruments are available in the spare Emergency Kit

6.6 Following completion of inventories and equipment checks, the Field Monitoring Teams will be given instructions on required monitoring points. Monitoring points are designated using Emergency Planning Zone (EPZ) map coordinates, highway and road numbers / names, or the points shown in Appendix B, Preselected On-site Monitoring Points and / or Appendix C, Preselected Off-site Monitoring Points under the direction of the TSCHPS.

6.7 Field Monitoring Teams will proceed to the designated monitoring points.

**NOTE**

If a release is in progress, Field Monitoring Teams should monitor dose rates and count rates during transit and report any indications of a plume to the TSC. Ensure count rate meter is operating in cab of truck during transit.

6.8 Prior to arriving at the sampling location, place a AgX cartridge and particulate filter in the sample head. Mark the upstream face of both filters.

6.9 Upon arrival at the sampling location, the Field Monitoring Team should perform a dose rate survey in following manner. Record the time arrived at location in the blank labeled Time on Form HP 202.1, Environmental Airborne Activity Calculation Form found in this procedure.

1. Holding the survey instrument at head height with the detector upward, and beta window open, obtain a radiation reading of the overhead plume. The beta window should be open to assist in detecting low levels in the plume. If a positive indication is observed, close the beta window and observe the gamma dose rate. Enter the dose rates on worksheet HP 202.1, line 3.
2. Report the dose rates to the plant.
3. With the vehicle engine running, connect the air sampler power leads to the vehicle's battery, taking care to connect the positive and negative cables to the positive and negative battery terminals, respectively.
4. Start the stop watch and note the air flow rate. Run the air samples long enough to collect a 6 cubic foot sample, unless otherwise instructed.
5. During air sampling, the Field Monitoring Teams should observe the dose rate instrument for significant changes in dose rates. Report significant changes to the plant.

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**6.9** (continued)

6. The Field Monitoring Team shall drive out of the release plume and count the samples.
7. Remove the AgX cartridge and particulate filter from the sampler head and place in separate labeled bags. Analyze the AgX cartridge per Appendix A, Step 5, save both samples as further inhouse analysis may be desired.

**6.10** Air samples should be bagged, labeled and a log entry made of the following information:

1. Date and start time of sample
2. Duration of sample
3. Average flow rate of air sampler
4. Location of sample (map coordinates, landmarks, etc.)
5. Field Monitoring Team name
6. Air sampler number
7. Ludlum 2218 or Ludlum 2200 Analyzer Serial Number

**6.11** Communicate the data as indicated on the worksheet (HP 202.1), enter similar information in the bound logbook and standby for further instructions.

**6.12** The TSCHPS may direct that a longer sampling period be used if very low release concentrations are suspected to be occurring.

**END OF INSTRUCTIONS SECTION**

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**TABLE 1**  
**FIELD MONITORING TEAM CHECKLIST**  
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1.0 Emergency Kit (Footlocker) Inventory - verify necessary items.

**NOTE**

1. Magnetic-mount antenna is on top of kit.

2. If kit seal is unbroken, Then go to step 2.

- |      |   |       |
|------|---|-------|
| 1.1  | TLD (2)   | _____ |
| 1.2  | EPD (2)   | _____ |
| 1.3  | DRD, 0 - 5 R (2)  | _____ |
| 1.4  | Dosimeter Charger (1)   | _____ |
| 1.5  | Full Face Respirator (2) (can be functionally checked on the spot)                                  | _____ |
| 1.6  | Charcoal Canister (2)   | _____ |
| 1.7  | AgX Cartridge (6)   | _____ |
| 1.8  | Particulate Filter (6)  | _____ |
| 1.9  | Stopwatch (1)   | _____ |
| 1.10 | Air Sample Bag (6)  | _____ |
| 1.11 | Surgical Gloves (6)   | _____ |
| 1.12 | Tweezers (1)  | _____ |
| 1.13 | Flashlight (1)  | _____ |
| 1.14 | Calculator (1)  | _____ |
| 1.15 | Portable Radio  | _____ |
| 1.16 | Power Cord with Cigarette-lighter Plug  | _____ |
| 1.17 | Microphone with Cable   | _____ |
| 1.18 | DC Power Receptacle with Battery Chips  | _____ |
| 1.19 | Logbook (1)   | _____ |
| 1.20 | List of TSC Phone Numbers (1)   | _____ |
| 1.21 | Procedure, HP-202 (1)   | _____ |
| 1.22 | HP 202.1 Forms (6)  | _____ |
| 1.23 | Set of Site and Local Maps (1)  | _____ |
| 2.0  | Verify Operability of Equipment (All tests in accordance with Appendix A, Operability Instructions) |       |
| 2.1  | High Volume Air Sampler with battery cables   |       |
|      | 1. Perform operability check IAW Appendix A.  | _____ |
| 2.2  | Portable Dose Rate Instrument   |       |
|      | 1. Perform operability check IAW Appendix A.  | _____ |
| 2.3  | Portable Count Rate Instrument  |       |
|      | 1. Perform operability check IAW Appendix A.  | _____ |
| 2.4  | Ludlum 2218 Analyzer or Ludlum 2200 Analyzer  |       |
|      | 1. Perform operability check IAW Appendix A.  | _____ |

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**TABLE 1**  
**FIELD MONITORING TEAM CHECKLIST**  
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- |     |   |       |
|-----|---|-------|
| 2.5 | Field Team Radio  |       |
|     | 1. Review Operating Instructions.                               | _____ |
|     | 2. Attach magnetic-mount antenna to radio and vehicle.          | _____ |
|     | 3. Plug radio power cord into vehicle cigarette lighter.        | _____ |
|     | 4. Test radio.  | _____ |
| 3.0 | Prior to departing the Protected Area verify the following      |       |
| 3.1 | Radio check completed with the Plant                            | _____ |
| 3.2 | Dose Rate and Count Rate Instruments in cab and on lowest scale | _____ |
| 3.3 | Portable Count Rate Instrument in Emergency Kit (Footlocker)    | _____ |
| 3.4 | Respirators in the cab  | _____ |
| 3.5 | Field Team Members equipped with dosimetry                      | _____ |
| 3.6 | Maps in vehicle cab   | _____ |
| 3.7 | Bolt cutters available (Red Team only)                          | _____ |
| 3.8 | Place stop watch in the cab of vehicle.                         | _____ |

Team Name \_\_\_\_\_

Inventory by \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Operability Checks by \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

**END OF TABLE 1**

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**APPENDIX A**  
**OPERABILITY INSTRUCTIONS**  
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1. Connect Hi Vol Air Sampler to truck battery (observe polarity) with engine running, turn air sampler on, confirm that flow is > 1.0 cfm, with collection filters and holder in place.
2. Portable Dose Rate Instrument - Check calibration sticker, battery test and response to supplied check source.
3. Portable Count Rate Instrument - Check calibration sticker, battery test (unplug line cord) and response to supplied check source.
4. Ludlum 2218 and Ludlum 2200 Battery and Operational Checks.

**NOTE**

- Should it be necessary to use Channel 2 of the Ludlum 2218, items contained within parentheses are settings to be used for Channel 2. See Figure 1.
- Verify that the L2218 RECYCLE knob is OFF. The knob is labeled and located on the rear panel of the instrument.
- Steps 4.A through 4.P provide instructions for the battery and operational checks of the Ludlum 2218 dual channel analyzer.
- Steps 4.Q.1 through 4.Q.18 provide instructions for the battery and operational check of the Ludlum Model 2200 single channel analyzer.

A. Perform the L2218 battery an operating checks as follows:

**NOTE**

If an instrument fails the battery check, it can be used only if it is connected to AC power and successfully passes the operational check.

1. Turn the POWER knob to BAT.
2. Unplug the AC line cord.
3. Depress the BAT testbutton.
4. Observe the condition below the RATE SCALE.

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**APPENDIX A**  
**OPERABILITY INSTRUCTIONS**  
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4. Ludlum 2218 and Ludlum 2200 Battery and Operational Checks (continued)
  - A. (continued)
    5. If battery condition is not within the acceptable BAT TEST range, plug in the AC line cord and turn the POWER knob to CHARGE. Attach a label to the instrument stating Instrument is charging, started charge at \_\_\_\_\_ AM / PM on \_\_\_\_\_, 19\_\_\_\_.
    6. If the battery condition is acceptable, then continue with the steps below.
  - B. Set the STABILIZER toggle switch to OFF.
  - C. Ch1 (Ch2), set the ADD-OFF-SUBTRACT knob to ADD.
  - D. Ch2 (Ch1), set the ADD-OFF-SUBTRACT knob to OFF.
  - E. Ch1 and Ch2, set the ON-BYPASS toggle switch to BYPASS.
  - F. Ch1 (Ch2), set the WINDOW and the THRESHOLD dials (in accordance with) settings on the side of the 2218 cabinet.
  - G. Set the unused Channel's WINDOW and THRESHOLD dials to 10.0.
  - H. Ch1 (Ch2), set the IN-OUT toggle switch to IN.
  - I. Ch2 (Ch1), set the IN-OUT toggle switch to OUT.
  - J. Set the MINUTES knob to X1.
  - K. Set the LIVE-CLOCK toggle switch to LIVE.
  - L. Set the F-S (Fast-Slow) toggle switch to S.
  - M. Set the CH1-CH2-SCALER knob to SCALER.
  - N. Set the MINUTES thumbwheel to 01.

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**APPENDIX A**  
**OPERABILITY INSTRUCTIONS**  
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4. Ludlum 2218 and Ludlum 2200 Battery and Operational Checks (continued)
- O. Perform a source check as follows:
1. Place the Ba-133 check source in the shield under the detector.
  2. Depress the COUNT-RESET button to start counting.
  3. When counting stops, compare the displayed counts with the acceptance range that is located on the side of the instrument.
  4. If the displayed counts are within the acceptance range, then go to Step 4.R. If the displayed counts are not within the acceptance range, then go to Step 4.P.
- P. High Voltage (HV) adjustments are performed as follows:
1. Set the MINUTES knob to EXT.
  2. Place the Ba-133 check source in the shield under the detector.
  3. Depress the COUNT-RESET button to start counting.
  4. Observe the COUNTS / MINUTE (Count Rate Meter) scale while making small adjustments in voltage to obtain the **maximum** count rate achievable.
  5. Increase or decrease the voltage with the HV (High Voltage) dial.
  6. Set the MINUTES knob to X1.
  7. Depress the COUNT-RESET button to start counting.
  8. When counting stops, compare the displayed counts with the acceptance range that is located on the side of the instrument.
  9. If the displayed counts are within the acceptance range, then go to Step 4.R. If the displayed counts are not within the acceptance range, then do not use the instrument.
  10. Tag the instrument OUT-OF-SERVICE, give the reason.
  11. Obtain another 2218 and perform the operability check.

/R30A

/R30A

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**APPENDIX A**  
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**4. Ludlum 2218 and Ludlum 2200 Battery and Operational Checks (continued)**

**Q. Perform the L2200 Battery and Operability Checks as follows:**

1. Turn the Power switch to BAT.
2. Unplug the AC line chord.
3. Rotate the RATE-HV-BAT selector to BAT.
4. Observe meter indication. (A down scale reading indicates possible battery reversal)
  - a. If the BAT meter indication falls within the BATT TEST zone on the Meter Face, continue with the operational check.
  - b. If the BAT meter indication falls below the BATT TEST zone, replace the batteries and retest OR use the L2200 on AC line power only.
5. Confirm L2200 Window, Threshold and HV (High Voltage) setting match the settings posted on the instrument's cover panel.
  - a. If needed, adjust L2200 Window, Threshold and HV settings to match values posted on the instruments cover panel.
6. Set the WINDOW toggle switch to the ON position.
7. Set the F-S switch to F.
8. Rotate the RATE-HV-BAT Selector to RATE.
9. Set the MINUTES thumb wheels to 01.
10. Set the X0-.1-X1-X10-EXT selector to X1.
11. Get the Ba133 source assigned to that L2200.
12. Place the Ba133 source in the sample holder.
13. Press the L2200 COUNT button.

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**APPENDIX A**  
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**4. Ludlum 2218 and Ludlum 2200 Battery and Operational Checks (continued)**

**Q. (continued)**

- 14. Compare the displayed scaler counts to the acceptance values posted on the instrument.**
  - a. If the displayed scaler counts are within the acceptance range, go to Step 4.R.**
  - b. If the displayed scaler counts are not within the acceptance range, go to Step 4.Q.15.**
- 15. Adjust the Instruments HIGH VOLTAGE as follows:**
  - a. Set the MINUTES knob to EXT.**
  - b. Place the Ba133 source in the shield under the detector.**
  - c. Rotate the ratemeter RANGE selector switch to the appropriate position. (Based upon expected 1 minute source count limits)**
  - d. Press the COUNT button to initiate a source count.**
  - e. Observe the L2200 Count Rate Meter;**
    - 1. DO NOT EXCEED 1200 Vdc. Using the HV potentiometer, make small adjustments increasing or decreasing the detector HV until you obtain a maximum source count rate within the acceptance range.**
    - 2. Press the HOLD button to stop the count.**
- 16. Set the MINUTES knob to X1.**
- 17. Press the COUNT button to start a new count.**

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**APPENDIX A**  
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4. Ludlum 2218 and Ludlum 2200 Battery and Operational Checks (continued)
- Q. (continued)
18. Compare the displayed scaler counts to the acceptance values posted on the instrument.
- a. If the displayed scaler counts are within the acceptance range, go to Step 4.R.
- b. If the displayed scaler counts are not within the acceptance range, then:
1. DO NOT USE THE INSTRUMENT.
  2. TAG the instrument OUT-OF-SERVICE, indicating reason for removal.
  3. Obtain a different L2200, if available and perform an operability check.
- R. Set the MINUTES thumbwheel to 05.
- S. The battery and operational response checks have been successfully completed and the instrument has been set to count samples.
5. Operation of the Ludlum Model 2218 or the Ludlum Model 2200:
- A. Obtain Form HP 202.1, Environmental Airborne Activity Calculation Form.
- B. Verify that the MINUTES thumbwheel is set to 05, adjust as necessary.
- C. Perform a Background Count as follows:
1. Ludlum Model 2218 – Press the COUNT-RESET button.
  2. Ludlum Model 2200 – Press the COUNT button.
- D. If the Background Counts are greater than 10,000 counts, then move to an area of presumed lower background. Repeat Step 5.C. If the Background Counts are less than 10,000 counts, then go to the next step. If the background counts are still greater than 10,000 counts, continue and try to locate a lower background area.

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**APPENDIX A**  
**OPERABILITY INSTRUCTIONS**  
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5. Operation of the Ludlum Model 2218 or the Ludlum Model 2200 (continued)
- E. Enter the number of counts in the blank labeled Background Counts on Form HP 202.1 and 5 in the blank labeled Count Time.
- F. Calculate the Background Counts Per Minute (BCPM) by dividing the Background Counts by the Minutes.
- G. Calculate the MINIMUM DETECTABLE COUNT (MDCR) using the following formula:
- $$\text{MDCR} = \text{BKG (CPM)} + \left( 4.66 \sqrt{\frac{\text{BKG (CPM)}}{\text{BKG COUNT TIME (MIN)}}} \right)$$
- H. Place the air sample cartridge in the shield under the detector so that the inlet side of the cartridge is facing the detector.
- I. Count the sample by depressing the:
1. COUNT-RESET button on the Ludlum 2218, or
  2. COUNT button on the Ludlum 2200.
- J. If the Gross Counts are greater than 750,000 counts, then reduce the counting time to 1 minute by setting the MINUTES thumbwheel to 01. Repeat Step 5.H. If the Gross Counts are less than 750,000 counts, then go to the next step.
- K. Enter the number of counts in the blank labeled Gross Counts on Form HP 202.1 and 5 or 1 (as appropriate) in the blank labeled Count Time.
- L. Calculate the Gross Counts Per Minute (GCPM) by dividing the Gross Counts by the Minutes.
- M. Compare sample GROSS COUNT PER MINUTE (GCPM) to the calculated MDCR.
1. If GCPM is less than MDCR ( $\text{GCPM} < \text{MDCR}$ ), Then report I<sup>131</sup> activity as less than minimum detectable activity (<MDA).
  2. If GCPM is equal to or greater than MDCR ( $\text{GCPM} \geq \text{MDCR}$ ) GO TO Step 5.N.

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**OPERABILITY INSTRUCTIONS**  
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5. Operation of the Ludlum Model 2218 or the Ludlum Model 2200 (continued)
- N. Calculate the Net Counts Per Minute (NCPM) by subtracting the BCPM from the GCPM and enter in the blank labeled NCPM on Form HP 202.1.
- O. Calculate the I-131 concentration ( $\mu\text{Ci} / \text{ml}$ ) by entering the requested values in the following formula.

$$\text{I-131 } \mu\text{Ci/ml} = \frac{\text{NCPM}}{(2.63 \text{ E} + 09) (\text{ } \_\_\_\_\_\_ \text{ Ft}^3 \text{ volume})}$$

Gross Counts per Minute = \_\_\_\_\_

Background Counts per Minute = \_\_\_\_\_

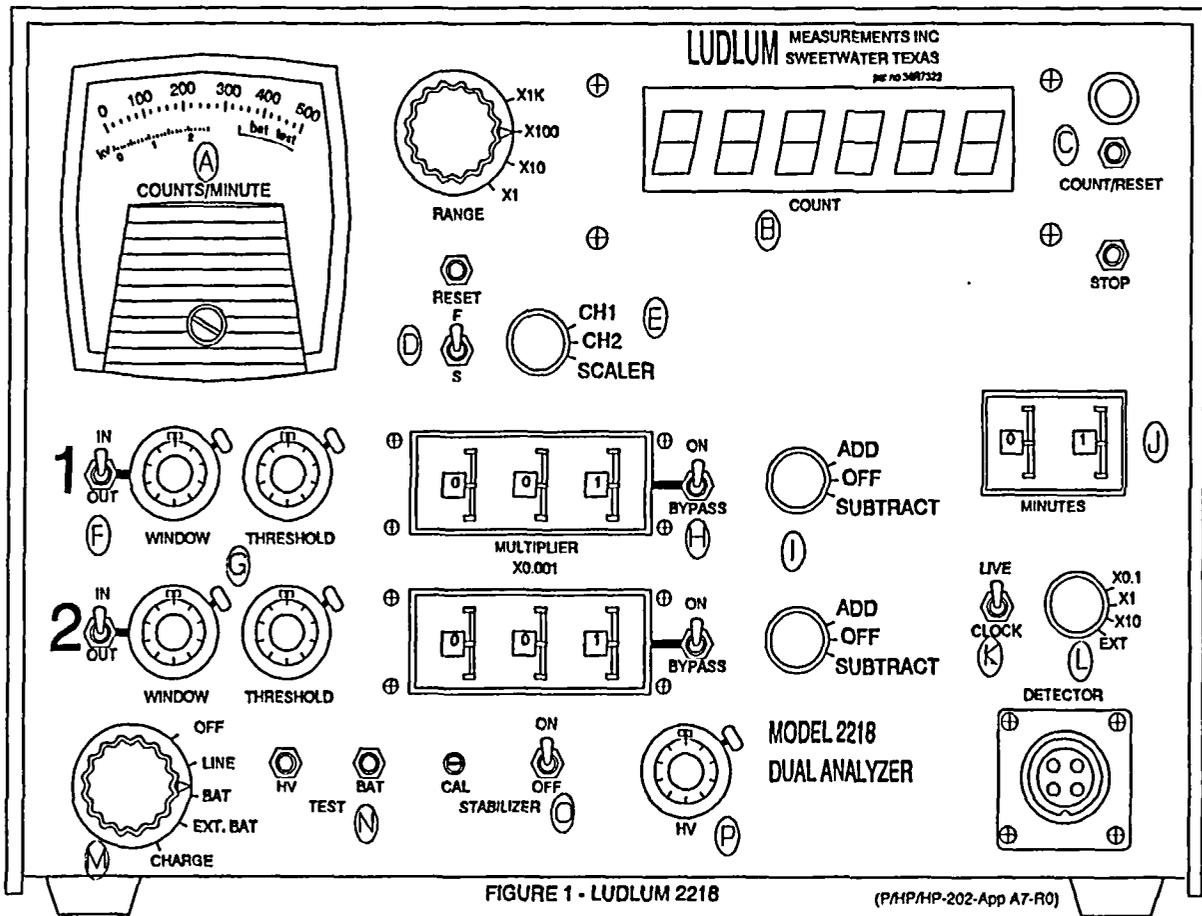
Net Counts per Minute = \_\_\_\_\_

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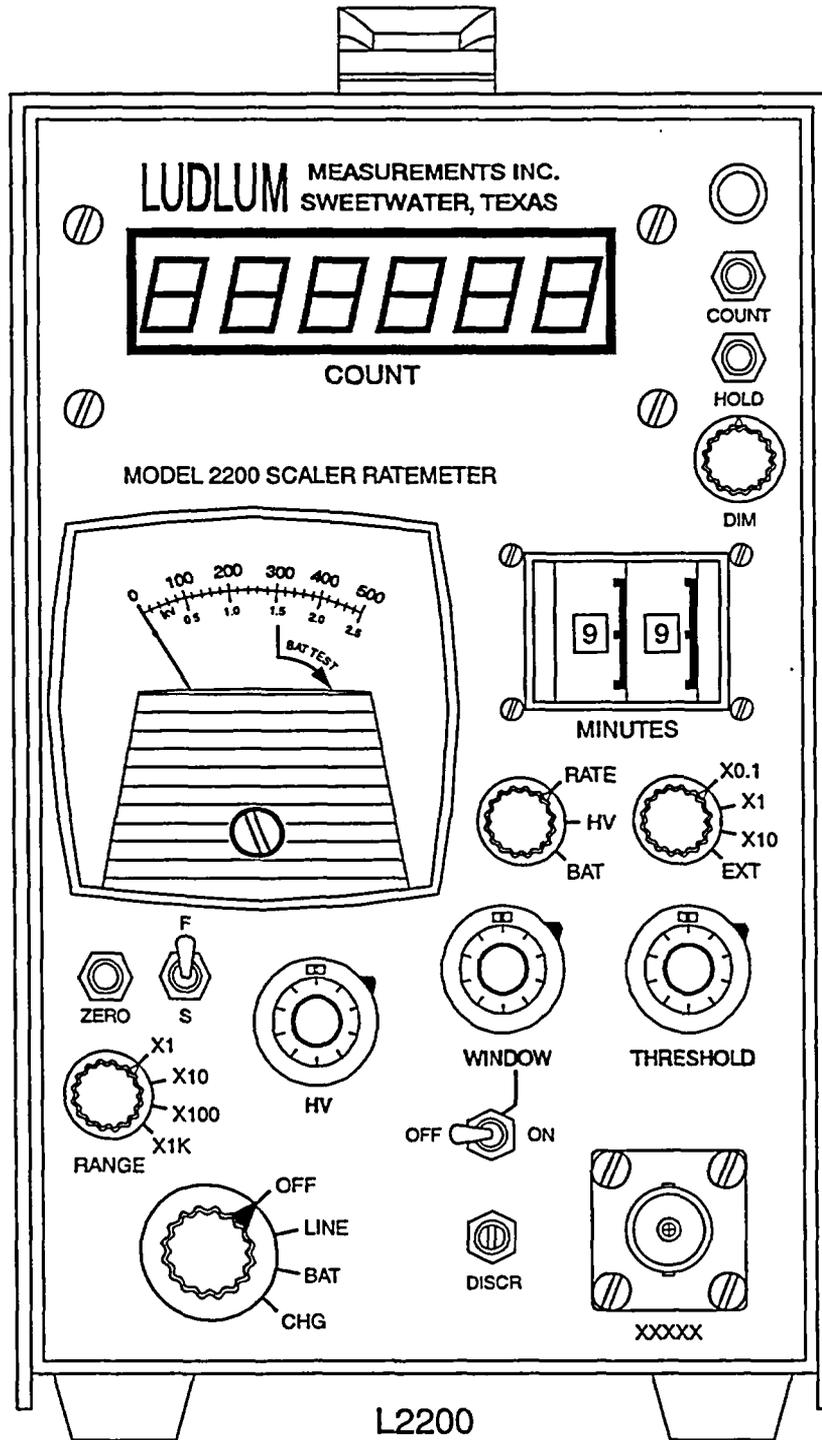
L2218

FIGURE 1 - LUDLUM 2218

(P/HP/HP-202-App A7-R0)

Battery Check	HV Adjustment	Count Verification	Operational Check (Ch1) Operation
M - set to "BAT"	L - set to "EXT"	L - set to "X1"	O - toggle to "OFF"
N - depress test button to check battery condition	C - depress button to start count	C - depress button to start count	1 - Ch1 to "ADD;" Ch2 to "OFF"
A - Indicates battery condition on "BAT TEST" scale	P - adjust voltage	B - compare counts with acceptance range for the Instrument	H - toggle to "BYPASS" for Ch1 and Ch2
	A - observe maximum count rate		G - Ch1 set WINDOW and THRESHOLD in accordance with settings on side of Instrument; Ch2 set WINDOW and THRESHOLD to "10.0"
			F - toggle to "IN" for Ch1 and "OUT" for Ch2
			L - set to "X1"
			K - toggle to "LIVE"
			D - toggle to "S"
			E - set to "SCALER"
			J - set to "01" for check set to "05" for sample count
			C - depress button to start count

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OPERABILITY INSTRUCTIONS  
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Operating Instructions for the Motorola Spectra Radio  
(continued)

**To Edit a Scan List:** Hold [Scan] until a beep sounds and the scan indicator blinks. Then,

- (1) Use [Mode] to select the mode you want to program.
- (2) Press [Sel] to add or to remove the displayed mode to the scan list. Repeat these steps to add to or change the list as desired. Then press [Home].

**To Select Scan Mode Priority:** When editing a Priority Scan list, you may designate two of the modes as priorities by pressing the [Sel] button as indicated below. When priorities are set, press [Home] to end scan list selection.

Press [Sel]	Assigns Mode to	Indicator
1 Time	Non-Priority	NPRI Lights
2 Times	Second Priority	PRI Lights
3 Times	First Priority	PRI Blinks

**NOTE**

The radio should be turned off whenever the engine is off to avoid draining the vehicle battery.

**GENERAL SAFETY INFORMATION**

The United States Department of Labor, through the provisions of the Occupational Safety and Health Act of 1970 (OSHA) has established an electromagnetic energy safety standard that applies to the use of this equipment. Proper use of this radio will result in exposure below the OSHA limit. The following precautions are recommended:

- DO NOT operate the transmitter of a mobile radio when someone outside the vehicle is within two feet (0.6 meter) of the antenna.
- DO NOT operate the transmitter of a fixed radio (base station, microwave, the rural telephone RF equipment) or marine radio when someone is within two feet (0.6 meter) of the antenna.
- DO NOT operate the transmitter of any radio unless all RF connectors are secure and any open connectors are properly terminated.

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**APPENDIX A**  
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Operating Instructions for the Motorola Spectra Radio  
(continued)

**GENERAL SAFETY INFORMATION**  
(continued)

- DO NOT operate this equipment near electrical blasting caps or in an explosive atmosphere.
- All equipment must be properly grounded according to Motorola installation instructions for safe operation.
- All equipment should be serviced only by a qualified technician.

Refer to the appropriate section of the product service manual for additional pertinent safety information.

**INSTALLATION SAFETY WARNING**

Consider the occupants' safety when you choose a location for the radio. Do not mount the radio overhead or on a sidewall unless you take special precautions.

If someone were to remove the radio and fail to replace it properly, road shock could bump the radio loose and the falling radio could, in some circumstances, cause serious injury to the driver or a passenger. In a crash, even when properly installed, the radio could break loose and become a dangerous missile.

If you must mount the radio overhead or on a sidewall, give it the added protection of a retaining strap.

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Operating Instructions for the Motorola Spectra Radio  
(continued)

**OPERATIONAL SAFETY WARNINGS**

**WARNING**

- For vehicles equipped with electronic anti-skid systems, see ANTI-SKID BRAKING PRECAUTIONS Publication, Motorola Number 68P81109E34.
- For vehicles equipped with electronic ignition systems, check the service manual for warnings about the use of two-way radio equipment in the vehicle.
- It is mandatory that radio installation in vehicles fueled by liquefied petroleum gas conform to the following standard:

National Fire Protection Association standard NFPA 58 applies to radio installation in vehicles fueled by liquefied petroleum (LP) gas with LP gas container in the trunk or other sealed-off space within the interior of the vehicles. This standard requires that:

1. Any space containing radio equipment shall be isolated by a seal from the space in which the LP gas container and its fittings are located.
2. Remote (outside) filling connections shall be used.
3. The container space shall be vented to the outside.

**END OF APPENDIX A**

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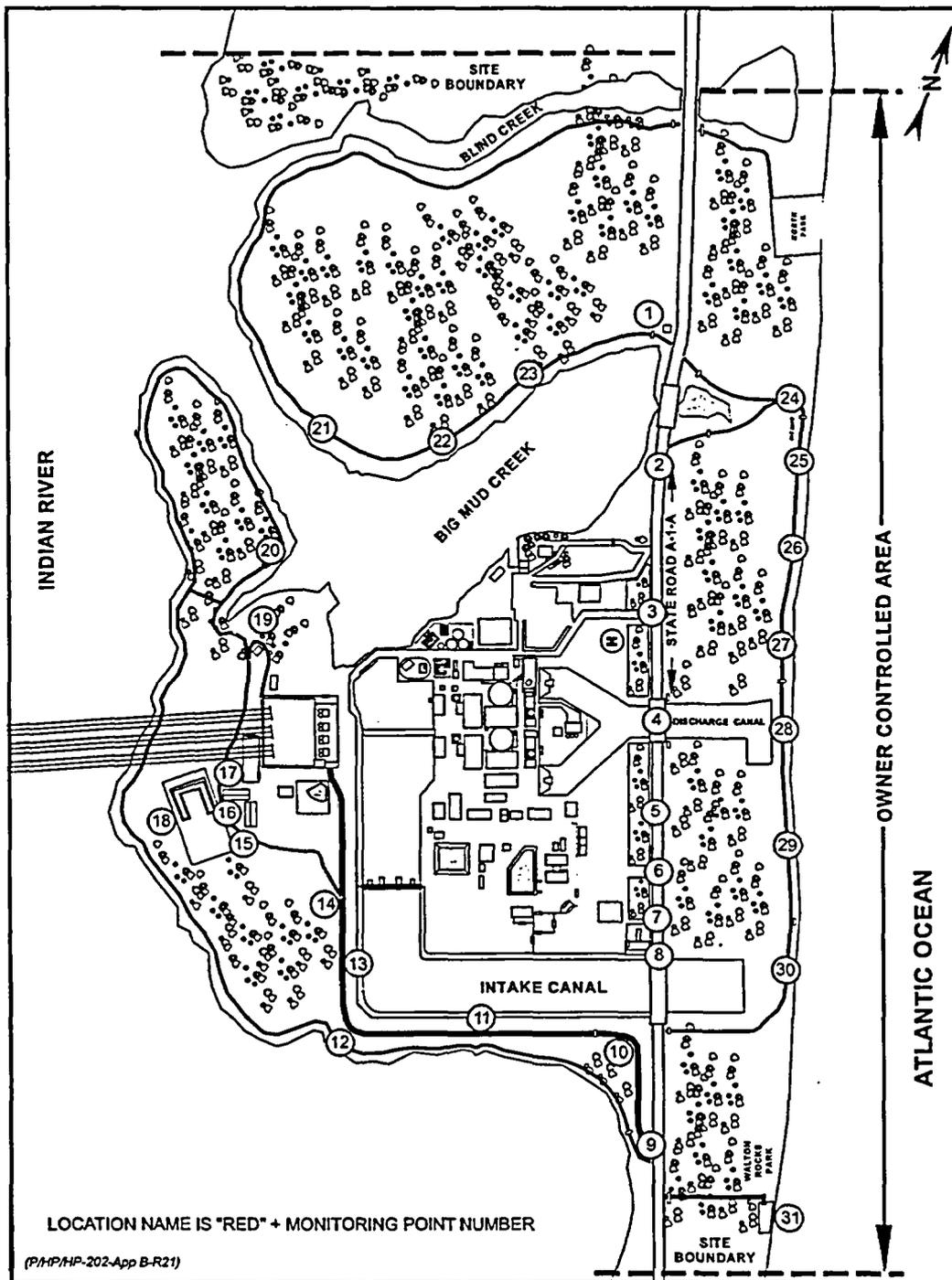
PROCEDURE TITLE:

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**APPENDIX B**  
**PRESELECTED ON-SITE MONITORING POINTS**  
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**APPENDIX B**  
**PRESELECTED ON-SITE MONITORING POINTS**  
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<u>MONITORING POINT</u>	<u>LOCATION</u>	<u>DISTANCE FROM PLANT (MILES)</u>	<u>EPZ SECTOR</u>
Red-1	Met Tower, Site Assembly Sta.	0.5	A
Red-2	Gate A & Rte A1A	0.3	B
Red-3	Gate B & Rte A1A	0.25	B
Red-4	Discharge Canal Bridge @ Rte A1A	0.2	D
Red-5	Due east of the East Security Building at Rte A1A	0.25	E
Red-6	Gate D & Rte A1A	0.3	F
Red-7	Gate E & Rte A1A	0.33	F
Red-8	Gate F & Rte A1A (north side of intake canal)	0.45	G
Red-9	Gate G & Rte A1A	0.6	G
Red-10	Ball Park Road (first north to westbound corner)	0.5	G
Red-11	Ball Park Road (@ mile marker on berm)	0.46	G, H
Red-12	Ball Park Road (@ corner turning north)	0.5	H, J
Red-13	Ball Park Road (post in berm, midway between monitoring points Red 12 & 14)	0.38	J
Red-14	Ball Park Road (@ left turn towards Gun Range / Picnic Pavilion)	0.3	K
Red-15	Gate W-25 (east side of Gun Range)	0.4	L
Red-16	Picnic Pavilion	0.33	L
Red-17	Intersection of Boat Ramp turnoff & road to Fire Training Area	0.32	L

/R30

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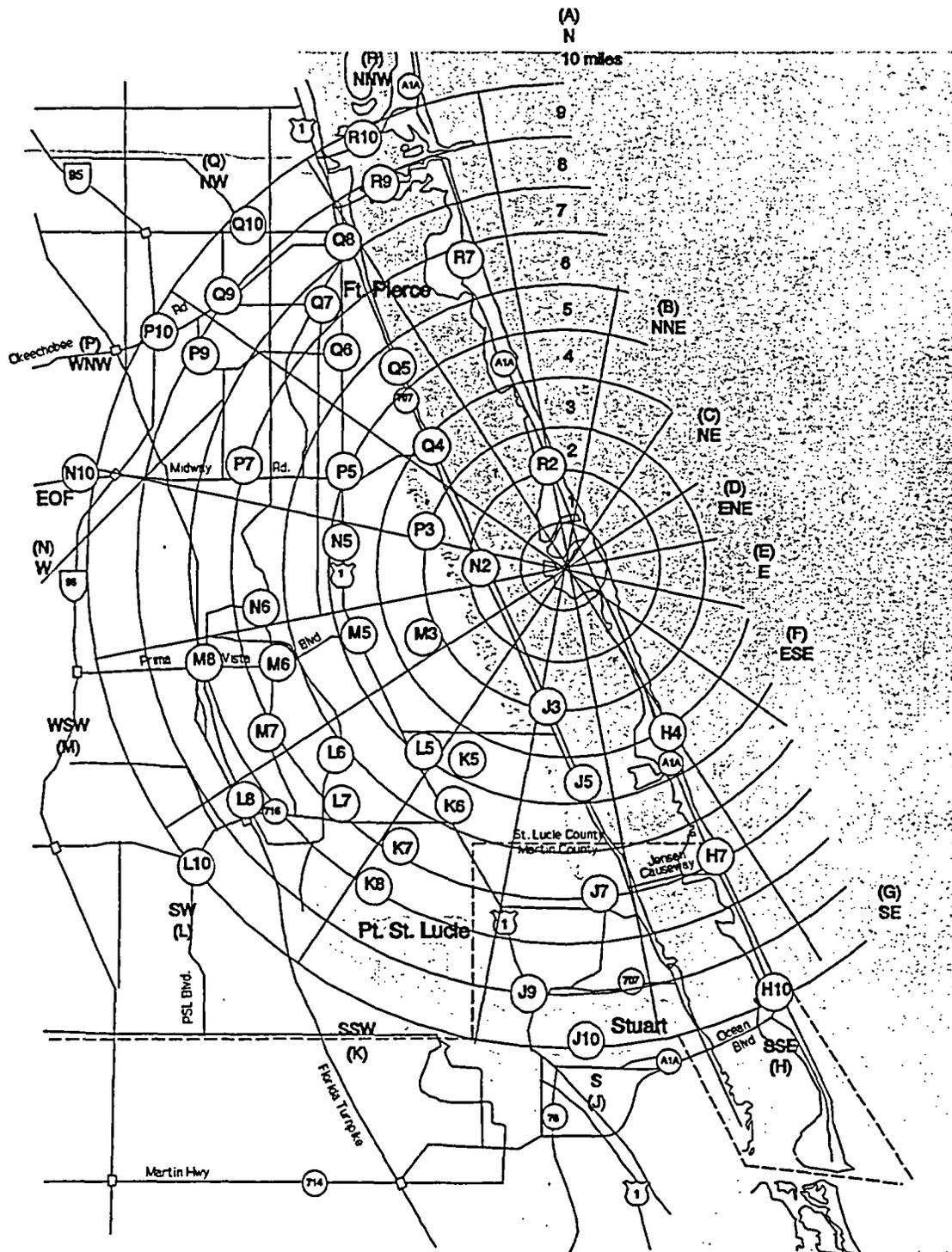
**APPENDIX B**  
**PRESELECTED ON-SITE MONITORING POINTS**  
(Page 3 of 3)

<u>MONITORING POINT</u>	<u>LOCATION</u>	<u>DISTANCE FROM PLANT (MILES)</u>	<u>EPZ SECTOR</u>
Red-18	Gate W-26 (west side of Gun Range)	0.5	L
Red-19	Boat Ramp	0.36	M, N
Red-20	Fitness Trail (@ .5 mi. sign)	0.5	N
Red-21	Road, north side of Big Mud Creek (opposite Boat Ramp)	0.35	P
Red-22	Road, north side of Big Mud Creek (opposite City Water Storage Tanks)	0.30	Q
Red-23	Road, north side of Big Mud Creek (opposite Barge Slip)	0.4	R
Red-24	Turtle Beach Parking Lot	0.62	B
Red-25	Large foot bridge	0.54	B, C
Red-26	Small foot bridge	0.51	C
Red-27	Concrete power pad	0.5	C
Red-28	Discharge Canal Header	0.5	D
Red-29	Halfway between Discharge & Intake Canal Headers	0.52	E
Red-30	Intake Canal Header	0.6	F
Red-31	Walton Beach entrance road (@ fork in the road)	0.8	G

**END OF APPENDIX B**

**APPENDIX C**  
**PRESELECTED OFF-SITE MONITORING POINTS**

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(P/HP/HP-202-App C-R0)

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**APPENDIX C**  
**PRESELECTED OFF-SITE MONITORING POINTS**  
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Monitoring Point	Location	Distance From Plant	EPZ Sector
R2	S.R. A1A, NNW of plant site (Little Mud Creek Bridge)	2.3	R
R7	Intersection S.R. A1A and Clipper Blvd. (Entrance to Ocean Village)	6.7	R
R9	S.R. A1A, NNW of plant site (West of Fire Dept. at Siren)	8.6	R
R10	East side of North Bridge (S.R. A1A)	9.6	R
Q4	Intersection of Indian River Dr. (S.R. 707) and White Rd., East of White City and South of Fort Pierce	3.7	Q
Q5	Intersection of Indian River Dr. (S.R. 707) and Rio Vista Dr.	5.4	Q
Q6	Intersection of U.S. 1 and Edwards Rd. (S.R. 611.B), South side of Ft. Pierce near railroad crossing	6.4	Q
Q7	Intersection of Oleander Blvd. (S.R. 605) and Virginia Ave.	7.4	Q
Q8	Intersection U.S. 1 and Delaware Ave.	8.1	Q
Q9	Intersection of Okeechobee Rd. (S.R. 70) and Hartman Rd. (S. 41st St.) (near siren)	9.1	Q
Q10	Intersection of Orange Ave. (S.R. 68) and Angle Rd.	9.6	Q
P3	Intersection of Bartow St. and Yucca Dr.	3.2	P
P5	Intersection of U.S. 1 and Midway Rd. (S.R. 712), White City	5.2	P
P7	Intersection of Midway Rd. (S.R. 712) and Christianson Rd. (at siren)	7.1	P
P9	Intersection of McNeil Rd. and Edwards Rd. (611B)	8.7	P
P10	Intersection of Okeechobee Rd. (S.R. 70) and I-95	9.7	P
N2	S.R. 707 West of plant site (at siren)	2.0	N
N5	Intersection of U.S. 1 and Saeger Rd. (south of White City)	4.8	N
N6	Intersection of St. James Dr. and Airoso Blvd.	6.4	N
N10	St. Lucie's EOF, Intersection of S.R. 712 and I-95	10.2	N

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**APPENDIX C**  
**PRESELECTED OFF-SITE MONITORING POINTS**  
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Monitoring Point	Location	Distance From Plant	EPZ Sector
M3	East end of N. Mediterranean Blvd.	3.4	M
M5	Intersection of U.S. 1 and Prima Vista Blvd., Port St. Lucie	4.8	M
M6	Intersection of Prima Vista Blvd. and Airoso Blvd.	6.5	M
M7	Intersection of Airoso Blvd. and Whitmore Dr.	7.3	M
M8	Intersection of Prima Vista Blvd. and Bayshore Blvd.	7.8	M
L5	Intersection of U.S. 1 and Walton Rd., Port St. Lucie	4.8	L
L6	Intersection of Floresta Dr. and Thornhill Dr.	6.4	L
L7	Intersection of Whitmore Drive and Port St. Lucie Blvd.	7.2	L
L8	Intersection of Port St. Lucie Blvd. and Fla. Turnpike	8.4	L
L10	Intersection of Port St. Lucie Blvd. and Cairo Ave.	10	L
K5	Intersection of Lennard Rd. and Blossom Rd.	4.7	K
K6	Intersection of U.S. 1 and Port St. Lucie Blvd., Port St. Lucie	5.7	K
K7	Intersection of Morningside Blvd. and Westmoreland Blvd.	7.1	K
K8	Intersection of Morningside Blvd. and River Vista Dr.	8.0	K
J3	Intersection of Walton Rd. and Indian River Dr. (S.R. 707)	3.4	J
J5	Intersection of Indian River Dr. (S.R. 707) and Mockingbird Hill Rd. (near siren)	4.7	J
J7	Intersection of Jensen Beach Blvd. (S.R. 707A) and Savannah Rd. (S.R. 723)	7.0	J
J9	Intersection of Wright Blvd. and U.S. 1	9.2	J
J10	Martin Memorial Hospital	10.0	J
H4	S.R. A1A, south of plant (at siren) North to entrance to Nettle's Island	4.0	H
H7	Intersection of S.R. A1A and the Jensen Beach turnoff (A1A Alt.) (at siren)	6.9	H
H10	Intersection of S.R. A1A and Ocean Blvd. (Elliot Museum)	9.8	H

**END OF APPENDIX C**

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**HP 202.1**  
**ENVIRONMENTAL AIRBORNE ACTIVITY CALCULATION FORM**  
(Page 1 of 1)

1. \* Team \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_ Time \_\_\_\_\_
2. \* Location \_\_\_\_\_
3. \* Radiation Survey: Window Open \_\_\_\_\_ mrem / hr  
Window Closed \_\_\_\_\_ mrem / hr
4. Air Sample Volume:  
Sample Start Time \_\_\_\_\_ Sample Stop Time \_\_\_\_\_  
Starting Flow Rate \_\_\_\_\_ CFM Ending Flow Rate \_\_\_\_\_ CFM  
Average Flow Rate \_\_\_\_\_ CFM Sample Time \_\_\_\_\_ Min  
Sample Volume = Average Flow Rate (CFM) X Sample Time (Min)  
= \_\_\_\_\_ CFM X \_\_\_\_\_ Min = \_\_\_\_\_ Cubic Feet

**NOTE**  
In the event radioiodine (I-131) analysis cannot be done in the field, the TSC HP Supervisor will provide for the transport of air samples to the plant site for analysis.

5. Background Count Rate = Background Counts / Count Time  
= \_\_\_\_\_ counts / \_\_\_\_\_ Min = \_\_\_\_\_ BKG cpm
6.  $MDCR = BKG \text{ cpm} + 4.66 \sqrt{\frac{BKG \text{ cpm}}{BKG \text{ Count Time}}}$  = \_\_\_\_\_ MDCR (cpm)
7. Gross sample count rate (GCPM) = Gross counts / Count Time  
= \_\_\_\_\_ counts / \_\_\_\_\_ min  
= \_\_\_\_\_ GCPM
8. If "GCPM" is less than "MDCR", Then I-131 activity is "<MDA" (less than detectable).
9. Net Count Rate (NCPM) = GCPM - Bkg cpm  
NCPM = \_\_\_\_\_ GCPM - \_\_\_\_\_ BKG cpm  
NCPM = \_\_\_\_\_
10. I-131 activity ( $\mu\text{Ci/ml}$ ) =  $\frac{(\text{NCPM})}{(2.63 \text{ E} + 09)(\text{sample volume, Ft}^3)}$
11. \* I-131 activity = \_\_\_\_\_  $\mu\text{Ci/ml}$
12. \* Plume Departure Time \_\_\_\_\_
13. \* Plume Stay Time: \_\_\_\_\_ minutes

Survey performed by \_\_\_\_\_  
**NOTIFY TSC OF ALL \* ITEMS**