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**PROGRESS ENERGY
CRYSTAL RIVER UNIT 3
PLANT OPERATING MANUAL**

EMERGENCY PLAN IMPLEMENTING PROCEDURE

EM-210B

**DUTIES OF THE RADIATION MONITORING TEAM:
ENVIRONMENTAL SAMPLING AND PLUME TRACKING**

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1.0 PURPOSE

- 1.1** Provides instructions for the Radiation Monitoring Team (RMT) performing environmental sampling and plume tracking in the event of a radiological emergency. [NOCS 13040]

2.0 REFERENCES

2.1 Developmental References

- 2.1.1** 10CFR50.47, Emergency Plans
- 2.1.2** 10CFR50, Appendix E, Emergency Planning and Preparedness for Production and Utilization Facilities
- 2.1.3** EM-104, Operation of the Operational Support Center
- 2.1.4** EM-210A, Duties of the Radiation Monitoring Team: CR-3 and Generating Complex Personnel and Area Monitoring
- 2.1.5** EM-219, Duties of the Dose Assessment Team
- 2.1.6** NGGM-PM-0002, Radiation Control and Protection Manual
- 2.1.7** NUREG 0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
- 2.1.8** Radiological Emergency Response Plan
- 2.1.9** RSP-101, Basic Radiological Safety Information and Instructions for Radiation Workers

3.0 PERSONNEL INDOCTRINATION

3.1 Definitions

- 3.1.1** **Environmental Survey Team (EST) Dispatcher** - Health Physics Supervisor or qualified Radiation Monitoring Team designee coordinating activities for the EST. The term "Dispatcher" is also used for this position.
- 3.1.2** **EST/RMT** - The portion of the RMT that tracks the plume and performs environmental sampling within the Crystal River Energy Complex and within the 10-mile Emergency Planning Zone (EPZ). RMT and EST will be used interchangeably throughout the procedure.
- 3.1.3** **ESV** - Environmental Survey Vehicle
- 3.1.4** **Plume Tracking** - Locating, tracking, and monitoring of radiological characteristics (e.g., dose rates and radioactivity levels) of airborne radioactive material.
- 3.1.5** **Qualified** - Successfully completed appropriate emergency team training and currently listed on Emergency Call Roster.

- 3.1.6 Radiation Controls Coordinator - Lead Technical Support Center (TSC)**
Chemistry or Radiation Protection designee directing Chemistry and Radiological assessment personnel and advising the Emergency Coordinator on these issues.
- 3.1.7 Team Leader -** A qualified, Radiation Monitoring Team member performing the lead responsibilities for the Environmental Survey Team.
- 3.2 Responsibilities**
- 3.2.1 The Emergency Coordinator (EC) or his designee:**
- o Authorizes exposure limits in excess of administrative limits.
 - o Ensures ALARA considerations are stressed.
 - o Seeks guidance from the Radiation Controls Coordinator, as required, on radiological matters.
 - o Approves Emergency Radiation Work Permit (RWP) and Emergency Team Authorization (ETA) forms in accordance with EM-104.
 - o Authorizes on-site and off-site plume monitoring.
 - o Directs EST to support State of Florida sampling team(s), if requested.
- 3.2.2 The Radiation Controls Coordinator or designee:**
- o Determines the need and makes recommendations to the EC about the feasibility of dispatching the (ESTs), based upon available radiological data and physical plant conditions.
 - o Provides the Dispatcher with any special instructions prior to the Team's departure.
 - o Keeps the Dispatcher appraised of current or changing conditions affecting the members of the EST.
 - o Relays the information provided by the Dispatcher to the EC.
- 3.2.3 The Dispatcher directs activities of the EST performing environmental sampling and plume tracking, either from the TSC or from the Emergency Operations Facility (EOF), in accordance with Section 4.1. The Dispatcher should be Dose Assessment Team qualified.**
- 3.2.4 The EST Leader and EST members perform environmental sampling and plume tracking and ensure implementation of this procedure.**
- 3.2.5 The EST Members collect, analyze and package samples obtained in the field, notifying the EST Leader or Dispatcher about any condition that could hamper the team's effort to track the plume (e.g., inadequate supplies, instrument malfunctions, etc.).**

3.3 Limits and Precautions

- 3.3.1 Drive safely and comply with traffic laws at all times.
- 3.3.2 The EST complies with the requirements of and follows the guidelines for exposure of emergency workers during re-entry activities as contained in EM-104.
- 3.3.3 EST members must be qualified - listed on current emergency roster.
- 3.3.4 An EST shall consist of at least two (2) persons.
- 3.3.5 Assessment of location and radiological characteristics of a plume or radioactive material is one factor for determination of emergency classification, determination of what (if any) protective action guides (PAGs) are being approached or exceeded, and to verify and supplement CR-3's other dose assessment capabilities. [NOCS 1592]
- 3.3.6 Wind shift caused by the sea breeze effect is one occurrence that can seriously affect the ability of the team to track the plume. This phenomenon usually occurs in the daylight hours during the months of March through October. A buildup of a line of heavy clouds or thunderstorms normally takes place at the point of the wind shift caused by the sea breeze.
- 3.3.7 A westerly wind could indicate a sea breeze. Visual aids (e.g., smoke, low cloud movement, etc.) may provide a means of detecting when and where this wind shift is occurring.
- 3.3.8 The team should consider exposure when trying to determine a plume's highest dose rate. Considerable exposure could be received looking for the "highest" gamma dose rate.
- 3.3.9 The RMT has no authority to evacuate personnel outside of the Owner-Controlled Area, except through specific instructions from the EC.
- 3.3.10 During count rate determination, if the given count rate is less than ½ background, do NOT calculate activity, call it background.

3.4 Equipment

- 3.4.1 Available Equipment:
 - o EST supplies as identified in HPP-409.
 - o Vehicle (ESV or backup). [NOCS 7450]
 - o Transceiver (plant radio) and batteries.
 - o Cellular phone taken to ESV.
 - o UHF, VHF radios.

4.0 INSTRUCTIONS

4.1 EST Dispatcher

4.1.1 Activation

4.1.1.1 REPORT to the TSC upon the declaration of an Alert, Site Area or General Emergency.

4.1.1.2 BADGE in at TSC/OSC Card reader.

4.1.1.3 NOTIFY Radiation Controls Coordinator of your arrival.

4.1.1.4 OBTAIN procedures as needed. (EM-104, EM-219)

4.1.1.5 VERIFY operability of communication.

4.1.1.6 OBTAIN Tampa Weather data as needed.

4.1.2 Operation

4.1.2.1 Upon direction from the Radiation Controls Coordinator, DETERMINE manpower needs and select qualified personnel to form the EST.

4.1.2.2 ENSURE EST members are listed on an Emergency Team Authorization form.

4.1.2.3 CONDUCT a pre-job briefing prior to the team's departure according to Enclosure 4 of EM-104.

4.1.2.4 NOTIFY the Radiation Controls Coordinator of teams' readiness to depart.

4.1.2.5 ESTABLISH contact with the EOF Field Team Dispatcher as needed for EST dispatch coordination.

4.1.2.6 ACT as communication liaison between the EST, the Radiation Controls Coordinator, the Dose Assessment Team and the EOF Field Team Dispatcher.

4.1.2.7 DIRECT the plume tracking activities with guidance from the Radiation Controls Coordinator and DAT in accordance with EM-219.

4.1.2.8 NOTIFY the EST Leader of current or changing conditions, especially meteorological.

4.1.2.9 ENSURE the EST Leader reports apparent conflicts with projected plume location and observed meteorological conditions.

4.1.2.10 PROVIDE information regarding the location and radiological conditions (e.g., dose rates and airborne radioactivity levels) of a plume or radioactive material to the Radiation Controls Coordinator.

4.1.2.11 ENSURE comparisons for field team measurements versus calculated dose rate estimates are completed in accordance with EM-219, Enclosure 1.

- 4.1.2.12 ENSURE copies of environmental survey results are maintained and transmitted to the EOF. [NOCS 13040, 24110]
- 4.1.2.13 ACT as communications backup if the EOF assumes direction of EST.
- 4.2 Environmental Survey Team Leader**
 - 4.2.1 PERFORM Team Leader responsibilities according to Enclosure 4 of EM-104.
 - 4.2.2 FILL OUT the ETA in accordance with the requirements of the ERWP and any instructions given at the pre-job briefing. (Refer to Enclosure 4 of EM-104).
 - 4.2.3 DIRECT plume monitoring and sampling beyond the site boundary until the State of Florida arrives on the scene and assumes this responsibility. [NOCS 1136, 6220]
 - 4.2.3.1 DIRECT plume monitoring and sampling activities within the Site boundary until authorization from the EC or EOF Director that the team is recalled.
 - 4.2.4 ENSURE the team takes Potassium Iodine (KI) tablets with them in case there is a need to take them, as directed by the Radiation Controls Coordinator.
 - 4.2.5 TRACK the EST's accumulative exposure.
- 4.3 EST Preparations (At TSC/OSC)**
 - 4.3.1 REPORT to Local Assembly Area (Health Physics 95' Control Complex) during an Alert declaration. Upon assignment to respond as an emergency team member, REPORT to the TSC/OSC and badge in.
 - 4.3.2 REPORT directly to the TSC/OSC for assignment during the declaration of a Site Area or General Emergency.
 - 4.3.3 FORM the EST as directed by the Radiation Controls Coordinator.
 - 4.3.4 OBTAIN keys for the ESV from the key locker in the Health Physics Office (95' Control Complex), Health Physics Calibration Lab, or the TSC/OSC Emergency Kit. A personal vehicle may be used as a back-up or second ESV. The additional Kit in the ESV should be left at the site for use in the back-up ESV. [NOCS 24290]
 - 4.3.5 OBTAIN survey instruments and both Global Positioning Satellite (GPS) units from the Emergency Kit in the TSC/OSC. CHECK batteries and CHANGE/REPLACE batteries as needed. [NOCS 24290]
 - 4.3.6 OBTAIN any additional supplies/equipment that may be needed and are NOT part of the supplies located in the ESV (e.g., SCBAs and spare bottles, counting system, count rate instrument, cell phone, etc.).
 - 4.3.7 IF radio transceiver(s) and spare battery(s) are NOT available in the ESV, THEN OBTAIN from TSC/OSC emergency supplies. [NOCS 24290]

- 4.3.8 DETERMINE operability of radiation instruments to be used and DOCUMENT calibration due dates below:

INSTRUMENT	CALIBRATION DUE DATE

- 4.3.9 USE efficiency values listed on Enclosure 1.

- 4.3.10 OBTAIN Electronic Dosimeters (EDs). [NOCS 13150]

NOTE

The Emergency RWP and Emergency Team Authorization (ETA) are defined in EM-104, Operation of the Operational Support Center.

- 4.3.11 ATTEND pre-job briefing and ENSURE the Emergency RWP and ETA is filled-out and signed-in accordance with EM-104.
- 4.3.12 DON protective clothing, if required, in accordance with the Emergency RWP and ETA.

4.4 Team Preparations (At ESV)

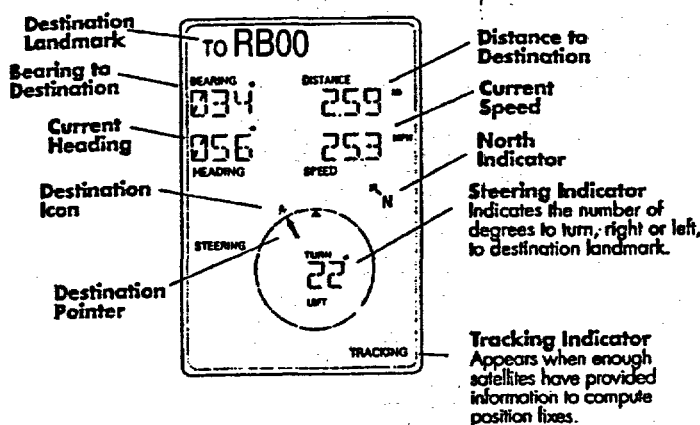
4.4.1 PROCEED to ESV.

4.4.2 DEPRESS power switch to turn on GPS unit.

4.4.2.1 WHEN (3) satellites are located (approximately 2-3 minutes), AND a position fix is computed; the word "TRACKING" is displayed in lower right corner indicating the receiver is computing position fixes.

4.4.2.2 DEPRESS "GOTO". Using the arrows touchpad, LOCATE landmark "RB00" and PRESS "Enter". This is the landmark with the Reactor Building center line coordinates.

Navigation Screen with an Active Route
(Steering)



4.4.2.3 DEPRESS "NAV". The unit is now displaying a moving compass with Bearing (back to RB), Heading (where you are), Distance (away from RB), and Speed (walking, driving).

4.4.2.4 LEAVE one GPS unit in the computing position until a sample has been taken. The back-up unit can be powered down or left in the TRACKING mode.

4.4.2 DON protective clothing in accordance with the ETA (if NOT performed earlier).

4.4.3 NOTIFY Environmental Survey Dispatcher of readiness to depart.

4.5 Plume Tracking and Sample Collection [NOCS 1126, 6220, 7450, 13040]

NOTE

An Environmental Survey Team map may be used for plume tracking and locating pre-designated monitoring points.

4.5.1 PROCEED to area specified by the Dispatcher.

NOTE

An E-120 or equivalent instrument as determined by Health Physics Technician may be necessary to detect very small releases.

4.5.2 MONITOR beta and gamma dose rates en route to the designated area. Dose rates above background could indicate:

- o Outer fringes of the plume have been reached.
- o Plume is overhead.
- o Plume was in area and has deposited sufficient amounts of radioactive materials so that dose rates are elevated.

4.5.5 IF elevated dose rates are located in other than the designated plume area, THEN DOCUMENT on map (Enclosure 2 or Enclosure 3) or on an environmental survey map (available in ESV Kit), AND REPORT this information to the Dispatcher for evaluation. (These locations may be chosen as collection sites for environmental samples by the State of Florida.)

4.5.4 Upon arrival at the designated area, LOCATE the fringe of the plume by continuously monitoring dose rates with an ion chamber (open window) or E-120.

4.5.5 CONTACT the Dispatcher for further instructions if dose rate readings do NOT indicate that the plume is in the vicinity.

4.5.6 IF the encountered dose rates exceed the limits set, THEN RETURN to an area of lower radiation levels, AND EVALUATE alternatives with the Dispatcher.

4.5.7 LOCATE the highest dose rate after the fringe has been identified by traversing the area, as directed by the Dispatcher. Continuously monitor the dose rates, using an ion chamber (window closed).

4.5.8 OBTAIN a closed and open window reading using the ion chamber at the highest dose rate area identified in Step 4.5.6 and perform the following:

- o RECORD time and dose rates on Enclosure 4. Distances and sectors for pre-designated sample locations are listed in Enclosure 5 for outside the Energy Complex as references.

- o SUBTRACT the closed window (gamma) reading from the open window (beta, gamma) reading.
- o If there is **NO** significant difference, this indicates that the plume is overhead. CONTACT the Dispatcher for further instructions.
- o If there is a significant difference, this indicates that the plume is at ground level.

NOTE

Silver Zeolite cartridges must be used if available. [NOCS 13040] Air sample volume should be at least 12 cubic feet.

- 4.5.9 After the highest dose rate of the plume has been identified, **PERFORM** the following:
- o COLLECT a small number of 100 cm² smears on horizontal surfaces. If dose rates are high, smears may be omitted.
 - o SET-UP the air sampling equipment and obtain a particulate and iodine air sample.
 - o USE GPS unit and RECORD distance (from RB landmark) and Heading (direction of travel in degrees) on Enclosure 4. The Dispatcher can calculate your location by subtracting 180 degrees from your heading.
 - o DEPRESS "MARK" on GPS unit once and RECORD the GPS coordinates, degrees and approximate location by known landmark (e.g., 4&5 Cooling Towers).
- 4.5.10 MOVE to a low dose area and NOTIFY dispatcher of GPS information. [NOCS 13210] STAY in low dose area until the specified air sample volume has been obtained. If possible, try to keep the flashing light in sight which indicates proper generator operation.
- 4.5.11 RETURN to the sample collection point and retrieve equipment. NOTIFY the Dispatcher if dose rates have varied.

NOTE

Samples are counted in the lowest available background area for statistical accuracy.

- 4.4.12 IF the count rate is less than ½ background, THEN DO NOT calculate activity, AND call the activity background.
- 4.5.13 DETERMINE a low background counting station near the specified area.
- 4.6 **Sample Analysis**
- 4.6.1 Upon arrival at the designated counting station, TAKE any necessary precautions to ensure counting station equipment remains as contamination free as possible.

NOTE

Background must be less than 1000 cpm so that the minimum detectable activities (MDAs) of $1.0 \times E-9$ uCi/cc for gross particulates and $1.0 \times E-7$ uCi/cc for gross iodine can be obtained. [NOCS 7461, 24290]

- 4.6.2 RUN a one-minute background on the counting system. See Enclosure 1, Formulas and Instrumentation Data Sheet.
- 4.6.3 ANALYZE samples collected using normal counting techniques and report results to the Environmental Survey Dispatcher.
- 4.6.4 IF sample is >5 mRad/hr smearable, THEN CONSIDER storage of smear in lead lined metal box located in the ESV.
- 4.6.5 RETAIN all used filters in envelopes (available in the emergency kits) for precise laboratory analysis. LABEL samples with as much information as possible (time, location, weather conditions, etc.).
- 4.6.6 LOAD counting equipment in ESV for transport.

4.7 Vehicle Decontamination

NOTE

The EST Leader, in conjunction with the Environmental Survey Team Dispatcher, decide at what point ESV contamination levels will begin to hinder plume tracking activities or cause excessive exposure to the team, as noted in Section 4.6.

- 4.7.1 PERFORM a quick beta-gamma survey of the exterior of the ESV and the vehicle's air filter.
- 4.7.2 NOTIFY Dispatcher of vehicle contamination levels.
- 4.7.3 PROCEED as directed by Dispatcher to any county wash down station or return to the Crystal River Energy Complex for wash down of the ESV, if required.
- 4.8 Team Recall
 - 4.8.1 RETURN to the TSC/OSC or the EOF when notified by the Dispatcher.
 - 4.8.2 IF a physical turnover is made to the State of Florida representatives, THEN PROVIDE copies of surveys or other written information, keeping originals, AND OBTAIN a receipt from the State for anything exchanged.
 - 4.8.3 MAKE arrangements for the ESV to be surveyed, decontaminated and restocked in case needed again.
 - 4.8.4 NOTIFY the Dispatcher of any problems or when ESV has been readied for re-use.
 - 4.8.5 REPORT total exposure received by the EST members to Dosimetry located in the TSC/OSC (internal and external) and UPDATE Emergency Team Authorization form.

4.8.6 INFORM the EST Dispatcher of your availability.

4.9 **Documentation**

4.9.1 FORWARD documentation and surveys created as a result of this procedure to the OSC Health Physics Coordinator in the OSC. Care must be taken to ensure the documents are free from contamination before transmittal. Contaminated documents must be bagged, copied, and the originals discarded as radioactive waste. The copies must then be marked "ORIGINALS CONTAMINATED."

FORMULAS AND INSTRUMENTATION DATA SHEET

[NOCS 13150]

FORMULAS:

$$\mu\text{Ci/cc} = \frac{\text{Gross CPM} - \text{Background CPM}}{\text{Volume (cc)} \times \text{Detector Eff.} \times \text{FCE} \times 2.22 \text{ E6 (DPM}/\mu\text{Ci)} \times \text{Y.F.}}$$

$$\text{dpm} = \frac{(\text{Net cpm})}{(\text{Eff.})}$$

$$\text{Net cpm} = \text{Gross cpm} - \text{Background cpm}$$

$$\text{Volume cc} = \text{Volume ft}^3 \times 2.832 \text{ E4 cc/ft}^3$$

$$\text{Y.F.} = 1.19 \text{ for SAM - II use only}$$

(Accounts for difference in yields Ba¹³³/I¹³¹)

FILTER COLLECTION EFFICIENCY (FCE)

FLOW RATE (CFM) *	SILVER ZEOLITE	CHARCOAL	PART. FILTER
1	.90	.90	.95
2	.90	.90	.95
3	.85	.80	.95
4	.80	.70	.95
5	.75	.60	.95

*Should use calibrated flow rates when possible.

EFFICIENCIES:

PART	MS-2	RM-14/E-120	SAM-II
IODINE	.20 .0015	.10 .0015	.03

$$\text{MDC}_{(\text{TSC})} = 1.96 \sqrt{\frac{C_B}{T_S} + \frac{C_B}{T_B}}$$

$$\text{MDC}_{(\text{ESV})} = 3\sqrt{C_B}$$

C_B = Background count rate cpm

T_S = Sample count-time min

T_B = Background count time min

THYROID DOSE FROM AIR SAMPLE RESULTS:

(based on 24 hour exposure)

$$\text{REM Thyroid} = (\text{I-131 } \mu\text{Ci/cc}) (2.88\text{E}+7 \text{ cc}$$

breathed/24 hrs) (1 REM/ μCi)

INSTRUMENT START-UPS:

MS-2

- o Power unit up – switch in back
- o Verify dial settings per calibration sticker
- o Ensure proper HP-210 probe used with SH-4 sample holder
- IF TSC: Run background (5 min. minimum) and calculate MDC.
- IF ESV: Run 1 minute background at each sample counting location and calculate MDC per simplified formula.
- o Response check detector

SAM-II

- o Ensure high voltage dial is set at zero prior to connecting detector and powering up unit.
- o Power unit up – switch in back.
- o Set switch and dial settings for CH-1 and CH-2 per cal sticker and label.
- o Increase H.V. gradually until original setting is reached or set per cal sticker.
- o Ensure BKG subtract produces BKG reading between 0 and 10 cpm. Adjust using CH-2 window dial.
- o Response check detector by placing CH-2 switch to (+). Return to (-) after indication of increasing counts.

RM-14/E-120

- o Check battery response
- o Response check detector
- o If used for air sample counting, use SH-4 sample holder for proper geometry

AMS-2/3

- o Power up – switch in front.
- o Inspect/change filter and response check detector.
- o Hook up and start RAS pump
- o Set/Verify flow to indicated value on flow meter.
- o Start chart recorder (if desired)

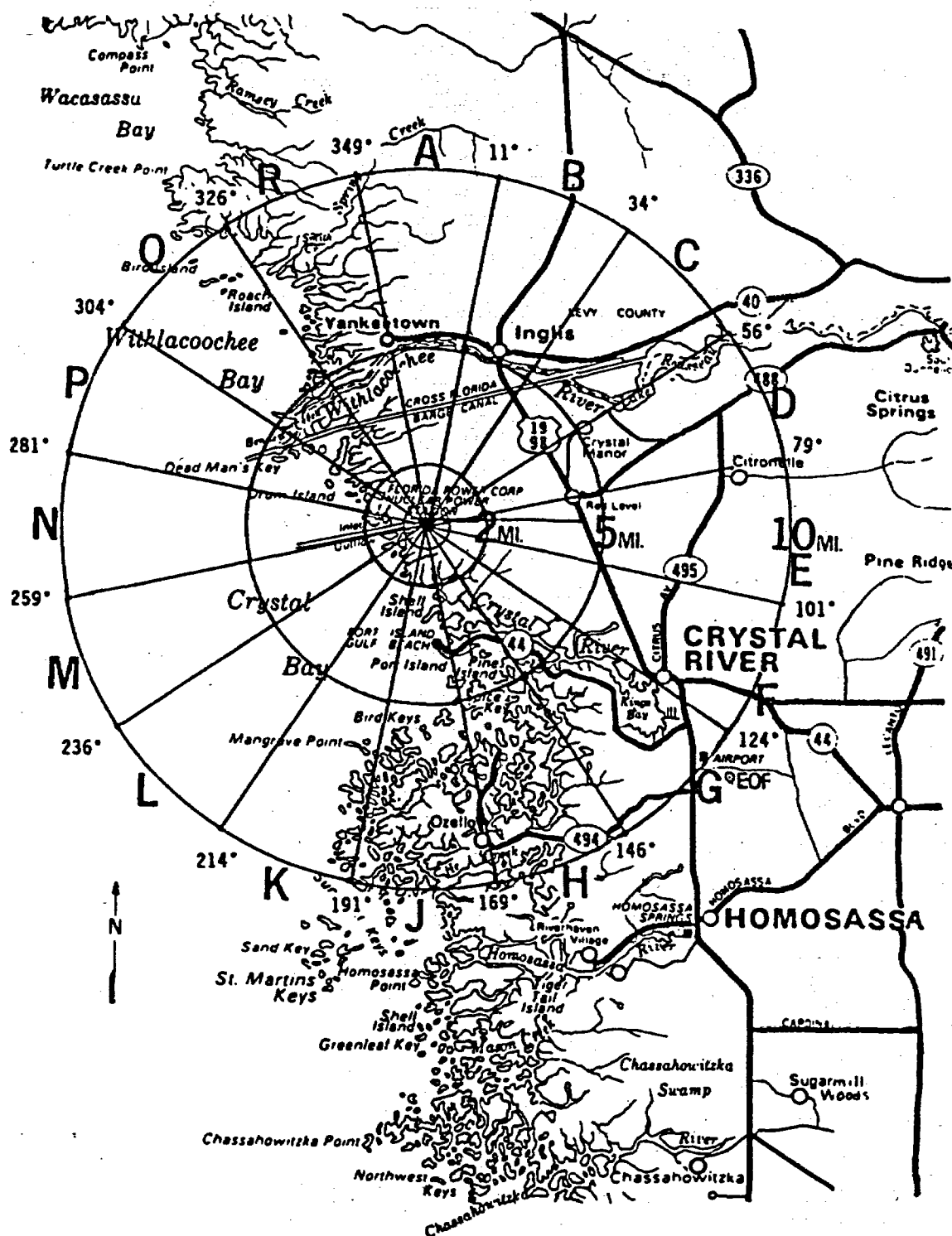
RO-20

- o Check batteries
- o Response check with source

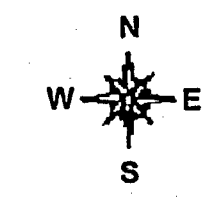
HUMB RULES: Dose rate can be estimated as follows: 20 mR/min for each R/HR.

CRYSTAL RIVER AREA MAP

ENCLOSURE 2



If available, utilize an "Environmental Survey Team" map for plume tracking and locating predesignated monitoring points.



ENVIRONMENTAL SURVEY TEAM
PREDESIGNATED SAMPLE POINTS (10 MILE EPZ)

<u>*DESIGNATION</u>	<u>LOCATION</u>	<u>DISTANCE FROM CR-3 (Air Miles)</u>
	CITRUS COUNTY:	
B-4	Intersection of U.S. 19 and Cross Florida Barge Canal.	4.5
C-6B	At Old Hydro Dam on N. Riverwood Dr. on Withlacoochee River.	6.4
D-4	On U.S. 19 Approx. 2.25 Miles North of Energy Complex Access Rd. at Entrance to Crystal Manor.	4.0
D-7	On S.R. 488 at Entrance to Holiday Heights Subdivision.	7.0
D-9	Intersection of S.R. 495 and S.R. 488.	8.8
E-4	Intersection of U.S. 19 and Energy Complex Access Rd. (Powerline St.).	4.4
E-7	On S.R. 495 at Shamrock Farm House Approx. 3 Miles North of U.S. 19.	7.4
E-8	Intersection of S.R. 495 and SCL Railroad Track.	7.6
F-5	Intersection of W. State Park St. and N. Sailboat Ave. Approx. 1.6 Miles From U.S. 19 at Southeast Corner of Hollingswood Ranch.	4.8
F-6	Intersection of U.S. 19 North and W. State Park St.	6.4
F-8	Downtown Crystal River at Intersection of U.S. 19 and S.R. 495.	7.8
F-10	Intersection of S.R. 44 East and S.R. 486.	10.0
G-5	Bridge Over Salt River on S.R. 44 West.	5.0
G-7A	End of Dixie Shores Dr. Off S.R. 44 West at The Islands Subdivision.	7.0
G-7B	Intersection of S.R. 44 West and W. Pine Bark Lane at Crystal Shores Subdivision.	7.0
G-9	Intersection of S.R. 44 West and U.S. 19.	9.0

*Designation provides sector & approximate distance from CR-3.

ENVIRONMENTAL SURVEY TEAM
PREDESIGNATED SAMPLE POINTS (10 MILE EPZ) (Continued)

<u>*DESIGNATION</u>	<u>LOCATION</u>	<u>DISTANCE FROM CR-3 (Air Miles)</u>
CITRUS COUNTY: (Continued)		
G-10A	Water Dept. Bldg. on S.R. 494 Approx. 1.5 Miles from U.S. 19.	9.8
G-10B	Intersection of U.S. 19 and W. Seven Rivers Drive at Crystal River-Homosassa Airport.	9.9
H-7	End of S.R. 494 at Ozello.	6.8
H-9	Intersection of S.R. 494 and John Brown Dr.	9.0
J-3	Fort Island Beach at End of S.R. 44 West.	3.4
LEVY COUNTY:		
A-5	Intersection of County Rd. 40 West and Riverside Dr.	5.0
A-7	Intersection of Butler Rd. (County 325) And Jordan Rd.	6.8
B-6	Intersection of County Rd. C-40-A and U.S. 19.	6.2
B-8	On U.S. 19 Approx. 2.5 Miles North of Inglis at Levy County Sheriff Station.	7.8
C-6A	Intersection of County Rd. 40 East and County 345.	5.5
C-10	Intersection of County Rd. 40 East and County 330 (Peaceful Acres)	9.8
Q-5	County Park at End of County Rd. 40 West.	4.8
R-4	On County Rd. 40 West Approx. 1.5 Miles From County Park.	4.8
R-5	Intersection of County Rd. 40 West And County Rd. C-40A	5.0

* Designation provides sector & approximate distance from CR-3.

REVISION SUMMARY for Rev 8 of EM-210B

September 2003

Procedure Section	Change and Reason
Throughout	Corrected NOCS references
Sect. 2.18	Replace Rad Protection manual to NGGM-PM-0002 and renumber accordingly to maintain alphabetical order.
Sect. 3.3.10 Sect. 4.5.12	Add limit and precaution and step that if the given count rate is less than ½ background, to not calculate the activity and call it background. PRR 92955
Sect. 3.4.1	Clarify cellular phone is taken to ESV PRR 92955
Sect. 4.3.4	Changed the location of the additional Survey Kit to the ESV, previously in the Security Operations Center. Added statement to leave 2 nd Kit on-site for use in backup ESV. PRR 92955
Sect. 4.3.5	Add to obtain both Global Positioning Satellite (GPS) units from the Emergency Kit in the TSC/OSC. Also add to check batteries and change/replaces as needed. PRR 92955
Sect. 4.3.6	Removed reference to full face respirators as they are no longer part of equipment and changed E-120 instrument to count rate instrument, to not tie HP to a specific instrument.
Sect. 4.3.7	Changed statement to ensure transceivers and spare batteries in vehicle or obtain from TSC/OSC emergency supplies. Currently there are 2 radios in ESV. PRR 92955
Sect. 4.3.9	Deleted to determine counting system efficiencies. Efficiency values listed on Encl. 1 is always used.
Sect. 4.3.10	Changed Self Reading dosimetry to Electronic Dosimetry. PRR 92955
Sect. 4.3.14	Deleted Step 4.3.14 to retain TLD badges. TLD badges are part of badges and are always with badge.
Sect. 4.4.2., 4.4.2.1 thru 4.4.2.4	New steps added for use of GPS unit. PRR 92955
Sect. 4.5.8	Remove the recording of distance and sector from first bullet. Will record distance and GPS coordinates instep 4.5.9 after sample location is determined. Removed reference to Enclosure 6. Energy complex location points are no longer used.
Sect. 4.5.9	Add two bullets to record distance from RB and Heading, and GPS Coordinates on Enclosure 4.
Enclosure 1	Deleted reference to RM-16 instrument – no longer used. PRR 92955
Enclosure 4	Deleted Sector, added GPS Coordinates (Latitude, Longitude, Degrees) and approximate location. Use of GPS provides exact location of where Environmental Survey Vehicle is taking samples
Enclosure 6	Deleted Enclosure 6. Site sample points are being replaced with GPS coordinates.