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SUBJECT: Forwards revised EPIPs,nuclear emergency response offsite procedures & revised "Nuclear Emergency Info Plan."

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July 18, 1989

U. S. Nuclear Regulatory Commission
Document Control Desk
Attn: Mr. Allen Johnson
PWR Project Directorate No. 1
Washington, D. C. 20555

Subject: Revisions to Emergency Plan Implementing Procedures, Nuclear Emergency Response Offsite Procedures and Nuclear Emergency Information Plan
R. E. Ginna Nuclear Power Plant
Docket No. 50-244

Gentlemen:

In accordance with 10 CFR 50.54, enclosed are revisions to Ginna Station Emergency Plan Implementing Procedures, Nuclear Emergency Response Offsite Procedures and Nuclear Emergency Information Plan.

Very truly yours,

Robert C. Mecredy
General Manager
Nuclear Production

Enclosures

xc: USNRC, Region I (2 copies)
Resident Inspector, Ginna Station

A095
1/1

ROCHESTER GAS AND ELECTRIC CORPORATION

Inter Office Correspondence

June 9, 1989

SUBJECT: Nuclear Emergency Response Offsite Procedures (NEORP) Revision 20

TO: Holders of Controlled Copies

Please update your manual as follows:

REMOVE	INSERT
Title Page	Title Page
ESP 2/4	ESP 2/4
2/6,7,8,9	2/6,7,8,9
3/1	3/1
4/3,4	4/3,4
Section 5	Section 5
6/1,2	6/1,2
7/4	7/4
11/1,2,3	11/1,2,3
15/1,2,5,6	15/1,2,5,6
16/2,3,4,5,6,7	16/2,3,4,5,6,7
17/2	17/2
20,20/1,2,Att I	20/1,2
21/1	21/1
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24/1,2,3	24/1,2,3
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David W. Burke
Corporate Nuclear Emergency Planner

as/dwb_neorp

ROCHESTER GAS AND ELECTRIC CORPORATION

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PROCEDURE NO. SC-323 REV. NO. 10

EMERGENCY OFF-SITE RADIATION SURVEY TEAMS

TECHNICAL REVIEW

PORC REVIEW DATE 9-2-87

Thomas A. Meyer
PLANT SUPERINTENDENT

9-10-87
EFFECTIVE DATE

QA X NON-QA _____ CATEGORY 1.0

REVIEWED BY: _____

THIS PROCEDURE CONTAINS 32 PAGES

Superseded Revised EPIPs Nuclear Emergency Response Procedures & Remedial Nuclear Emergency Support Plan Procedures
SD-244 #8707310144
W/LTR dtd 7/18/85

SC-323

EMERGENCY OFF-SITE RADIATION SURVEY TEAMS

1.0 PURPOSE:

1.1 The prime objective of the Emergency Off-Site Radiation Survey Teams is to rapidly survey areas downwind of the plant site in order to determine the extent and magnitude of any uncontrolled release of radioactive materials following an incident. It should be stressed that the initial off-site survey is of great importance. Decisions regarding the extent and types of protective actions required will be based upon data reported by the survey teams.

2.0 REFERENCES:

2.1 SC-421, Determination of Iodine or Particulate

2.2 SC-232 Voluntary Acceptance of Emergency Exposure

3.0 INSTRUCTIONS:

3.1 Obtain appropriate Off-Site Survey Team footlocker as directed by Tag Board assignment. If seal is broken, use equipment list inside footlocker to inventory equipment. Request the assistance of the Survey Center Manager in obtaining replacement equipment if necessary.

3.2 Obtain the following equipment which is not stored in footlocker.

3.2.1 Personal thermal luminescent dosimeter (TLD) for each team member.

3.2.2 One full-face mask with voice emitter and iodine filter for each team member.

3.2.3 One 0-500 mR dosimeter and one 0-5 R dosimeter for each team member. Sign-in on dosimeter log sheet.

3.2.4 Pack of 6 environmental TLD's from lead storage container.

3.2.5 Porta-Mobil II radio and magnetic mount car antenna.

3.2.6 RADECO H-809C Portable High Volume Air Sampler with filter holder.

3.2.7 RM-14 Radiation Monitor with HP-190 Probe.

3.2.8 Auto-Digimaster or RO-2 dose rate meter.

3.2.9 Low Volume Air Sampler with filter holder.

3.3 Complete the following items prior to departing on the assigned survey route.

3.3.1 Check operation of radio system, portable air sampler, radiation count rate monitor, and dose rate meter using equipment check-out procedures in Appendix I.

3.3.2 Obtain transportation and check vehicle for contamination by taking swipe survey or end window survey on the horizontal surfaces with an HP-190 probe and count rate meter. If survey indicates surface contamination of more than 250 CPM above background contact the Survey Center Manager for decontamination instructions.

3.3.3 Load survey equipment into vehicle, fill in Survey Team Status Board, and inform Survey Center Manager you are ready for departure. Obtain wind direction and speed data.

3.3.4 Log time, date, and survey team members on survey map.

3.3.5 Establish radio communications with Technical Support Center Radio Operator and advise of teams departure.

3.4 Perform radiation surveys using the appropriate instructions of Appendix II while following the Primary Survey Route instructions contained in Appendix III.

3.4.1 Do not enter areas where radiation levels are greater than 2 R per hour unless directed by a Health Physicist.

3.4.2 The dose limitation of the survey team is limited to 1 REM unless the Health Physicist or Emergency Coordinator authorizes a higher limit.

3.4.3 A one time dose limit of 75 REM may be used to save the life of an individual on a voluntary basis (SC-232).

3.4.4 A one time dose limit of 25 REM may be used to insure

equipment is operational or secured in order to prevent a greater possible hazard to the general public.

3.4.5 At each assigned survey point the team should report the following information to the Radio Operator:

-Location
-Completed Actions
-Results of Surveys
-Departure for next Survey Point

3.4.6 If radio contact cannot be made, report using a telephone. Call collect on one of these numbers.

GINNA	E.O.F.
315-524-4446	
315-524-4984	716-262-5798
315-524-4973	716-262-5799
716-546-7845	
716-546-4015	

3.4.7 Upon completion of Primary Survey Route inform radio operator at the Tech Support Center. The Dose Assessment Manager will assign an Alternate Survey Route or direct you to return to the Survey Center.

3.5 Full face masks with charcoal filters will be worn as directed by the Dose Assessment Manager. Potential internal contamination will be determined by a Whole Body Count after the survey.

3.6 Upon returning to the Survey Center perform a survey of team personnel for contamination. If any contamination greater than 100 CPM above background is found, contact the Survey Center Manager for decontamination instructions.

3.6.1 Conduct a survey of the vehicle for contamination. If any contamination greater than 250 CPM above background is found contact the Survey Center Manager for decontamination instructions.

3.6.2 Give all iodine filters, particulate filters, survey maps, and data records to Survey Center Manager.

3.6.3 Dispose of contaminated and potentially contaminated waste in an approved manner.

3.6.4 Restock, inventory, and seal Survey Team Equipment Footlocker, stow in an approved manner.

3.6.5 Return radio system, portable air sampler, radiation count rate meter, and dose rate meter to the Survey Team Room and place on charge as appropriate.

3.6.6 Return 0-500 mr and 0-5 R dosimeters and sign-out on dosimeter log sheet.

3.6.7 Fill out Survey Team Status Board and inform Survey Center Manager of teams return.

APPENDIX I

EMERGENCY OFF-SITE RADIATION SURVEY TEAM

EQUIPMENT CHECKOUT AND OPERATION

RADIO SYSTEM

The radio system consists of a hand-held radio and magnetic mount car antenna. To checkout and operate the system, complete the following steps.

Turn ON Radio.

1. Remove charger jack from lower side of the radio.
2. Turn the OFF-VOLUME control about half way to the right.
3. Turn the SQUELCH (SQ) control to the right as far as possible. A hissing sound will be heard from the speaker.
4. Adjust the VOLUME control until the hissing sound is easily heard but not annoyingly loud.
5. Turn the SQUELCH control slowly to the left until the hissing noise just fades out. This adjustment is very important, as it eliminates annoying noise when no one is calling you. It also determined how sensitive your radio will be to incoming calls.
6. In multi-frequency units, select the proper frequency. You are now ready to receive messages from other radios in your system.
7. If radio is to be used with car antenna see mounting instructions.

Mount Antenna on Car

1. Ensure the vehicles metal roof is free of ice and snow.
2. Hold the magnetic mount antenna in the palm of your hand with the antenna wire pointed towards the rear or the vehicle and the base of the mount at an angle of about 45 degrees to the vehicle roof.
3. Position the front edge of the mount in the approximate center of vehicle roof.
4. Lower the mount onto the vehicle roof. It will be held in place by the magnetic force.

* * * * * * * * * * * * * * * * CAUTION * * * * * * * * * * * * * * * *

DO NOT ATTEMPT TO MOVE THE ANTENNA BY SLIDING IT. YOU WILL SCRATCH THE SURFACE OF THE VEHICLE. ALWAYS REMOVE THE MOUNT BY LIFTING FROM THE REAR!

* * * * * * * * * * * * * * * * CAUTION * * * * * * * * * * * * * * * *

5. Route the antenna lead wire into the vehicle between the door jamb. With any amount of weather stripPing the lead should not be damaged.

6. Affix the lead wire near the head liner with a piece of tape.

   Insert the antenna connection plug into the side of the radio and tighten the locking screw in place. Do not remove the short antenna.

PROCEDURE

1. The general procedure for communicating on the radio should be as follows:

   a) Station called
   b) Red/Green/Orange Team
   c) Message
   d) "Over"

   During a drill or exercise all fictitious data will be preceded with the words "This is a drill...."

   Examples:

   "Tech Support Center, This is the Red team, at location number 1, Over"

   "Tech Support Center, This is the Green team, this is a drill, Results of the general area survey at location 36 are 6,500 counts per minute above background, Over"

2. To transmit, depress the push-to-talk switch on the microphone. Speak in a normal voice across the microphone.

3. To receive, release the push-to-talk switch.

4. There may be time that the TSC or EOF will be receiving communications from a team that you cannot hear. If this happens the Radio Operator will tell you to wait or standby. After he has completed his traffic he will ask you to transmit your information. Remember this is one big party line; everyone can't talk at once.

5. When you have been directed to secure your Survey Team, turn the radio off, disconnect the antenna plug from the radio and remove the magnetic mount antenna from the vehicle by lifting up at the rear of the mount.

6. Connect the radio to the charger located in the Survey Team Room at the Survey Center, and place the magnetic mount antenna on the bench.

RADECO H 809C HIGH VOLUME AIR SAMPLER

EQUIPMENT CHECK

1. Ensure power switch on air sampler is off.
2. Ensure battery charger is not plugged in and on the 12 volt position. Black and red clips of battery charger are not touching.
3. Connect air sampler power cables to the battery charger, RED clip to positive and BLACK clip to negative.
4. Plug in battery charger.
5. Turn power switch on air sampler on.
6. Check flow meter on air sampler. Flow meter should be off scale high with no filters in place.
7. Turn power switch on air sampler off.
8. Unplug battery charger and disconnect air sampler power cables.
9. Separate clips of battery charger and clamp onto cabinet.

EQUIPMENT OPERATION FROM VEHICLE

1. Ensure power switch on air sampler is off.
2. Connect BLACK power clip to vehicle ground (engine block, chassis, etc.) and RED power clip to positive post of vehicle battery.
3. Ensure the filter assembly contains a GY-130 silver zeolite cartridge and a particulate filter.
4. Turn air sampler on and record the sample date, time, location, and air flow rate (normal is 30 lpm) on a sample envelope.
5. Run sampler for approximately 10 minutes.
6. Record air flow rate of air sampler in lpm and time sampler turned off.
7. Turn air sampler off.

RM-14 RADIATION SURVEY METER

EQUIPMENT CHECK:

1. Disconnect power cord from back of meter taking care not to turn test switch on.
2. Ensure that an HP-190 probe is connected to the detector jack.
3. Turn range switch to battery. Meter should read in the "BATT-OK" area.
4. Perform instrument source check. Obtain source from safe and verify meter reading corresponds to attached card then log meter reading onto source check log.
5. Turn range switch off.

EQUIPMENT OPERATION:

1. Turn range switch to X1.
2. Place response switch in the "SLOW" position.
3. Adjust the volume control so that the audio indication (a click) can be heard.
4. The range switch should be adjusted such that the highest reading gives a mid-scale deflection.
5. All readings must be multiplied by the range switch setting (X1, X10, X100).
6. 2,200 CPM is approximately 1 mrem/hour. Maximum scale is 50,000 cpm or 23 mr per hour.
7. Upon completion of the survey turn the unit off and return to the Survey Team Room. Unit should be recharged before the next use.

AUTO DIGI-MASTER DOSE METER

EQUIPMENT CHECK:

1. Turn unit on to be sure that the digital display lights.

2. Perform instrument source check. Obtain source from safe and verify that meter reading corresponds to attached card then log meter reading into source check log.

EQUIPMENT OPERATION:

1. Allow unit to complete one cycle (display will blink) before reading when turning unit on or when radiation level changes significantly.

2. Unit will automatically change from one range to the next. The reading is always direct.

3. The Digi-Master may be used to detect the presence of Beta but cannot be used for dose measurement of Beta. Also, Beta detection is only effective when the unit is operating in the mrem/hour range.

   a. Take a reading with the Beta window closed and record.

   b. Take a reading with the Beta window opened and record.

   c. If the reading with the Beta window open is greater than the reading with the Beta window closed there is Beta radiation present.

   d. If a Beta dose rate is needed a survey with an RO-2 or equivalent instrument must be made.

4. Upon completion of the survey, turn off and return to the Survey Team Room. Unit should be recharged before the next use.

RO-2 DOSE RATE METER

EQUIPMENT CHECK

1. Turn the function selector switch to the "BATT 1" and "BATT 2" positions. Meter should indicate above the battery cut-off line.

2. Perform instrument source check. Obtain source from safe and verify that meter reading corresponds to attached card then log meter reading onto source check log.

EQUIPMENT OPERATION

1. Zero the meter by turning the function selector switch to "ZERO" and turning the "ZERO ADJ" knob as necessary. The zero adjust may be made in a radiation field by placing the function selector switch at "ZERO ADJ".

2. To measure the radiation field position the function selector switch to the lowest range which provides a mid-scale deflection of the meter.

3. With the Beta shield closed the meter will read the whole body Gamma dose rate.

4. To obtain a Beta dose rate measurement perform the following:

   CAUTION: The face of the beta window is very thin. Whenever the Beta shield is open, guard the shield against damage by puncture or contamination by dust or dirt.

   Take an area measurement with the Beta shield closed.

   b. Open the sliding Beta shield on the bottom of the case and take an area measurement.

   c. Subtract the closed shield reading from the open shield reading and multiply by the Beta correction factor marked on the instrument.

   d. This number is the Beta dose rate for that area.

5. When the survey is completed turn the function selector switch to OFF.

MODEL VAS-2 EARMARK "LOUD MOUTH" VOICE AMPLIFICATION SYSTEM

The "Loud Mouth" System is designed to provide voice amplification for individuals wearing respiratory protection devices.

Equipment Check:

A. Earmark Throat Microphone Model TM-1

1. Figure 1 (attached) shows the proper "at rest" position for the microphone. If it is necessary to reform the spring tension, hold the microphone, starting two inches behind the microphone head, between the thumb and forefinger and bend the cable small amounts while progressing down the cable until the end of the spring is felt. Check the diameter of the coil and repeat if necessary. Note that the microphone head should tilt up from a flat surface about 1/4 inch. If necessary, form the spring to give this dimension.

Equipment Operation:

A. Ensure microphone cable is securely connected to jack on voice amplifier.

B. The microphone is designed to be located on the right side of the throat (see figure 2). The microphone must lay flat on the neck and press firmly into the throat.

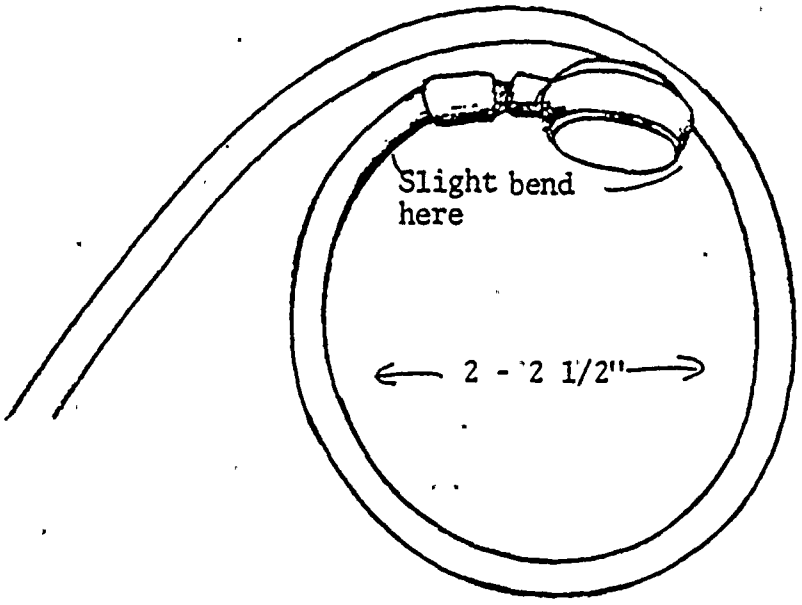
C. Securely fasten amplifier unit to belt.

D. To operate unit, turn volume control clockwise. Talk switch in up position is in standby mode. Slide switch to down position to talk. Adjust volume to desired level with volume control.

NOTE: When communicating through radio, telephone, etc., speak precisely. Keep speaker at least 12" from the throat mic. Keep the means of communication 12" from the throat mic. Hold the means of communication off to the side of the speaker. If any feedback is apparent, lower volume.

E. Turn unit off by turning volume control counter clockwise as far as it will turn. Leave talk switch in the standby position.

F. Batteries: A 9-volt Alkaline Battery is the required power source. The battery is located in the amplifier unit. To replace battery, remove cover plate to battery compartment. Pull plastic tab, remove and replace battery. Note: Small terminal (+) in first.



On a flat surface the mic should rest about 1/4" above said surface

When mic is laid on a flat surface it should form a circle 2 to 2 1/2" in dia. depending on user size. If it has been stretched to form a larger circle the inbuilt spring wire should be reformed to produce the diameters indicated.

This insures proper throat pressure for optimum sound quality.

Fig. 1

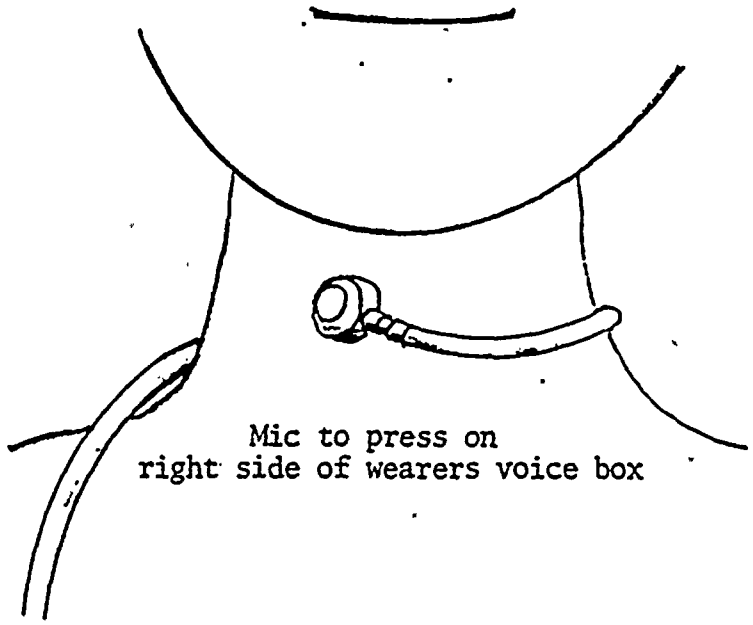


Fig. 2

APPENDIX II

RADIATION SURVEY INSTRUCTIONS

GENERAL AREA RADIATION SURVEY

1. A general radiation area survey should be conducted while moving between defined survey points, and at the specific survey points.

2. The survey should be conducted using an RM-14 Radiation Monitor with an HP-190 probe.

3. When conducting a moving survey, the HP-190 probe should be installed in the mounting bracket and positioned outside a vehicle window. The detection window of the HP-190 probe should be horizontal position and pointed to the rear of the vehicle to protected the detector from the elements and wind.

4. Vehicle speed should not exceed 15 mph during a mobile survey.

5. If the RM-14 reading changes more than 1,000 CPM stop and conduct a survey for Beta using the Auto Digi-Master or RO-2.

6. Report the results of the mobile survey to the Radio Operator at the next survey point, or after completion of the Beta survey.

SURVEY TO DETERMINE PRESENCE OF BETA RADIATION

1. If the General Area Radiation Survey shows a change of 1000 CPM on the RM-14, or if the "plume" is suspected to be in your area, a survey to detect the presence of Beta radiation should be conducted.

2. Using an Auto Digi-Master, or RO-2 dose rate meter conduct the following surveys.

   a. With the detector window aimed up:

      Beta shield open _____

      Beta shield closed _____

      Difference #1 = (open reading - closed reading)

   b. With the detector window aimed down:

      Beta shield open _____

      Beta shield closed _____

      Difference #2 = (open reading - closed reading)

3. If either difference #1 or difference #2 from Step 2 is positive this is an indication that Beta radiation is present.

   a. If both difference #1 and #2 are positive, this is an indication that you are in the plume.

   b. If only difference #1 is positive, this is an indication that the plume is overhead.

4. Repeat the results of the survey to the Radio Operator and await further instructions from the Dose Assessment Manager.

INSTALLATION OF TLD

1. Specific locations for TLD's will be listed on the survey route instructions or will be given by the Dose Assessment Manager.

2. Hammer a nail into a utility pole at the specified location. The nail should be positioned on the pole at head height and on the side closest to the site.

3. Affix a TLD to the nail using tape. Ensure the TLD window is oriented towards the site.

4. Record the location (either survey point number or road intersections), utility pole number, date time, and TLD number on the back of the survey map.

HIGH VOLUME AIR SAMPLE

1. Draw approximately 300 liters of air through a GY-130 silver zeolite cartridge and particulate filter using a RADECO H 809C High volume air sampler. This will take approximately 10 minutes.

2. Record the sample date, time, and location (either survey point number or road intersections) on two sample envelopes and on the back of the survey map.

3. Determine the background radiation level using the RM-14 Radiation Monitor and HP-190 probe. Record the reading on each envelope, and on the survey map. If background reading is greater than 200 CPM move to lower background prior to taking readings. If background of 200 cpm cannot be located contact Dose Assessment for further instructions.

4. Using onion skins remove the GY-130 silver zeolite cartridge from the sample holder and read the activity level with the RM-14 Radiation Monitor and HP-190 probe by holding the probe window on the inlet side of the cartridge filter. DO NOT TOUCH THE PROBE WINDOW WITH THE CARTRIDGE. Record the reading on one envelope and place the cartridge in the envelope. Record the reading on the back of the survey map.

   NOTE: If cartridge is reading off scale move probe approximately 1" from cartridge. Report and log data as being taken at 1".

5. Read the activity level of the particulate filter using the RM-14 Radiation Monitor and HP-190 probe. DO NOT TOUCH THE PROBE WINDOW WITH THE PARTICULATE FILTER. Record the reading on the other envelope and place the particulate filter in the envelope. Record the reading on the back of the survey map.

6. Remove the onion skins and discard in a plastic bag. Treat as contaminated material.

7. Report the following information to the Radio Operator:

   a. Sample location
   b. Date and time sample was taken
   c. Volume of air sample in liters (See page 16 for calculations)
   d. Background count rate in cpm
   e. GY-130 silver zeolite cartridge count rate in cpm
   f. Particulate filter count rate in cpm

NOTE: Field calculations of the airborne activity level may be performed as follows (SC-421):

Sampler volume in liters equals the flow rate of the sampler in lpm times minutes the sampler operated.

Iodine-131 (GY-130 cartridge)

$$\frac{(\text{CPM Sample} - \text{CPM Background})(8.34 \times 10^{-8})}{(\text{Volume of Sample in Liters})} = \_\_\_\_\_ \text{ uCi/cc Iodine-131}$$

Particulate

$$\frac{(\text{CPM Sample} - \text{CPM Background})(2.37 \times 10^{-8})}{(\text{Volume of Sample in Liters})} = \_\_\_\_\_ \text{ uCi/cc Particulate}$$

LOW VOLUME AIR SAMPLE

1. Draw air through a GY-130 silver zeolite cartridge and particulate filter using a low volume air sampler for approximately 30 minutes.

2. Record the sample date, time, and location on two sample envelopes and on the back of the survey map.

3. Determine the background radiation level using the RM-14 Radiation Monitor and HP-190 probe. Record the reading on each envelope, and on the survey map.

4. Using onion skin gloves remove the GY-130 silver zeolite cartridge from the sample holder and read the activity level with the RM-14 Radiation Monitor and HP-190 probe, by holding the probe window on the inlet side of the silver zeolite cartridge. DO NOT TOUCH THE PROBE WINDOW WITH THE CARTRIDGE. Record the reading on one envelope and place the cartridge in that envelope. Record the reading on the back of the survey map.

5. Read the activity level of the particulate filter using the RM-14 Radiation Monitor and HP-190 probe. DO NOT TOUCH THE PROBE WINDOW WITH THE PARTICULATE FILTER. Record the reading on the other envelope and place the particulate filter in the envelope. Record the reading on the back of the survey map.

6. Remove the onion skins and discard in a plastic bag. Treat as contaminated material.

7. Report the following information to the Radio Operator:

   a. Sample location
   b. Date and Time sample was taken
   c. Volume of air sample in liters (See page 13 for calculations)
   d. Background count rate in cpm
   e. GY-130 silver zeolite cartridge count rate in cpm
   f. Particulate filter count rate in cpm

   NOTE: Field calculations of the airborne activity level may be performed as follows: (SC-421)

   Sample volume in liters equals the flow rate (4 LPM) times minutes the sampler operated.

LOW VOLUME AIR SAMPLE (CONT)

Iodine-131 (GY-130 cartridge)

$$\frac{(\text{CPM Sample} - \text{CPM Background})(8.3 \times 10\text{-}8)}{(\text{Volume of Sample in Liters})} = \_\_\_\_\_ \text{ uCi/cc Iodine-131}$$

Particulate

$$\frac{(\text{CPM Sample} - \text{CPM Background})(2.4 \times 10\text{-}8)}{(\text{Volume of Sample in Liters})} = \_\_\_\_\_ \text{ uCi/cc Particulate}$$

CHANGING FILTERS AT FIXED ENVIRONMENTAL STATIONS

1. Record the following information on the sample envelope left from the previous filter change:

   a. Date
   b. Time
   c. System Vacuum (inches)
   d. Gasmeter reading (cubic feet)
   e. Total hour meter (record in column marked "OFF")

2. Turn pump off

3. Using onion skins remove the filter holder at the quick disconnect joint.

4. Unscrew the outside retaining ring and remove the particulate filter from the holder and place in the sample envelope.

5. If a charcoal cartridge was in use transfer the information on the particulate filter envelope to a new envelope and place the charcoal cartridge in the envelope.

6. Place a new GY-130 silver zeolite cartridge in the sample head.

7. Place a new particulate filter in the holder, replace the retaining ring and reconnect holder to the pump at the quick disconnect joint.

8. Remove onion skins and place in a plastic bag. Treat as contaminated.

9. Turn the pump on.

10. Record the following information to two new envelopes. Mark one envelope "GY-130 silver zeolite".

    a. Station number
    b. Date
    c. Time
    d. System vacuum (inches)
    e. Gasmeter reading (cubic feet)
    f. Total hour meter (record in the "ON" column)

11. Place the new envelopes inside the monitor cabinet.

12. Bring the envelopes containing the cartridge/filter removed to the Survey Center at the completion of your assigned route or when directed by the Dose Assessment Manager.

APPENDIX III

OFF SITE RADIATION SURVEY TEAM INSTRUCTION

RED TEAM

PRIMARY SURVEY ROUTE INSTRUCTIONS

NOTE: Numbers given in parentheses are predesignated survey points. Mileages given are approximate.

1. From the Training Center driveway travel east on Lake Road to Knickerbocker Road (1.1 miles). Place a TLD near the intersection of Lake Road and Knickerbocker Road (#1).

2. Go south on Knickerbocker Road to Brick Church Road (1.0 miles). Place a TLD near the intersection of Knickerbocker Road and Brick Church Road (#2).

3. Continue south on Knickerbocker Road to Kenyon Road (1.3 miles). Place a TLD near the intersection of Knickerbocker Road and Kenyon Road (#9). Take a high volume air sample at this intersection (#9) as per instructions in Appendix II.

4. Go west on Kenyon Road to Slocum Road (1.9 miles).

5. Go north on Slocum Road to Brick Church Road (1.3 miles). Place a TLD near the intersection of Slocum Road and Brick Church Road (#4).

6. Continue north on Slocum Road to Lake Road (1.0 miles).

7. Report to Radio Operator for further instructions.

RED TEAM

SECONDARY SURVEY ROUTE (WEST OR NORTHWEST WINDS) INSTRUCTIONS

NOTE: Numbers given in parentheses are predesignated survey points. Mileages given are approximate.

1. From the intersection of Lake and Slocum Road.
2. Go east on Lake Road to Ontario Center Road (1.0 mile)
3. Go south on Ontario Center Road to Ridge Road/Ontario Center (3.1 miles)
4. Continue south on Ontario Center Road/Route 350 to Route 441/Walworth Road (6.3 miles).
5. Go east on Route 441/Walworth Road to main intersection in Village of Walworth (Walworth-Ontario Road, 1.0 miles). Place a TLD near the intersection (#26).
6. Report to the Radio Operator for further instructions.

RED TEAM

SECONDARY SURVEY ROUTE (EAST OR NORTHEAST WINDS) INSTRUCTIONS

NOTE: Numbers given in parentheses are predesignated survey points. Mileages given are approximate.

1. From the intersection of Lake and Slocum Road.
2. Go south on Slocum Road to Ridge Road (3.1 miles).
3. Go east on Ridge Road to State Route 350/Ontario Center Road (1.0 miles).
4. Go south on State Route 350 to Plank Road (3.2 miles).
5. Go west on Plank Road to County Line Road (4.1 miles). Place a TLD near the intersection of Plank Road and County Line Road (#46).
6. Continue west on Plank Road to Salt Road (1.5 miles). Place a TLD near the intersections of Plank Road and Salt Road (#39).
7. Go north on Salt Road to Schlegel Road (4.1 miles). Place a TLD near the intersection of Salt Road and Schlegel Road (#42).
8. Continue north on Salt Road to Lake Road and report to Radio Operator for further instructions.

GREEN TEAM

PRIMARY SURVEY ROUTE INSTRUCTIONS

NOTE: Numbers given in parentheses are predesignated survey points. Mileages given are approximate.

1. Travel west on Lake Road to Lakeside Road (1.7 miles). Place a TLD near the intersection of Lake Road and Lakeside Road (#17).

2. Go south on Lakeside Road to Boston Road (1.0 miles). Take a high volume air sample near the intersection of Lakeside Road and Boston Road (#16) as per instructions in Appendix II. Place a TLD near the intersection of Lakeside and Boston Road (#16).

3. Continue south on Lakeside Road to Ridge Road (2.0 miles).

4. Go east on Ridge Road to Ontario Center Road (1.6 miles).

5. Go north on Ontario Center Road to Brick Church Road (2.1 miles). Place a TLD near the intersection of Ontario Center Road and Brick Church Road (#3).

6. Continue north to Lake Road.

7. Report to Radio Operator for further instructions.

GREEN TEAM

SECONDARY SURVEY ROUTE (WEST OR NORTHWEST WINDS) INSTRUCTIONS

NOTE: Numbers given in parentheses are predesignated survey points. Mileages given are approximate.

1. From Lake Road and Ontario Center Road, go east to Pultneyville (7.0 miles). Place a TLD in the Pultneyville area (#28) near white settler monument at the Lake.

2. Go south from Pultneyville on State Route 21 to Pound Road (3.4 miles). Place a TLD along State Route 21 south of Pound Road (#48).

3. Continue south on State Route 21 to Farnsworth Road (4.6 miles). Place a TLD near the intersection of State Route 21 and Farnsworth Road (#47).

4. Continue south on State Route 21 and into the Village of Marion (3.0 miles).

5. Return to Main Street in the Village of Williamson on State Route 21 (5.3 miles).

6. Report to Radio Operator for further instructions.

GREEN TEAM

SECONDARY SURVEY ROUTE (EAST OR NORTHEAST WINDS) INSTRUCTIONS

NOTE: Numbers given in parentheses are predesignated survey points. Mileages given are approximate.

1. From Lake Road and Ontario Center Road, go west to State Route 250. Place a TLD near intersection of Lake Road and State Route 250 (#45) (6.0 miles).

2. Continue west on Lake Road to Whiting Road (1.8 miles).

3. Go south on Whiting Road to Klem Road (1.8 miles).

4. Go west on Klem Road to Five Mile Line Road (0.4 miles).

5. Go south on Five Mile Line Road to Plank Road (3.4 miles). Place a TLD near the intersection of Five Mile Line Road and Plank Road (#51).

6. Continue south on Five Mile Line Road to Penfield Four Corners (intersection with Penfield Road, State Route 441) (3.6 miles). Place a TLD near back of Baptist Church parking lot, 500' east of intersection on north side of Penfield Road (#41).

7. Report to Radio Operator for further instructions.

ORANGE TEAM

PRIMARY SURVEY ROUTE INSTRUCTIONS

NOTE: Numbers given in parentheses are predesignated survey points. Mileages given are approximate.

1. Travel east on Lake Road to Fisher Road (2.7 miles).
2. Go south on Fisher Road to Shepherd Road (0.7 miles). Take an air sample near the intersection of Fisher Road and Shepherd Road (#19) as per instructions in Appendix II.
3. Place a TLD near the intersection of Fisher Road and Shepherd Road (#19).
4. Continue south on Fisher Road to Trimble Road (1.1 miles). Place a TLD near the intersection of Fisher Road and Trimble Road (#20).
5. Continue south on Fisher Road to Kenyon Road (0.7 miles). Go west on Kenyon Road to Furnace Road (1.1 miles). Place a TLD near the intersection of Kenyon Road and Furnace Road (#49).
6. Go north on Furnace Road to Lake Road (2.7 miles).
7. Report to Radio Operator for further instructions.

ORANGE TEAM

SECONDARY SURVEY ROUTE (WEST OR NORTHWEST WINDS) INSTRUCTIONS

NOTE: Numbers given in parentheses are predesignated survey points. Mileages given are approximate.

1. From Lake Road and Furnace Road, go south to Ridge Road (4.2 miles).
2. Go south on Walworth-Ontario Road to Trummonds Road (2.3 miles).
3. Go east on Trummonds Road to Arbor Road (1.1 miles). Place a TLD near the intersection of Trummonds Road and Arbor Road (#22).
4. Go north on Arbor Road to Ridge Road (2.3 miles).
5. Go east on Ridge Road to Eddy Ridge Road (2.2 miles). Place a TLD near the intersection of Ridge Road and Eddy Ridge Road.
6. Continue east on Ridge Road to Tuckahoe Road (0.3 miles).
7. Go north on Tuckahoe Road to Salmon Creek Road (2.5 miles). Place a TLD near the intersection of Tuckahoe Road and Salmon Creek Road.
8. Continue north on Salmon Creek Road to Lake Road and report to Radio Operator for further instructions.

ORANGE TEAM

SECONDARY SURVEY ROUTE (EAST OR NORTHEAST WINDS) INSTRUCTIONS

NOTE: Numbers given in parentheses are predesignated survey points. Mileages given are approximate.

1. From Lake Road and Furnace Road, go west on Lake Road to Roder Parkway (access road to Ontario on the Lake) (5.1 miles). Go north on Roder Parkway to intersection with Ontario Drive and place a TLD near intersection (#18) (0.5 miles).

2. Return to Lake Road, continue west to County Line Road (2.4 miles).

3. Go south on County Line Road to Berg/Schlegel Road (2.0 miles). Place a TLD near the intersection of County Line Road and Berg/Schlegel Road (#36).

4. Continue south on County Line Road to State Route 104 (1.2 miles). Turn right onto State Route 104 and go to Salt Road (1.2 miles). Turn left onto Salt Road to Plank Road (2.1 miles).

5. Go west on Plank Road to State Route 250 (2.8 miles).

6. Continue west on Plank Road to RG&E Eastern Monroe Service Center, 1270 Plank Road. Report results of surveys to Radio Operator.

7. Return to Route 250 and go north on Route 250 to State Road (1.2 miles). Place a TLD at the intersection of State Road and Route 250 (#38).

8. Continue north on Route 250 to Main Street in the Village of Webster (2.3 miles).

9. Go east on Main Street to Phillips Road (0.6 miles).

10. Go north on Phillips Road to substation #74 driveway which is 20' north of access road to State Route 104.

11. Report to Radio Operator for further instructions.

GINNA STATION
UNIT #1
COMPLETED
DATE:-
TIME:-

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

PROCEDURE NO. SC-324 REV. NO. 7

EMERGENCY ON-SITE RADIATION SURVEY TEAMS

TECHNICAL REVIEW

PORC REVIEW DATE 4-1-87

Thomas A Moyer
PLANT SUPERINTENDENT

4-3-87
EFFECTIVE DATE

QA X NON-QA _____ CATEGORY 1.0

REVIEWED BY: _____

THIS PROCEDURE CONTAINS 24 PAGES

SC-324

EMERGENCY ON-SITE RADIATION SURVEY TEAMS

1.0 PURPOSE:

1.1 The prime objective of the Emergency On-Site Radiation Survey Teams is to rapidly survey areas immediately surrounding the restricted area in order to determine the extent and magnitude of any uncontrolled release of radioactive materials following an incident. It should be stressed that the initial on-site survey is of great importance. Decisions regarding the extent and types of protective actions required will be based upon data reported by the survey teams.

2.0 REFERENCES:

2.1 SC-421, Determination of Iodine or Particulate

2.2 SC-232 Voluntary Acceptance of Emergency Exposure

3.0 INSTRUCTIONS:

3.1 Obtain appropriate On-Site Survey Team footlocker as directed by Tag Board Assignment. If seal is broken, use equipment list inside footlocker to inventory equipment. Request the assistance of the Survey Center Manager in obtaining replacement equipment if necessary.

3.2 Obtain following equipment which is not stored in footlocker.

3.2.1 Personal thermal luminecent dosimeter (TLD) for each team member.

3.2.2 One 0-5R dosimeter for each team member, Sign-in on dosimeter log sheet.

3.2.3 One full-face mask with iodine filter and voice emitter for each Team member.

3.2.4 Handi-Talkie radio.

3.2.5 Low Volume Air Sampler with filter holder.

3.2.6 RM-14 Radiation Monitor with HP-190 Probe.

3.2.7 Auto Digi-master or RO-2 dose rate meter.

3.3 Complete the following items prior to departing on the assigned survey route.

3.3.1 Check operation of radio system, portable air sampler, radiation count rate monitor, and dose rate meter using equipment check-out procedures in Appendix I.

3.3.2 Load survey equipment onto equipment belts and back packs, fill in Survey Team Status Board, and inform Survey Center Manager you are ready for departure.

3.3.3 Log time, date, and survey team members on survey map.

3.3.4 Establish radio communication with Technical Support Center Radio Operator and advise of teams departure.

3.3.5 Log time, date, flow rate and start time of low volume air sampler on reverse of survey map.

3.4 Protective clothing and full face masks with charcoal filters will be worn as directed by the Dose Assessment Manager. Internal contamination will be determined by a Whole Body Count after the survey.

3.5 Perform radiation surveys using the appropriate instructions of Appendix II while following the Survey Route instructions contained in Appendix III.

3.5.1 Do not enter areas where radiation levels are greater than 2 R/hr unless directed by a Health Physicist.

3.5.2 The dose limitation of the survey team is limited to 1 REM unless the Health Physicist or Emergency Coordinator authorizes a higher limit.

3.5.3 A ONETIME dose limit of 75 REM may be used to save the life of an individual on a voluntary basis. (SC-232)

3.5.4 A ONETIME dose limit of 25 REM may be used to insure equipment is operational or secured in order to prevent a greater possible hazard to the general public.

3.5.5 At each assigned survey point the team should report the following information to the Radio Operator:

-Location
-Completed Actions
-Results of Surveys
-Departure for next Survey Point

3.5.6 Upon completion of Survey Route inform radio operator at Technical Support Center. The Dose Assessment Manager will assign an additional Survey Route or direct you to return to the Survey Center.

3.6 Upon returning to the Survey Center perform a contamination survey of team personnel for contamination. If any contamination greater than 100 CPM above background is found, contact the Survey Center Manager for decontamination instructions.

3.6.1 Give all iodine filters, particulate filters, survey maps, and data records to Survey Center Manager.

3.6.2 Dispose of contaminated and potentially contaminated waste in an approved manner.

3.6.3 Re-stock, inventory, and seal Survey Team Equipment Footlocker, stow in Survey Team Room.

3.6.4 Return radio system, portable air sampler, radiation count rate meter, and dose rate meter to the Survey Team Room and place on charge as appropriate.

3.6.5 Return O-5R dosimeters and sign-out on dosimeter log sheet.

3.6.6 Fill out Survey Team Status Board and inform Survey Center Manager of team return.

APPENDIX I

EMERGENCY ON-SITE RADIATION SURVEY TEAM

EQUIPMENT CHECKOUT AND OPERATION

RADIO SYSTEM

The radio system consists of a hand-held radio and attached antenna. To checkout and operate the system, complete the following steps.

1. Ensure the antenna is securely screwed into the connection on top of the radio. If a telescoping antenna is installed ensure it is extended to its full length when operating the radio.

2. Turn the channel selector switch to Channel 2.

3. Turn the squelch knob full CCW.

4. Turn the volume knob CW to turn the radio on and adjust the volume level. A rushing sound should be heard.

   NOTE: If no sound is heard, unit is inoperable. Obtain new unit and inform Survey Center Manager.

5. Adjust squelch knob CW just enough to quiet the radio. If squelch knob is turned too far CW weak signals will not be heard.

6. The general procedure for communicating on the radio should be as follows:

   a) Station Called
   b) Blue/Yellow Team
   c) Message
   d) "Over"

   During a drill or exercise all fictitious data will be preceded with the words "This is a drill....."

   Examples:

   "Technical Support Center, This is the Blue Team, At location number 1, Over"

   "Technical Support Center, This is the Yellow Team, This is a drill, Results of the general area survey at location 6 are 6,500 Counts Per Minute above background, Over"

7. To transmit depress the push-to-talk switch on the side of the radio. Speak in a normal voice into the speaker/mike.

8. To receive, release the push-to-talk switch.

RADIO SYSTEM (CONT)

9. There may be times that TSC or EOF will be receiving communications from a team that you cannot hear. If this happens the Radio Operator will tell you to wait or standby. After he has completed his traffic he will ask you to transmit your information. Remember this is one big party line; everyone can't talk at once.

10. When you have been directed to secure your Survey Team, turn the radio off and place it in the charger located in the Survey Team Room at the Survey Center.

MODEL VAS-2 EARMARK "LOUD MOUTH" VOICE AMPLIFICATION SYSTEM

The "Loud Mouth" System is designed to provide voice amplification for individuals wearing respiratory protection devices.

Equipment Check:

A. Earmark Throat Microphone Model TM-1

1. Figure 1 (attached) shows the proper "at rest" position for the microphone. If it is necessary to reform the spring tension, hold the microphone, starting two inches behind the microphone head, between the thumb and forefinger and bend the cable small amounts while progressing down the cable until the end of the spring is felt. Check the diameter of the coil and repeat if necessary. Note that the microphone head should tilt up from a flat surface about 1/4 inch. If necessary, form the spring to give this dimension.

Equipment Operation:

A. Ensure microphone cable is securely connected to jack on voice amplifier.

B. The microphone is designed to be located on the right side of the throat (see figure 2). The microphone must lay flat on the neck and press firmly into the throat.

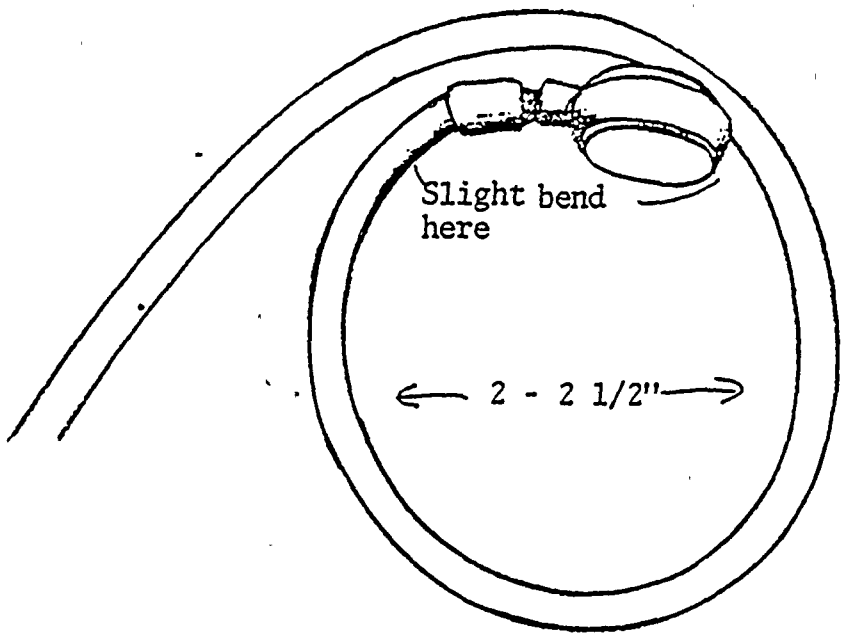
C. Securely fasten amplifier unit to belt.

D. To operate unit, turn volume control clockwise. Talk switch in up position is in standby mode. Slide switch to down position to talk. Adjust volume to desired level with volume control.

NOTE: When communicating through radio, telephone, etc., speak precisely. Keep speaker at least 12" from the throat mic. Keep the means of communication 12" from the throat mic. Hold the means of communication off to the side of the speaker. If any feedback is apparent, lower volume.

E. Turn unit off by turning volume control counter clockwise as far as it will turn. Leave talk switch in the standby position.

F. Batteries: A 9-volt Alkaline Battery is the required power source. The battery is located in the amplifier unit. To replace battery, remove cover plate to battery compartment. Pull plastic tab, remove and replace battery. Note: Small terminal (+) in first.

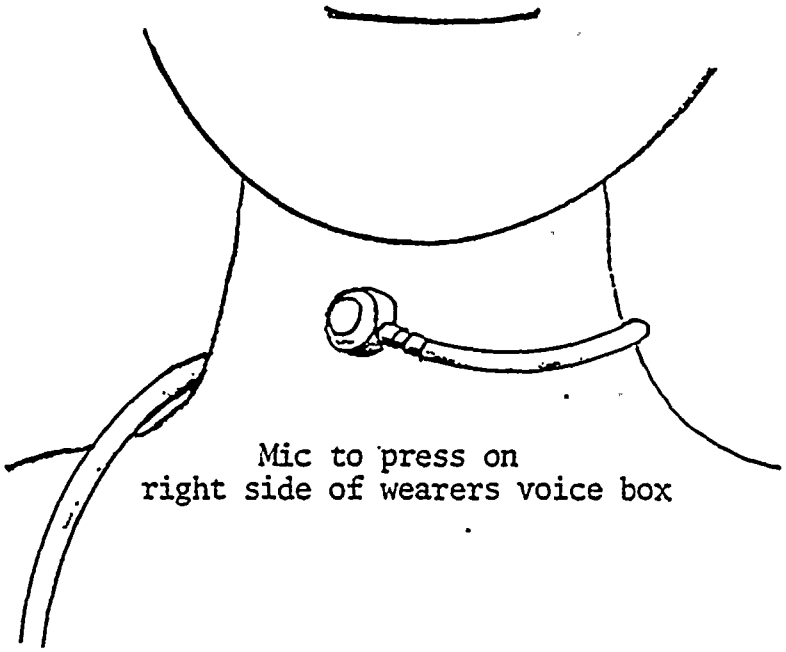


On a flat surface the mic should rest about 1/4" above said surface

When mic is laid on a flat surface it should form a circle 2 to 2 1/2" in dia. depending on user size. If it has been stretched to form a larger circle the inbuilt spring wire should be reformed to produce the diameters indicated.

This insures proper throat pressure for optimum sound quality.

Fig. 1



Mic to press on
right side of wearers voice box

Fig. 2

RM-14 RADIATION SURVEY METER

EQUIPMENT CHECK

1. Disconnect power cord from back of meter taking care not to turn test switch on.

2. Ensure that an HP-190 probe is connected to the detector jack.

3. Turn range switch to battery. Meter should read in the "BATT-OK" area.

4. Perform instrument source check. Obtain source from safe and verify meter reading corresponds to attached card then log meter reading onto source check log.

5. Turn range switch to off.

EQUIPMENT OPERATIONS

1. Turn range switch to XI.

2. Place response switch in the "SLOW" position.

3. Adjust the volume control so that the audio indication (a click) can be heard.

4. The range switch should be adjusted such that the highest reading gives a mid-scale deflection.

5. All readings must be multiplied by the range switch setting (X1, X10, X100).

6. 2,200 CPM is approximately 1 mrem/hour. Maximum scale is 50,000 CPM or 23 mR/hr.

7. Upon completion of the survey turn the unit off and return it to the Survey Team Room. Unit should be recharged before the next use.

AUTO DIGI-MASTER DOSE RATE METER

EQUIPMENT CHECK

1. Turn unit on to be sure that the digital display lights.

2. Perform instrument source check. Obtain source from safe and verify that meter reading corresponds to attached card then log meter reading into source check log.

EQUIPMENT OPERATIONS

1. Allow unit to complete one cycle (display will blink) before reading when turning unit on or when radiation level changes significantly.

2. Unit will automatically change from one range to the next. The reading is always direct.

3. The Digi-Master may be used to detect the presence of Beta but cannot be used for dose measurement of Beta. Also, Beta detection is only effective when the unit is operating in the mrem/hour range.

   a. Take a reading with the Beta window closed and record.

   b. Take a reading with the Beta window opened and record.

   c. If the reading with the Beta window open is greater than the reading with the Beta window closed there is Beta radiation present.

   d. If a Beta dose rate is needed a survey with an RO-2 or equivalent instrument must be made.

4. Upon completion of the survey, turn unit off and return it to the Survey Team Room. Unit should be recharged before the next use.

RO-2 DOSE RATE METER

EQUIPMENT CHECK

1. Turn the function selector switch to the "BATT 1" and "BATT 2" positions. Meter should indicate above the battery cut-off line.

2. Perform instrument source check. Obtain source from safe and verify that meter reading corresponds to attached card then log meter reading onto source check log.

EQUIPMENT OPERATION

1. Zero the meter by turning the function selector switch to "ZERO" and turning the "ZERO ADJ" knob as necessary. The zero adjust may be made in a radiation field by placing the function selector switch at "ZERO ADJ".

2. To measure the radiation field, position the function selector switch to the lowest range which provides a mid-scale deflection of the meter.

3. With the Beta shield closed the meter will read the whole body Gamma dose rate.

4. To obtain a Beta dose rate measurement perform the following:

   CAUTION: The face of the beta window is very thin. Whenever the Beta shield is open, guard the shield against damage by puncture or contamination by dust or dirt.

   a. Take an area measurement with the Beta shield closed.

   b. Open the sliding Beta shield on the bottom of the case and take an area measurement.

   c. Subtract the closed shield reading from the open shield reading and multiply by the Beta correction factor marked on the instrument.

   d. This number is the Beta dose rate for that area.

5. When the survey is completed turn the function selector switch to OFF.

BATTERY POWERED LOW VOLUME AIR SAMPLER

EQUIPMENT CHECK

1. Disconnect from Battery Charger.

2. Attach sampling head and filter medium to filter housing inlet.

3. Remove anti-tamper cover plate and place master ON/OFF switch in ON position. This switch also resets the time. The switch is located in the lower left hand corner.

4. Turn unit on using ON/OFF switch located to the right of the digital display.

   NOTE: Master ON/OFF switch must be on for unit to operate. Master ON/OFF switch also resets time display.

5. If charge status of unit is known, temporarily start unit and press the test button. "BATT." LED should light indicating a charge of 95% or greater. If LED does not light, recharge unit before use.

6. Turn unit off.

7. Replace anti-tamper cover.

EQUIPMENT OPERATION

1. Ensure filter cartridge contains a GY-130 Silver Zeolite cartridge and a particulate filter. Connect filter cartridge to sampler.

2. At start of sampling period record start time, press test, record time in digital display and a flow of 4.0 LPM on sample envelopes and reverse of MPP. Turn unit on using ON/OFF switch located to the right of the digital display.

   NOTE: Master ON/OFF switch must be on for unit to operate. Master ON/OFF switch also resets time display.

BATTERY POWERED LOW VOLUME AIR SAMPLER (CONT)

3. If the "FAULT" LED is lit. This was activated by either an undervoltage, overcurrent, or overpressure (restricted flor) beyond the units capability. The motor is stopped and the time is latched. By pressing the "TEST" button, the time (in minutes) into sampling at which the fault occurred will be displayed indicating a valid sample period.

   NOTE: The timer stops after 15-30 seconds into a fault condition to prevent unnecesary shutdown.

4. At end of sampling period turn pump off using ON/OFF switch located to right of digital display. Press TEST button, record time in digital display, stop time and all other pertinent information on may and envelopes.

5. Sample volume in liters equals the flow rate in liters per minute multiplied by minutes the sampler operated. The sampler has a fixed flow rate of 4 liters per minute. If the unit was operated for thirty minutes, the ample volume would equal 120 liters (4 x 30 = 120).

APPENDIX II

RADIATION SURVEY INSTRUCTIONS

GENERAL AREA RADIATION SURVEY

1. A general radiation area survey should be conducted while moving between defined survey points, and at the specific survey points.

2. The survey should be conducted using an RM-14 Radiation Monitor with an HP-190 probe.

3. When conducting a moving survey, the HP-190 probe should be held in a horizontal position and protected from the elements and wind.

4. If the RM-14 reading changes more than 1,000 CPM stop and conduct a survey for Beta using the Auto Digi-Master or RO-2.

5. Report the results of the survey to the Radio Operator at the next survey point, or after completion of the Beta survey.

SURVEY TO DETERMINE PRESENCE OF BETA RADIATION

1. If the General Area Radiation Survey shows a change of 1000 CPM on the RM-14, or if the "plume" is suspected to be in your area, a survey to detect the presence of Beta radiation should be conducted.

2. Using an Auto Digi-Master, or RO-2 dose rate meter conduct the following surveys.

   a. With the detector window aimed up:

      Beta shield open _____

      Beta shield closed _____

      Difference #1 = (open reading - closed reading)

   b. With the detector window aimed down:

      Beta shield open _____

      Beta shield closed _____

      Difference #2 = (open reading - closed reading)

3. If either difference #1 or difference #2 from Step 2 is positive this is an indication that Beta radiation is present.

   a. If both difference #1 and #2 are positive, this is an indication that you are in the plume.

   b. If only difference #1 is positive, this is an indication that the plume is overhead.

4. Report the results of the survey to the Radio Operator and await further instructions from the Dose Assessment Manager.

LOW VOLUME AIR SAMPLE

1. Draw air through a GY-130 silver zeolite cartridge and particulate filter using a low volume air sampler for approximately 30 minutes.

2. Record the sample date, time, and location on two sample envelopes and on the back of the survey map.

3. Determine the background radiation level using the RM-14 Radiation Monitor and HP-190 probe. Record the reading on each envelope, and on the survey map.

4. Using onion skin gloves remove the GY-130 silver zeolite cartridge from the sample holder and read the activity level with the RM-14 Radiation Monitor and HP-190 probe, by holding the probe window on the inlet side of the silver zeolite cartridge. DO NOT TOUCH THE PROBE WINDOW WITH THE CARTRIDGE. Record the reading on one envelope and place the cartridge in that envelope. Record the reading on the back of the survey map.

5. Read the activity level of the particulate filter using the RM-14 Radiation Monitor and HP-190 probe. DO NOT TOUCH THE PROBE WINDOW WITH THE PARTICULATE FILTER. Record the reading on the other envelope and place the particulate filter in the envelope. Record the reading on the back of the survey map.

6. Remove the onion skins and discard in a plastic bag. Treat as contaminated material.

7. Report the following information to the Radio Operator:

   a. Sample location
   b. Date and Time sample was taken
   c. Volume of air sample in liters (See page 13 for calculations)
   d. Background count rate in cpm
   e. GY-130 silver zeolite cartridge count rate in cpm
   f. Particulate filter count rate in cpm

   NOTE: Field calculations of the airborne activity level may be performed as follows: (SC-421)

Sample volume in liters equals the flow rate (4 LPM) times minutes the sampler operated.

LOW VOLUME AIR SAMPLE (CONT)

Iodine-131 (GY-130 cartridge)

$$\frac{(\text{CPM Sample} - \text{CPM Background})(8.3 \times 10\text{-}8)}{(\text{Volume of Sample in Liters})} = \_\_\_\_\_ \text{ uCi/cc Iodine-131}$$

Particulate

$$\frac{(\text{CPM Sample} - \text{CPM Background})(2.4 \times 10\text{-}8)}{(\text{Volume of Sample in Liters})} = \_\_\_\_\_ \text{ uCi/cc Particulate}$$

CHANGING FILTERS AT FIXED ENVIRONMENTAL STATIONS

1. Record the following information on the sample envelope left from the previous filter change:

   a. Date
   b. Time
   c. System Vacuum (inches)
   d. Gasmeter reading (cubic feet)
   e. Total hour meter (record in column marked "OFF")

2. Turn pump off

3. Using onion skin gloves remove the filter holder at the quick disconnect joint.

4. Unscrew the outside retaining ring and remove the particulate filter from the holder and place in the sample envelope.

5. If a charcoal or zeolite cartridge was in use transfer the information on the particulate filter envelope to a new envelope and place the cartridge in the envelope.

6. Place a new GY-130 silver zeolite cartridge in the sample head.

7. Place a new particulate filter in the holder, replace the retaining ring and reconnect holder to the pump at the quick disconnect joint.

8. Remove onion skins and place in a plastic bag. Treat as contaminated.

9. Turn the pump on.

10. Record the following information to two new envelopes. Mark one envelope "GY-130 silver zeolite".

    a. Station number
    b. Date
    c. Time
    d. System vacuum (inches)
    e. Gasmeter reading (cubic feet)
    f. Total hour meter (record in the "ON" column)

11. Place the new envelopes inside the monitor cabinet.

CHANGING FILTERS AT FIXED ENVIRONMENTAL STATIONS (CONT)

12. Bring the envelopes containing the cartridge/filter removed to the Survey Center at the completion of your assigned route or when directed by the Dose Assessment Manager.

APPENDIX III

ON SITE RADIATION SURVEY TEAM INSTRUCTIONS

BLUE TEAM

SURVEY ROUTE INSTRUCTIONS

1. From the Survey Center proceed northeast to the edge of the grass.

2. Turn south across the lawn and proceed to environmental station #4 and change the filter and cartridge per instructions in Appendix II.

3. Proceed southeast to Manor House driveway, follow driveway to where it turns north, proceed east out of the trees into orchard.

4. Go through orchard, then turn north and proceed to environmental station #3 and change the filter and cartridge.

5. Proceed west across field and through woods to Manor House driveway.

6. Go north on Manor House driveway to the lake shore.

7. Proceed east to environmental station #2 and change the filter and cartridge.

8. Proceed west along the lake shore to the plant fence.

9. Proceed along the plant fence to the Guard House.

10. If the Central Alarm Station (CAS) and Secondary Alarm Station (SAS) are manned contact CAS on the radio for access to the site. Otherwise obtain a "hard key" to gain access to the site from the Survey Manager.

11. Proceed east from the Guard House along access road and across south side of plant building.

12. Circle across grass towards Upper-Radwaste Storage Area, continuing to plant fence.

13. Continue west along plant fence to the Screenhouse.

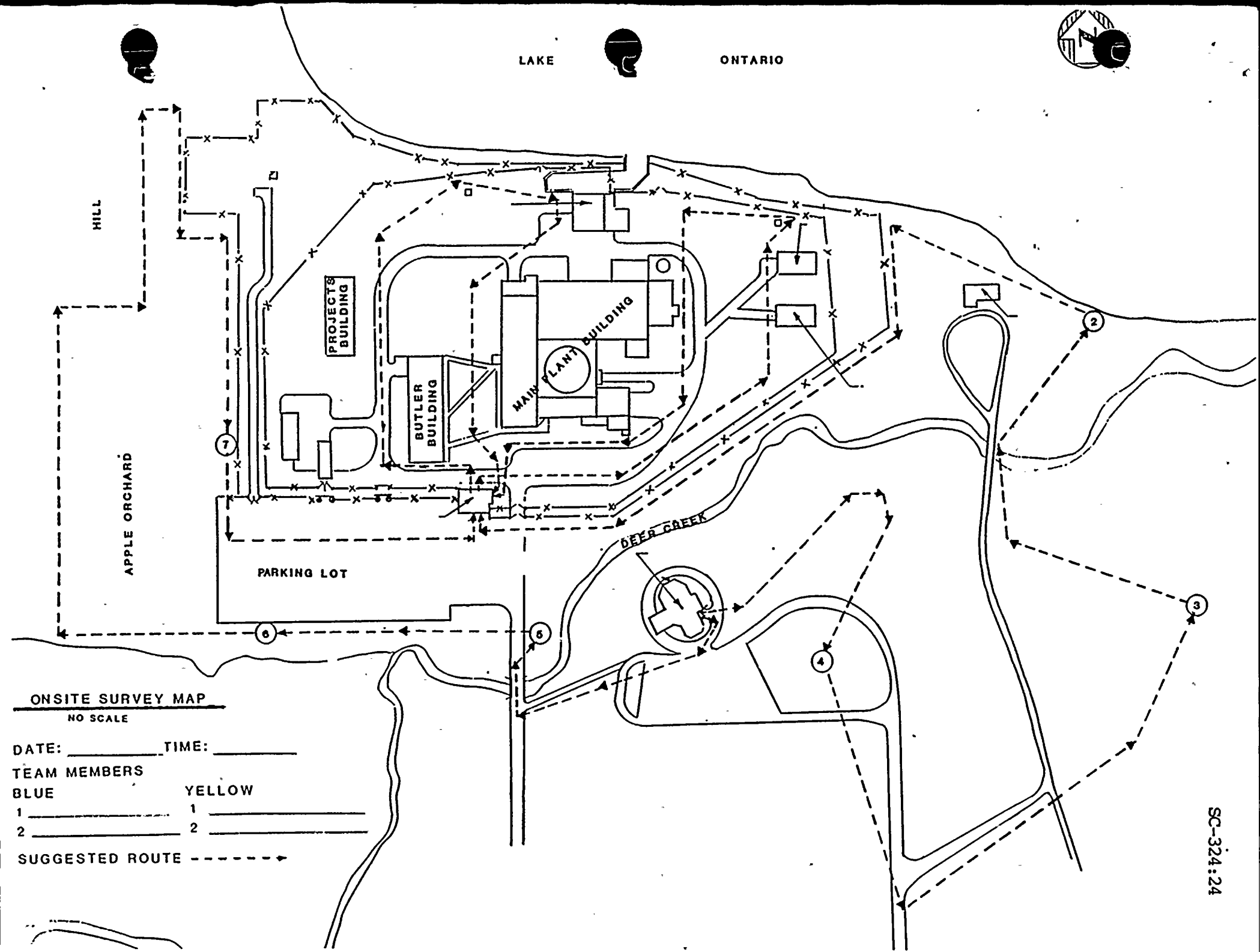
14. Proceed south along side of plant building and return to Guard House.

15. Report to Radio Operator for instructions.

YELLOW TEAM

SURVEY ROUTE INSTRUCTIONS

1. Proceed west from the Survey Center to the plant site road.
2. Continue north across the bridge to environmental station #5 and change the filter and cartridge.
3. Proceed west along Deer Creek and the parking lot to environmental station #6 and change the filter and cartridge per instructions in Appendix II.
4. Proceed west through the apple orchard approximately 100 yards.
5. Turn north through the apple orchard, towards the hill, to the northwest corner of the plant fence.
6. Proceed south along the plant fence to environmental station #7 and change the filter and cartridge.
7. Continue along the plant fence to the Guard House.
8. If the Central Alarm Station (CAS) and Secondary Alarm Station (SAS) are manned contact CAS on the radio for access to the site. Otherwise obtain a "hard key" to gain access to the site from the Survey Manager.
9. Proceed west from Guard House to the access road.
10. Continue north on the access road and across the grass to the plant fence.
11. Proceed east along the plant fence to the discharge canal.
12. Proceed south along the west side of the plant building and return to the Guard House.
13. Report to Radio Operator for instructions.



ONSITE SURVEY MAP

NO SCALE

DATE: _____ TIME: _____

TEAM MEMBERS

BLUE	YELLOW
1 _____	1 _____
2 _____	2 _____

SUGGESTED ROUTE - - - - - - →

SC-324:24

GINNA STATION
UNIT #1
COMPLETED
DATE:-
TIME:-

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

PROCEDURE NO. SC-420 REV. NO. 15

ESTIMATING OFF-SITE DOSES

TECHNICAL REVIEW

PORC REVIEW DATE 8-17-88

Thomas A. Meyer
PLANT SUPERINTENDENT

8-24-88
EFFECTIVE DATE

QA_____ NON-QA _____ CATEGORY 1.0

REVIEWED BY: _____

THIS PROCEDURE CONTAINS 33 PAGES

SC-420

ESTIMATING OFF-SITE DOSES

1.0 PURPOSE:

1.1 The purpose of this procedure is to provide estimates by a Health Physicist of the post accident dose in the areas around the plant and guidance for the selection of sampling locations. Information is needed early to decide what action be taken to limit the exposure of the general public. Steps must be taken to define the affected areas, assess the extent and significance of the release and provide data on which appropriate protective actions can be based.

2.0 REFERENCES:

2.1 Nuclear Emergency Response Plan

2.2 N.Y.S. Radiological Emergency Preparedness Plan

2.3 SC-100, SC-442, SC-450

2.4 S-14.2

2.5 EPA-520, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (Feb. 1980).

2.6 Regulatory Guide 1.109

3.0 INSTRUCTIONS:

3.1 The following equipment is available for use in estimating doses.

3.1.1 Xu/Q Isopleths, and Xu/Q tabulated values (Table 1).

3.1.2 Map of surrounding area, U.S. Geological Survey (1 inch: 24000 inch scale).

3.1.3 Control Room wind and temperature indicators.

3.1.4 Control Room Radiation Monitor System.

3.1.5 Back-up wind speed and direction indicators at Station 204*, and National Weather Service. Supplemental wind speed indicators at Station 230**.

* Located on the south side of Route 104 between Slocum and Lakeside Roads in Ontario.

**Located at 1102 Atlantic Avenue between Lincoln Road and Route 350 in Walworth.

3.1.6 Alternatively the procedure can be accomplished using the IBM PC EOF5MODA procedure.

3.2 Preliminary Radiological Estimates and Event Classification

3.2.1 For initial notification purposes, a first-cut estimate of potential offsite doses and releases may be obtained by the Control Room using SC-240, Attachment I. Levels are provided for various accidents evaluated in the Ginna FSAR and in previous AEC Safety Evaluations for Ginna plant siting and design.

3.2.2 It is preferable to base offsite estimates upon measured release values. Vent activity concentrations and release rates can be determined from monitor calibration factors provided in Attachment VII, and from Procedure PC-23.5.

3.2.3 An estimate of the 2 hr site boundary whole body dose from plant vent noble gas concentration, obtained from S-14.2 (low range monitor) or PC-23.5 (hi range monitor) may be obtained using the following equation:

$$\text{Plant vent (uCi/cc)} \times 18 \frac{\text{Rem}}{\text{uCi/cc}} = \text{2 hr whole body dose REM at site boundary}$$

NOTE: The following assumptions were made for these calculations:

$X/Q = 4.8 \times 10^{-4}$ sec/m^3 (default value in lieu of actual meteorology data; assuming downwind mixing conditions 100 times more conservative than annual average conditions.)

Plant vent flow = 77,000 cfm (3.63×10^7 cc/sec)

EPA-520 whole body dose curve (t = 0hr)

3.2.4 If Iodine effluent monitor or isotopic data are unavailable, a default valve of 1.0E-4 should be used to reflect the estimated release concentration ratio of gross iodine to noble gas.

Note: When data is available calculate an Iodine to noble gas ratio that reflects present conditions.

3.2.5 Determine the classification of the emergency with respect to plant releases and site boundary doses from the criteria provided in SC-100.

3.2.6 Any preliminary dose estimates used as a basis for emergency classification or protective action recommendations should be refined as follows using release measurements and actual meteorological and field sampling data as they become available.

3.3 Use of the EOF/TSC IBM-PC Assessment Computer Program

3.3.1 Refer to Attachment IV "IBM-PC Assessment Computer Program" for specific instructions to use the program.

3.4 Use of Meteorological and Release Data with EPA Dose Factors Manual Method

3.4.1 Obtain the temperature at 33' and 250' from the "Status Report Form", Control Room, TSC or Computer Terminal. From the 250' temperature subtract the 33' temperature. If readings from the main weather tower are unavailable, proceed to step 3.4.2.1.

T250'_____

-T33'_____

Delta T_____

3.4.1.1 Meteorological Data can be obtained by phone from the MIDAS storage computer in the Meteorological Tower Trailer by using the TI-Silent 700 Terminal. See Attachment II for instructions.

3.4.2 If Delta T is < -1.9, the condition is unstable (Pasquill Category B).

If Delta T is ≥ -1.9 and ≤ -0.5, the condition is neutral (Pasquill Category D).

If Delta T is > - 0.5, the condition is stable (Pasquill Category F).

Condition is_____

NOTE: To determine the Pasquill stability class A-G, see Attachment VI.

3.4.2.1 In the event that meteorological data are unavailable from the main weather tower, data can be obtained from the back-up tower using Attachment III. If data cannot be obtained by phone, the Emergency Coordinator should direct an individual to proceed to the back-up weather instrument recorder at the tower.

3.4.2.2 If the primary tower temperature sensors are not available to determine stability, the individual taking the readings should note wind speed (mph) wind direction (degrees) and approximate fluctuation in wind direction (degrees) averaged over the last hour. The wind direction fluctuation is determined by eyeballing or by drawing 2 average lines through the last hour's wind direction extremes, and subtracting the difference.

3.4.2.3 Station 204 wind speed, wind direction and wind direction fluctuation readings are reported to the Technical Support Center by phone (ext. 500 through 507) or by the plant P.A. The individual at Station 204 should request for further instructions from the Emergency Coordinator.

3.4.2.4 To determine atmospheric stability from wind fluctuation, use the following table:

Wind Fluctuation	Stability
< 45 degrees anytime	stable (inversion)
> 45 degrees night time	neutral
45 degrees - 75 degrees daytime	neutral
> 75 degrees daytime	unstable (lapse)

3.4.3 Select the Xu/Q plastic overlay matching the condition determined in 3.4.2 and attach to the area map. (Also tabulated Xu/Q values are given in the attached Table 1).

3.4.4 Obtain wind speed and direction data from the "Status Report Form", the Control Room, TSC, Computer Terminal or alternatively from Station 204. The direction given will be that <u>from which the wind is blowing</u>.

Wind Speed_____(mph)

Wind Direction_____(degrees)

<u>NOTE</u>: Supplemental weather information is also available from the National Weather Service Offices in Rochester (716-328-7633) or Buffalo (716-632-2223), if necessary, and at Station 230. Instructions for obtaining Nation Weather Service information is found in Attachment IV.

3.4.5 Align the centerline of the overlay in the downwind direction. The mark on the centerline at the bottom of the overlay should be aligned on a compass point on the map 180 degrees from the degrees given in 3.3.4. To determine this point, do one of the following:

If the degrees given in step 3.3.4 is between 180 and 360, subtract 180.

If the degrees given in step 3.3.4 is between 0 and 180, add 180.

Degrees wind is blowing from_____Degrees

+ or - 180 Degrees

Align mark on centerline of overlay (at bottom) at _____Degrees

3.4.6 The Xu/Q plastic overlays and Table 1 values have, for convenience been calculated based upon a wind speed of 1 mph. Thus, in order to determine X/Q sec/m^3, it is necessary to divide the isopleth value by the actual wind speed, in mph.

3.4.7 Obtain concentration of particulate, noble gas and iodines and vent flow to determine release rate. See Attachment I.

3.4.8 To calculate the downwind concentration of noble gas, particulates or radioiodine, multiply the release rate of radioactivity (Ci/sec) from the plant times the X/Q (sec/m^3) dispersion coefficient determined in

step 3.3.6. The resultant concentration will be in Ci/m^3 or uCi/cc. Perform these calculations on Attachment 1.

3.4.9 Obtain an initial estimate of release duration from the Emergency Coordinator or Recovery Manager. If this estimate is unavailable, use an initial release duration estimate of 2 hours for dose projection purposes.

3.4.10 Whole body gamma dose rate due to noble gas isotopes is estimated using Table III and using the listed factor corresponding to the approximate time after shutdown. Multiply this factor times the concentration calculated in Step 3.4.7 to get Rem/hour.

3.4.11 Whole body gamma dose is obtained by multiplying the dose rate calculated in Step 3.4.9 times the exposure time determined in Step 3.4.8. The result is Rem.

3.4.12 Thyroid dose rate to the child is estimated using Table IV and using the listed factor corresponding to the time after shutdown. Multiply this factor times the concentration calculated in Step 3.4.7 to get rem/hour. Projected dose rates are always determined for the child thyroid as they are the most sensitive people. To determine the dose or dose rate for adults (which would only be necessary for emergency workers) divide the dose or dose rate for the child by 2.

3.4.13 Thyroid dose is found by multiplying the dose rate calculated in Step 3.4.11 times the exposure time determined in Step 3.4.8.

3.5 Survey Team Data

3.5.1 Note the sample locations on the map that are covered by the Xu/Q overlay. The initial sample taken should be in a high concentration area and on a first stage survey route. Using the attached list of sample locations and teams, notify proper teams where to take samples. When results are received, mark results on appropriate map and status board.

3.5.2 When the initial field sampling results are received, assign a Xu/Q value to the sample results using the Xu/Q value for the line closest to the sample location. For the plastic overlays, all points along a given line are assumed to have the same concentration as the initial sample. The concentration at any

other point of interest can be estimated by multiplying the sample concentration by the ratio of the respective Xu/Q values.

EXAMPLE: A sample taken on a Xu/Q line of 5 x 10 E-6 indicated an iodine concentration of 5 x 10 E-7 uCi/cc and dose rate of 100 mrem/hr. Determine the concentration and dose rate expected at a Xu/Q value of 2 X 10 E-7?

SOLUTION:

$$\text{Iodine at } 2 \times 10^{-7} = \frac{2 \times 10^{-7}}{5 \times 10^{-6}} \times 5 \times 10^{-7} \frac{\text{uCi}}{\text{cc}} = 2 \times 10^{-8} \frac{\text{uCi}}{\text{cc}}$$

$$\text{Dose Rate at } \frac{2 \times 10^{-7}}{5 \times 10^{-6}} \times 100 \text{ (mrem/hr)} = 4 \text{ (mrem/hr)}$$

3.5.3 Compare measured dose rates and air concentrations to predicted values, and adjust dose projections accordingly.

3.5.4 Notify the survey team to continue surveying the affected area looking for high concentration areas and hot spots.

3.5.5 If the wind direction changes, realign overlay using 3.4.5. Sample new locations indicated by the overlay.

3.5.6 If the wind speed changes, recalibrate the overlay by dividing the original speed by the new wind speed and multiply by the concentration or dose. Resample to check new overlay calibration.

3.5.7 For puff type releases multiply wind speed by elapsed time to find distance radioactive cloud has traveled.

3.5.8 Environmental TLD's, (SC-442) and Post Accident Environmental Samples, (SC-450) may be used to give values for off-site doses.

3.6 Protective Action Guides

3.6.1 Recommend the appropriate measures to be followed with respect to the general public. Table II give the projected whole body and thyroid dose levels which warrant given protective actions (e.g. sheltering, evacuation) indicated.

3.6.2 Weather forecast information should be considered when planning protective actions.

TABLE I

$\frac{Xu}{Q}$ GINNA SITE VALUES OF AS A FUNCTION OF STABILITY AND DISTANCE

DOWNWIND DISTANCE					
METERS	FEET	MILES	UNSTABLE	NEUTRAL	STABLE
200	660	0.1	2.22E-04	5.01E-04	6.00E-04
400	1,310	0.2	8.96E-05	3.02E-04	4.73E-04
500	1,640	0.3	4.20E-05	2.36E-04	4.36E-04
600	1,970	0.4	4.71E-05	2.02E-04	3.82E-04
800	2,620	0.5	2.91E-05	1.49E-04	3.16E-04
1,000	3,280	0.6	1.83E-05	1.16E-04	2.65E-04
1,200	3,940	0.7	1.24E-05	9.27E-05	2.29E-04
1,400	4,590	0.9	8.98E-06	7.58E-05	2.01E-04
1,600	5,250	1.0	6.81E-06	6.32E-05	1.79E-04
1,800	5,910	1.1	5.35E-06	5.44E-05	1.60E-04
2,000	6,560	1.2	3.93E-06	4.76E-05	1.44E-04
2,500	8,200	1.6	2.09E-06	3.53E-05	1.17E-04
3,000	9,840	1.9	1.42E-06	2.77E-05	9.80E-05
3,500	11,500	2.2	1.20E-06	2.24E-05	8.34E-05
4,000	13,100	2.5	1.04E-06	1.86E-05	7.19E-05
4,500	14,800	2.8	9.03E-07	1.56E-05	6.27E-05
5,000	16,400	3.1	7.96E-07	1.33E-05	5.51E-05
5,500	18,000	3.4	7.07E-07	1.15E-05	4.96E-05
6,000	19,700	3.7	6.41E-07	1.02E-05	4.50E-05
6,500	21,300	4.0	6.01E-07	9.25E-06	4.11E-05
7,000	23,000	4.3	5.65E-07	8.40E-06	3.76E-05
7,500	24,600	4.7	5.33E-07	7.66E-06	3.46E-05
8,000	26,200	5.0	5.05E-07	7.02E-06	3.19E-05
8,500	27,900	5.3	4.79E-07	6.45E-06	2.96E-05
9,000	29,500	5.6	4.56E-07	5.95E-06	2.75E-05
9,500	31,200	5.9	4.35E-07	5.51E-06	2.61E-05
10,000	32,800	6.2	4.17E-07	5.17E-06	2.49E-05
11,000	36,100	6.8	3.88E-07	4.62E-06	2.28E-05
12,000	39,400	7.5	3.63E-07	4.16E-06	2.10E-05
13,000	42,700	8.1	3.41E-07	3.76E-06	1.94E-05
14,000	45,900	8.7	3.22E-07	3.42E-06	1.80E-05
15,000	49,200	9.3	3.04E-07	3.12E-06	1.67E-05
16,000	52,500	10.0	2.89E-07	2.86E-06	1.56E-05

NOTE: VALUES ARE BASED ON 1 MPH WINDS

Offsite doses are calculated at 500 meters (0.3 miles), the minimum distance to the exclusion area boundary

TABLE II

PROJECTED DOSE (REM) TO THE POPULATION	RECOMMENDED ACTIONS[a]	COMMENTS
Whole Body < 1 Thyroid < 5	No planned protective actions [b] State may issue an advisory to seek shelter and await further instructions. Monitor environmental radiation levels.	Previously recommended protective actions may be reconsidered or terminated.
Whole Body 1 to < 5 Thyroid 5 to < 25	Seek shelter as a minimum. Consider evacuation. Evacuate unless constraints make it impractical. Monitor environmental radiation levels. Control access.	If constraints exist, special consideration should be given for evacuation of children and pregnant women.
Whole body 5 and above Thyroid 25 and above	Conduct mandatory evacuation. Monitor environmental radiation levels and and adjust area for mandatory evacuation based on these levels. Control access.	Seeking shelter would be an alternative if evacuation were not immediately possible.
Projected Dose (Rem) to Emergency Team Workers.		
Whole Body 25 Thyroid 125	Control exposure of emergency team members to these levels except for lifesaving missions. (Appropriate controls for emergency workers, include time limitations, respirators, and stable iodine.)	Although respirators and stable iodine should be used where effective to control dose to emergency team workers, thyroid dose may not be a limiting factor for lifesaving missions.
Whole body 75	Control exposure of emergency team members performing lifesaving missions to this level. (Control of time of exposure will be most effective.)	

(a) These actions are recommended for planning purposes. Protective action decisions at the time of the incident must take existing conditions into consideration.

(b) At the time of the incident, officials may implement low-impact protective actions in keeping with the principle of maintaining radiation exposures as low as reasonably achievable.

TABLE III

Noble Gas Dose Conversion Factors

Time After Shutdown (hours)	Rem/hour per uCi/cc*
0	5.3 E + 02
1.5	5.0 E + 02
2.5	4.4 E + 02
3.5	3.7 E + 02
4.5	3.1 E + 02
6.5	2.4 E + 02
12.5	1.2 E + 02

*Multiply uCi/cc by the listed factor to obtain Rem/hour.

TABLE IV

Radioiodine Dose Conversion Factors

Time After Shutdown (hours)	Rem/hour Child Thyroid per uCi/cc*
1	5.1 E + 05
2	5.8 E + 05
3	6.3 E + 05
4	6.7 E + 05
5	6.9 E + 05
6	7.2 E + 05
7	7.4 E + 05
8	7.7 E + 05
9	7.9 E + 05
10	8.2 E + 05
11	8.4 E + 05
12	8.7 E + 05

*Multiply uCi/cc by the listed factor to obtain Rem/hour child thyroid

ATTACHMENT I

Dose Assessment Calculation

GENERAL INFORMATION:

Current Time:_____

Shutdown Time:_____

Release Start Time:_____

Release Vent:_____

Stability Class:_____

Vent Flow (CFM):_____

VENT CONCENTRATION FROM EFFLUENT MONITOR READING:

Noble Gas (Monitor No._____):

_____cpm X _____ uCi/cc / cpm = _____ uCi/cc *
(count rate) (calib. factor) (vent. conc.)

Radioiodine (Monitor No._____):

_____ - _____ cpm / _____ hours
(later count rate) (initial count rate) (time between cpm readings)

X _____ △ cpm/hr = _____ uCi/cc *
(calib. factor) (vent conc.)

Particulate (Monitor No._____):

_____cpm X _____ uCi/cc / cpm = _____ uCi/cc *
(count rate) (calib. factor) (vent. conc.)

To convert CFM to cc/sec:

_____ CFM x 2.8E4 cc/CF x 1 min/60 sec = _____ cc/sec

NOBLE GAS:

To calculate release RATE in Ci/sec from monitors:

_____ uCi/cc x _____ cc/sec x E-6 Ci/uCi = _____ Ci/sec

* NOTE: Vent concentration can be input directly from SPING monitors, if available.

ATTACHMENT 1 (CONT)

To predict downwind concentration:

_____ (Xu/Q) sec-mph/m^3 x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at S.B. 500 meters

_____ (Xu/Q) sec-mph/m^3 x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at 2 miles

_____ (Xu/Q) sec-mph/m^3 x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at 5 miles

_____ (Xu/Q) sec-mph/m^3 x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at 10 miles

_____ (Xu/Q) sec-mph/m^3 x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at _____ (distance)

Distance	S.B	2 miles	5 miles	10 miles	_____
Hours after Shutdown _____					
Rem/hour per uCi/cc (Table III): _____					
Whole Body Dose Rate (Rem/hour)	_____	_____	_____	_____	_____
Projected exposure duration (Hours): _____					
Projected Whole Body Dose (rem)	_____	_____	_____	_____	_____

RADIOIODINE:

To calculate release RATE in Ci/sec from monitors:

_____ uCi/cc x _____ cc/sec x E-6 Ci/uCi = _____ Ci/sec

To predict downwind concentration:

_____ (Xu/Q) sec-mph/m^3 x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at S.B. 500 meters

_____ (Xu/Q) sec-mph/m^3 x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at 2 miles

_____ (Xu/Q) sec-mph/m^3 x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at 5 miles

_____ (Xu/Q) sec-mph/m^3 x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at 10 miles

ATTACHMENT I (CONT)

_____ $\frac{\text{sec-mph}}{m^3}$ (Xu/Q) x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at _____ (distance)

Distance S.B 2 miles 5 miles 10 miles _____

Hours after Shutdown _____

rem/hour per uCi/cc (Table IV): _____

Thyroid Dose Rate, Child (rem/hour) _____ _____ _____ _____ _____

Projected exposure duration (Hours): _____

Projected Thyroid Dose, Child (rem) _____ _____ _____ _____ _____

PARTICULATE:

To calculate release RATE in Ci/sec from monitors:

_____ uCi/cc x _____ cc/sec x E-6 Ci/uCi = _____ Ci/sec

To predict downwind concentration:

_____ $\frac{\text{sec-mph}}{m^3}$ (Xu/Q) x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at S.B. 500 meters

_____ $\frac{\text{sec-mph}}{m^3}$ (Xu/Q) x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at 2 miles

_____ $\frac{\text{sec-mph}}{m^3}$ (Xu/Q) x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at 5 miles

_____ $\frac{\text{sec-mph}}{m^3}$ (Xu/Q) x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at 10 miles

_____ $\frac{\text{sec-mph}}{m^3}$ (Xu/Q) x _____ Ci/sec x 1/( )mph (windspeed) = _____ uCi/cc at _____ (distance)

Distance S.B 2 miles 5 miles 10 miles _____

Hours after Shutdown _____

* * Rem/hour per uCi/cc: _____

ATTACHMENT I (CONT)

Whole Body or Lung
Dose Rate (rem/hour) _____ _____ _____ _____ _____

Projected exposure duration (Hours): _____

Projected Whole Body or Lung
Dose (rem) _____ _____ _____ _____ _____

* NOTE: The appropriate dose conversion factor for particulates would be based upon the results of an isotopic analysis of the mixture, and referencing Reg. Guide 1.109.

EMERGENCY OFF-SITE SAMPLE POINTS

SAMPLE POINT NUMBER	LOCATION	TEAM			FIRST STAGE			SECOND STAGE		
		RED	GREEN	ORANGE	RED	GREEN	ORANGE	RED	GREEN	ORANGE
1	LAKE & KNICKERBOCKER	X	X	X	X		X		X	X
2	BRICK CHURCH & KNICKERBOCKER	X			X					
3	BRICK CHURCH & ONTARIO CENTER		X			X				
4	BRICK CHURCH & SLOCUM	X			X					
5	LAKE & SLOCUM	X	X	X	X	X			X	X
6	BEAR CREEK HARBOR		X	X			X		X	
7	PUTMAN & FURNACE			X			X			
8	TRIMBLE & FURNACE			X			X			
9	KNICKERBOCKER & KENYON			X			X			
10	ONTARIO CENTER RD. & KENYON	X	X		X	X				
11	SLOCUM & KENYON	X			X					
12	RT-104 & ONTARIO CENTER	X	X			X		X		
13	RT-104 & KNICKERBOCKER	X					X			
14	RT-104 & LAKESIDE		X			X				
15	BERG & LAKESIDE		X			X				
16	BOSTON & LAKESIDE		X			X				
17	LAKE & LAKESIDE		X			X			X	X
18	ONTARIO-ON-THE-LAKE									X
19	SHEPHERD & FISHER			X			X			

EMERGENCY OFF-SITE SAMPLE POINTS

SAMPLE POINT NUMBER	LOCATION	TEAM			FIRST STAGE			SECOND STAGE		
		RED	GREEN	ORANGE	RED	GREEN	ORANGE	RED	GREEN	ORANGE
20	TRIMBLE & FISHER			X			X			X
21	RT-104 & FISHER			X						X
22	TRUMMONDS & ARBOR			X						X
23	TRUMMONDS & WALWORTH-ONTARIO			X						X
24	RT-350 & PADDY LANE	X						X		
25	RT-350 & 286	X						X		
26	WALWORTH	X						X		
27	STONY LONESOME & LAKE		X						X	
28	PULTNEYVILLE		X	X					X	X
29	SALMON CREEK & EATON			X						X
30	SALMON CREEK & RT-104			X						X
31	RT-21 & RT-104		X						X	
32	MARION (RG&E) SUB-STATION		X						X	
33	PLANK ROAD & LINCOLN	X						X		
34	COUNTY LINE & LAKE		X	X					X	X
35	COUNTY LINE & BOSTON			X						X
36	COUNTY LINE & BERG			X						X
37	COUNTY LINE & RT-104			X						X
38	RT-250 & STATE			X						X

EMERGENCY OFF-SITE SAMPLE POINTS

SAMPLE POINT NUMBER	LOCATION	TEAM			FIRST STAGE			SECOND STAGE		
		RED	GREEN	ORANGE	RED	GREEN	ORANGE	RED	GREEN	ORANGE
39	SALT & PLANK	X						X		
40	EASTERN MONROE SERVICE CENTER PLANK ROAD			X						X
41	PENFIELD		X						X	
42	SALT & SCHLEGEL	X						X		
43	SALT & WOODWARD	X						X		
44	KLEM & WHITTING		X						X	
45	LAKE ROAD & ROUTE 250		X						X	
46	COUNTY LINE & PLANK	X						X		
47	RT-21 & FARNSWORTH		X						X	
48	RT-21 & POUND		X						X	
49	FURNACE & KENYON			X			X			
50	RT-350 & PLANK	X						X		
51	PLANT & FIVE MILE LINE		X						X	

KEY FACILITIES LOCATED ABOUT GINNA SITE

Company and Product	Distance from Site	Direction from Site
Duffy-Mott Co., Inc. Williamson Baby Foods	8-1/2 miles	Southeast
The Waterman Food Products Co. Food Processing	3-4 miles	South
Ontario Kraut Corp. 7 Railroad Ave. Food Processing	3-4 miles	South SW
Victor Preserving Co. Food Processing	3-4 miles	South
Ontario Cold Storage Food Processing	3-4 miles	South SW
Waterman Fruit Products Co. Food Processing	3-4 miles	South SW
Ontario Food Products Food Processing	3-4 miles	South SW
Lyndan Products Co. Food Processing	3-4 miles	South SW
Ontario Water District	1.1 miles	East
Williamson Water District	5-1/4 miles	East
Ontario Fire Department	4 miles	Southeast
Ontario Center Fire Department	3.5 miles	South
Union Hill Fire Department	5 miles	Southwest
Ontario Town Hall	4 miles	South

HOUSES IN AND ABOUT GINNA SITE

House Location	Owner's	Distance from Site	Direction from Site
House on Lake Road directly south of plant	Beebee	1,500 ft.	South
House on S.W. corner of Lake Road and Ontario Ctr. Rd.	Loomis	2,000 ft.	South SE
House on North side of Lake Rd. S.E. of Training Center access Road	Taillee	2,500 ft.	Southeast
House on private road north of above house		2,000 ft.	Southwest

ATTACHMENT II

Instructions for interpreting and accessing Data in the MIDAS storage computer in the Meterological Tower Trailer.

Set up for TI-Silent 700 in TSC
NUM - depress switch right
LOW SPEED - depress switch right
HALF DEPLEX - depress switch left
ON LINE - depress switch left
ON/OFF - push switch to forward position

The computer can be quizzed by phone using the following numbers:

300 BAUD TERMINAL - phone # 524-5711 (TI Silent 700)
1200 BAUD TERMINAL - phone # 524-5761

There are short time periods when the phone connections are disabled while internal calculations are taking place. Whenever the 1200 BAUD line is in use, the 300 BAUD line is disabled. Normal communication times from the master MIDAS computer is a 30 minute period centered around 3:30, 7:30, and 11:30 EST.

To obtain:

Last 15 minute average - Type AVXX [RETURN]
Last collected value - Type PPXX [RETURN]

If ILLEGAL REQUEST appears, retype the command again. Illegal request is returned if the command was typed wrong of a spurious charater was included, i.e. - line feed.

For AVXX prinout:

XX	= 01 -	Prints all speed averages
	= 02 -	Prints all direction averages
	= 04 -	Prints all temperature averages
	= 10 -	Prints all delta temperature averages
	= 20 -	Prints miscellaneous averages
	= 40 -	Prints rain averages
	= 77 -	Prints all averages

For PPXX printout:

Channel	Number	Name
XX	01	WS 33A
	02	WS 33B
	03	WS 150A
	04	WS 150B
	05	WS 250

ATTACHMENT II (CONT)

Channel	Number	Name
XX	08	WD 33A
	09	WD 33B
	10	WD 150A
	11	WD 150B
	12	WD 250
	14	TER 33A
	15	TER 33B
	16	TE 150A
	17	TE 150B
	18	TE 250A
	19	TE 250B
	20	DT 150A
	21	DT 150B
	22	DT 250A
	23	DT 250B
	24	DEW 33
	25	TEG 33
	32	RAIN

INTERPRETATION OF DATA

15 min. averages for 01-15 min; 16-30 min; 31-45 min; 46-60 min

WS - Wind Speed - Average divided by 10 = measured value
WD - Wind Direction - Average is read directly
TE - Temperature - Average divided by 10 = measured value
DT - Delta Temperature - Average divided by 10 = calculated value
DEW - Dewpoint Temperature - Average divided by 10 = measured value
TEG - Ambient Temperature at Dewpoint Monitor - Average divided by 10 = measured value
RAIN - Rainfall - Average divided by 100 = accumulated inches of rain
NAME - Parameter and height in meters on tower
AVGE - Average of values collected in last 15 minutes average
ST.DEV - Standard deviation of average data
MIN. - Minimum value for last 15 minute average
MAX. - Maximum value for last 15 minute average
I - Index code: 0 = Good; 1 = Questionable; 2 = Bad; 3 = Unsteady wind data; 4 = Calm Wind; 5 = Flat direction
MNDR - Meander range for wind direction
AVRN - Average of meander range
CNT - No longer used for data

ATTACHMENT III

Instructions for accessing data at the Substation 204 meteorological tower on Route 104 between Slocum and Lakeside Roads.

The equipment consists of a 33 foot tower with wind speed and direction indicators, a strip chart recorder, and an Odessa Data Logger.

The data logger can be quizzed by phone using the following specifications:

Speed	- 1200 band	
Parity	- Odd	
Duplex	- Full	
Data bits	- 7	
Stop bits	- 1	
Phone #	- 524-2067	In case of a modem problem, call Galson Technical Services, Lee Davis, (315) 428-6612.

Odessa Commands

H - Output a summary of hourly averages collected from midnight until last hour. Data will include wind direction, wind speed, and sigma theta (SD1).

G - Output 5 minute values for present hour

L - Ouput a listing of the operating configuration

P - Output 5 minute values

T - Time

Control CD to exit

ATTACHMENT IV

RECOMMENDED PROCEDURE FOR REQUESTING METEOROLOGICAL SUPPORT FROM THE NATIONAL WEATHER SERVICE - ROCHESTER

(a) Contact the National Weather Service at

(716) 328-7633 (unlisted)
263-6808 (unlisted)
328-7391 (listed 8 a.m. to 4 p.m.)

(b) Provide to the Nation Weather Service

- Your name
- You are calling from Rochester Gas & Electric Ginna Nuclear Power Plant
- A phone number you can be contacted
- A brief explanation of the nature of the release and current wind conditions at the plant

(c) Request information based on below

1. An emergency on-going or immediately imminent release:

   Ask for the current surface wind conditions and the forecast for the next three (3) to six (6) hours. The forecaster on duty should be able to provide the information within a few minutes. This should help with evacuation decisions in the immediate vicinity of the release.

2. A potential or imminent explosion-type of release which would drive solid radioactive debris far up into the atmosphere:

   This is the type of situation where fall-out plots may be helpful. Unfortunately fall-out plots take time to prepare so that in an on-going or immediately imminent situation, they are not very useful. In such a short-fused situation a rough estimate from the surface and upper air winds could be more readily provided by the forecaster on duty.

3. A potential, but not immediate release:

[illegible]

ATTACHMENT IV (CONT'D)

In this case there may be time to plan evacuations in advance. Don't, however, expect an immediate, detailed surface and upper air 24-hour wind forecast. Make the call requesting the data and give the forecaster on duty 15 minutes to 1/2 hour to prepare the information and return your call. The most significant information to a low-level release would be the surface wind direction and speed. The surface wind is most important in the immediate vicinity of the release, that is, roughly 100 to 500 yards down-wind depending on the strength of the release, the speed of the wind and the stability of the atmosphere. Beyond that distance the plume spreads so that the boundary layer winds (average from the surface to approximately 2,000 feet) become more important. Twenty four hour (24 hr.) forecasts of both the surface wind and the boundary layer wind can be made although local effects such as the land-lake breeze make such forecasts difficult in Western New York.

When incidents on the scale of the Three Mile Island situation occur, the National Weather Service will take special action in terms of meteorological support. This can include special observations and forecast information. Under these circumstances, the National Weather Service should be informed as soon as possible so that arrangements (personnel, equipment, etc.) can be made to provide additional support.

ATTACHMENT V

IBM-PC ASSESSMENT COMPUTER PROGRAM

1.0 RUNNING THE PROGRAM

1.1 Starting setup of the computer

System Unit . . . . . OFF
Color Display . . . . ON
Printer . . . . . ON

1.2 Place DOS 3.1 disc into A-drive (left side) with label side up

1.3 Turn system unit to . . . ON (wait approximately 45 seconds)

1.4 When prompted enter new date in the form MM-DD-YY; then press <—┘ (return)

1.5 When prompted enter new time in the form HH:MM; then press <—┘ (return) (note: hours should be entered in 24 hour format i.e. 01:00 for 1 a.m. and 13:00 for 1 p.m.)

1.6 The A> prompt will now be seen on the screen. Remove the DOS 3.1 disc and place the symphony 1.1 disc in the A drive. Type immediately after A> ACCESS and press <—┘ (return).

1.7 Select "SYMPHONY" from the menu and press <—┘ (return). Wait approximately 2 minutes for the "SYMPHONY" serial number to appear then press <—┘ (return).

1.8 Place the EOF5MOD disc in drive B (right side).

1.9 Press the [F9] button then type FR; press <—┘ (return) and wait approximately 150 seconds for the EOF5MOD file to load.

1.10 Once the EOF5MOD file is loaded follow the program instruction on screen.

1.11 Use the [PRINT SCREEN] key to print the DATA ENTRY FORM.

1.12 Use the [ALT][S] keys to print the NYS Part II form.

1.13 Use the [ALT][W] keys to print the DOSE PROJECTIONS/SURVEY DATE FORM.

2.0 ENTERING EOF5MOD PARAMETERS

[illegible]

ATTACHMENT V (CONT'D)

2.1 When the EOF5MOD code is loaded as described above, the cursor should be on "CALC TIME". Type in the "CALC TIME" in 24 hours notation, press <—┘ (return).

2.2 The cursor should no be on "T250". Type in the 250 foot met tower temperature reading in degrees farenheit, press <—┘ (return).

2.3 The cursor should now be on "T33". Type in the 33 foot met tower temperature reading in degrees farenheit, press <—┘ (return).

2.4 The cursor should no be on "WINDSPD". Type in the wind-speed, in MPH, from the met tower 33 foot reading, press <—┘ (return).

2.5 The cursor should now be on R-10a. Type in the R-10A reading (in units of UCi/cc) using data from the SPING MONITOR UNIT 1 CHANNEL 3 (the sping units need to be corrected form UCi to UCi/cc. This can be done via the sping unit), "interpret mode"; press <—┘ (return).

2.6 The cursor should now be on R-10B. Type in the R-10b reading (in units of UCi/cc) using data from the SPING MONITOR UNIT 2 CHANNEL 3 (The sping units need to be corrected from UCi to UCi/cc. This can be done via the sping unit), "interpret mode"; press <—┘ (return).

2.7 The cursor should now be on R-12. Type in the R-12 reading (in units of UCi/cc) using data from the SPING MONITOR UNIT I CHANNELS 5, 7, or ((depending on the amount of the release), press <—┘ (return).

2.8 The cursor should now be on R-14. Type in the R-14 reading (in units of UCi/cc) using data from the SPING MONITOR UNIT 2 CHANNEL 5, 7 or 9 (depending on the amount of the release), press <—┘ (return).

2.9 The cursor should now be on R-15. Type in the R-15 reading (in units of UCi/cc) using data from the SPING MONITOR UNIT 3 CHANNEL 5, 7, or 9 (depending on the amount of the release), press <—┘ (return).

2.10 The cursor should now be on "SHUTDOWN DATE". Enter the date the plant shut down. Press <—┘ (return).

2.11 The cursor should not be on "SHTDWN TIME". Enter the time that the plant shut down (in 24 hour format). Press <—┘ (return).

ATTACHMENT V (CONT'D)

2.12 The cursor should not be on "DATA DATE". Enter the date that the data was taken. Press <—┘ (return).

2.13 The cursor should now be on "DATA TIME". Enter the time that the data was taken (in 24 hour format). Press <—┘ (return).

2.14 The cursor should now be on "EXPOSURE". Enter the length of time that the population has been or will be exposed since the start of the release (time is to be entered in HH:MM format). If a time of 1 hour is entered results will indicate dose rate (i.e. R/hr). Press <—┘ (return).

2.15 The cursor should be on "'X' MILES". If you wish to calculate dose projections at some other distance besides ten miles input the distance.

2.16 The whole body doses in Rem should now be displayed at the bottom of the spreadsheet along with protective action recommendations.

ATTACHMENT VI

PASQUILL STABILITY CLASS AND Xu/Q VALUES AS A FUNCTION OF STABILITY AND DISTANCE

1.0 Determining the Pasquill stability class

1.01 Obtain the temperature at 33' and 250' and determine the delta T as in step 3.4.1 of SC-420. If the 250' temperature is unavailable, the 150' temperature may be used.

1.02 Select the right hand columns in Table A giving the range of delta T for the 250 ft. - 33 ft. delta T (DEG. F/217 ft).

1.03 Determine in which range the measured delta T falls and select the corresponding Pasquill stability class listed in the left hand column of Table A.

1.1 Using Table B, determine the Xu/Q value for the stability class determined in step 1.03 above and the distance desired.

1.2 The Xu/Q values can be used in Attachment I to SC-420 for dose assessment calculations.

TABLE A

PASQUILL STABILITY CLASS CRITERIA BASED ON DELTA TEMPERATURE

PASQUILL STABILITY CLASS	DELTA T (DEG. F/100 FT.)		150 FT. - 33 FT. DELTA T (DEG. F/117 FT.)		250 FT. - 33 FT. DELTA T (DEG. F/217 FT.)	
	GREATER THAN	LESS THAN OR EQUAL TO	GREATER THAN	LESS THAN OR EQUAL TO	GREATER THAN	LESS THAN OR EQUAL TO
A	----	-1.0	----	-1.17	----	-2.17
B	-1.0	-0.9	-1.17	-1.05	-2.17	-1.95
C	-0.9	-0.8	-1.05	-0.94	-1.95	-1.74
D	-0.8	-0.3	-0.94	-0.35	-1.74	-0.65
E	-0.3	0.8	-0.35	0.94	-0.65	1.74
F	0.8	2.2	0.94	2.57	1.74	4.77
G	2.2	----	2.57	----	4.77	----

SC-420:30

$\frac{Xu}{Q}$

GINNA SITE VALUES OF Q AS A FUNCTION OF STABILITY AND DISTANCE

METERS	MILES	A	B	C	D	E	F	G
200	0.1	1.15E-04	2.22E-04	3.67E-04	5.01E-04	5.03E-04	6.00E-04	6.45E-04
400	0.2	3.48E-05	8.96E-05	1.78E-04	3.02E-04	3.37E-04	4.73E-04	5.36E-04
500	0.3	1.16E-05	4.20E-05	1.25E-04	2.36E-04	2.80E-04	4.36E-04	5.46E-04
600	0.4	1.14E-05	4.71E-05	1.06E-04	2.02E-04	2.50E-04	3.82E-04	4.70E-04
800	0.5	5.80E-06	2.91E-05	7.02E-05	1.49E-04	1.94E-04	3.16E-04	4.22E-04
1000	0.6	3.79E-06	1.83E-05	5.09E-05	1.16E-04	1.55E-04	2.65E-04	3.81E-04
1200	0.7	2.81E-06	1.24E-05	3.86E-05	9.27E-05	1.27E-04	2.29E-04	3.46E-04
1400	0.9	2.16E-06	8.98E-06	3.03E-05	7.58E-05	1.06E-04	2.01E-04	3.16E-04
1600	1.0	1.71E-06	6.81E-06	2.44E-05	6.32E-05	9.14E-05	1.79E-04	2.88E-04
1800	1.1	1.39E-06	5.35E-06	2.01E-05	5.44E-05	7.99E-05	1.60E-04E	2.64E-04
2000	1.2	1.22E-06	3.93E-06	1.70E-05	4.76E-05	7.05E-05	1.44E-04	2.43E-04
2500	1.6	1.02E-06	2.09E-06	1.18E-05	3.53E-05	5.33E-05	1.17E-04	2.00E-04
3000	1.9	8.79E-07	1.42E-06	8.76E-06	2.77E-05	4.24E-05	9.80E-05	1.67E-04
3500	2.2	7.76E-07	1.20E-06	6.91E-06	2.24E-05	3.46E-05	8.43E-05	1.43E-04
4000	2.5	6.95E-07	1.04E-06	5.59E-06	1.86E-05	2.87E-05	7.19E-05	1.23E-04
4500	2.8	6.29E-07	9.03E-07	4.61E-06	1.56E-05	2.42E-05	6.27E-05	1.08E-04
5000	3.1	5.75E-07	7.96E-07	3.87E-06	1.33E-05	2.07E-05	5.51E-05	9.99E-05
5500	3.4	5.29E-07	7.07E-07	3.30E-06	1.15E-05	1.80E-05	4.96E-05	9.30E-05
6000	3.7	4.90E-07	6.41E-07	2.86E-06	1.02E-05	1.65E-05	4.50E-05	8.68E-05
6500	4.0	4.59E-07	6.01E-07	2.53E-06	9.25E-06	1.52E-05	4.11E-05	8.12E-05
7000	4.3	4.32E-07	5.65E-07	2.25E-06	8.40E-06	1.41E-05	3.76E-05	7.61E-05
7500	4.7	4.08E-07	5.33E-07	2.02E-06	7.66E-06	1.30E-05	3.46E-05	7.15E-05
8000	5.0	3.86E-07	5.05E-07	1.82E-06	7.02E-06	1.21E-05	3.19E-05	6.74E-05
8500	5.3	3.66E-07	4.79E-07	1.65E-06	6.45E-06	1.13E-05	2.96E-05	6.36E-05
9000	5.6	3.49E-07	4.56E-07	1.50E-06	5.95E-06	1.06E-05	2.75E-05	6.07E-05
9500	5.9	3.33E-07	4.35E-07	1.37E-06	5.51E-06	9.94E-06	2.61E-05	5.80E-05
10000	6.2	3.19E-07	4.17E-07	1.26E-06	5.17E-06	9.47E-06	2.49E-05	5.55E-05
11000	6.8	2.97E-07	3.88E-07	1.11E-06	4.62E-06	8.61E-06	2.28E-05	5.10E-05
12000	7.5	2.79E-07	3.63E-07	9.76E-07	4.16E-06	7.88E-06	2.10E-05	4.71E-05
13000	8.1	2.62E-07	3.41E-07	8.67E-07	3.76E-06	7.24E-06	1.94E-05	4.37E-05
14000	8.7	2.47E-07	3.22E-07	7.76E-07	3.42E-06	6.68E-06	1.80E-05	4.06E-05
15000	9.3	2.34E-07	3.04E-07	6.98E-07	3.12E-06	3.18E-06	1.67E-05	3.79E-05
16000	10.0	2.23E-07	2.89E-07	6.32E-07	2.86E-06	5.74E-06	1.56E-05	3.54E-05

NOTE: VALUES ARE BASED ON 1 MPH WINDS

Off-site doses are calculated at 500 meters (0.3 miles), the miminum distance to the exclusion area boundary

ATTACHMENT VII

RMS PROCESS MONITOR CALIBRATION FACTORS AS OF /87

R-10A CONTAINMENT IODINE:

uCi/cc Iodine-131 = (△ cpm/hour) (5.05 E-12)

R-10B PLANT VENT IODINE:

uCi/cc Iodine-131 = (△ cpm/hour) (4.74 E-12)

R-11 CONTAINMENT PARTICULATE:

uCi/cc as Cs-137 = (cpm) (2.54 E-12)

R-12 CONTAINMENT GAS:

uCi/cc as Xe-133 = (cpm) (5.6 E-8)

R-13 PLANT VENT PARTICULATE:

uCi/cc as Cs-137 = (cpm) (2.55 E-12)

R-14 PLANT VENT GAS:

Calibration factors calculated based on Kr-85 and Xe-133 calibration factors.

uCi/cc as Xe-133 = (cpm) (3.3 E-8)

R-15 AIR EJECTOR AND GLAN STEAM EXHAUST GAS:

uCi/cc as Xe-133 = (cpm) (1.36 E-6)

uCi/cc as normal gas mixture * = (cpm) (5.0 E-8)

* Based on the mixture of noble gas present in the reactor coolant during the 01/25/82 tube rupture which is representative of normal operations.

R-16 CONTAINMENT FAN COOLER SERVICE WATER:

uCi/cc as Cs-137 = (cpm) (1.3 E-7)

R-17 COMPONENT COOLING:

uCi/cc as Cs-137 = (cpm) (1.3 E-7)

RMS PROCESS MONITOR CALIBRATION FACTORS AS OF _____

R-18 RADWASTE SYSTEM DISCHARGE:

uCi/cc as Cs-137 = (cpm) (1.18 E-8)

R-19 STEAM GENERATOR BLOWDOWN:

uCi/cc as Cs-137 = (cpm) (2.9 E-8)

R-20 SPENT FUEL POOL HEAT EXCHANGER SERVICE WATER:

uCi/cc as Cs-137 = (cpm) (2.9 E-8)

R-21 RETENTION TANK:

uCi/cc as Cs-137 = (cpm) (1.01 E-8)

R-22 HIGH CONDUCTIVITY WASTE TANK:

uCi/cc as Cs-137 = (cpm) (8.84 E-9)

R-31 STEAM LINE RADIATION MONITOR:

mr/hr = (cpm) (2.03 E-2)

R-32 STEAM LINE RADIAITON MONITOR:

mr/hr = (cpm) (1.83 E-2)

R-36 CONTROL ROOM NOBLE GAS MONITOR:

uCi/cc as Kr-85 = (cpm) (2.16 E-8)

uCi/cc as Xe-133 = (cpm) (1.31 E-7)

R-37 CONTROL ROOM PARTICULATE MONITOR:

uCi/cc as Cs-137 = (cpm) (2.63 E-13)

R-38 CONTROL ROOM IODINE MONITOR:

uCi/cc as I-131 = (cpm) (2.99 E-12)

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

PROCEDURE NO. SC-421 REV. NO: 6

DETERMINATION OF IODINE OR PARTICULATE ACTIVITY

TECHNICAL REVIEW

PORC REVIEW DATE 12-10-86

S M Breeth
PLANT SUPERINTENDENT

12-17-86
EFFECTIVE DATE

QA X NON-QA _____ CATEGORY 1.0

REVIEWED BY: _____

THIS PROCEDURE CONTAINS 6 PAGES

SC-421

DETERMINATION OF IODINE OR PARTICULATE ACTIVITY

1.0 PURPOSE:

1.1 The determination of the airborne iodine concentration so as to determine resultant thyroid dose is extremely important during the first 2 hours after a release. Therefore, the procedure consists of rapid sample collection and preliminary analysis of the particulate filters and iodine cartridges in the field.

2.0 REFERENCES:

2.1 Nuclear Emergency Response Plan

2.2 SC-323, Emergency Off-Site Radiation Survey Teams

2.3 SC-324, Emergency On-Site Radiation Survey Teams

3.0 INSTRUCTIONS:

3.1 The following equipment will be available.

3.1.1 Combination particulate filter and cartridge holders.

3.1.2 Glass fiber filters, 50 mm, Gelman Type A/E or equivalent.

3.1.3 Silver zeolite cartridge for iodine collection, Science Applications, Inc. Type GY-130 or equivalent.

3.1.4 Battery operated count rate meter, 0 - 50,000 cpm, audible alarm, rechargeable, Eberline model RM-14 or equivalent.

3.1.5 End window GM probe, alpha beta, gamma sensitive, Eberline model HP-190 or equivalent.

3.1.6 Off-site team air sampler, approximately 30 lpm flow rate using a glass fiber and silver zeolite cartridge, battery operated 12 volt, RADECO model H-809C or equivalent.

3.1.7 On-site team low volume air sampler, battery operated, rechargeable, 4 lpm flow rate, Gilian model HFS-113T or equivalent.

3.1.8 Emergency Survey Center samplers, battery operated, rechargeable, time, approximately 30 lpm using a glass fiber filter and silver zeolite cartridge, RADECO model H-809 B2 or equivalent.

3.2 Off-Site Team Sampling:

3.2.1 Install glass fiber filter and silver zeolite cartridge in the filter holder for the H-809C sampler.

3.2.2 Screw filter holder into H-809C sampler.

3.2.3 Put on/off switch into "off" position.

3.2.4 Connect power cables to 12 volt battery, red clamp to positive terminal and black clamp to ground.

3.2.5 Turn on sampler and record start time and flow rate in lpm (in the field record book of survey sheet).

3.2.6 Allow sampler to run for approximately ten minutes, shut off sampler and record stop time.

3.2.7 Determine the liters of air sampled as follows:

_____ lpm x _____ minutes sampled = _____ liters

3.2.8 Determine the background reading in cpm using the RM-14 and HP-190 probe and record the reading. If background in the area is > 200 cpm, move to an area where the background is < 200 cpm. If background <200 cpm is difficult to locate, the Dose Assessment Manager can provide additional instructions.

3.2.9 Remove the particulate filter from the holder, place the HP-190 probe close to but not touching the filter, and record the reading.

3.2.10 Determine the particulate activity as follows:

$$\frac{(\quad)\text{ cpm filter} - (\quad)\text{ cpm background}}{(\quad)\text{ liters}} \times 2.37 \times 10^{-8} = \_\_\ \text{uCi/cc}$$

NOTE: Minimum sensitivity for a 10 minute sample at 30 lpm, a 100 cpm net reading, and a probe efficiency of 1.9% is 7.9×10^{-9} uCi/cc.

3.2.11 Remove the silver zeolite cartridge from the holder, place the HP-190 probe against the inlet side of the cartridge and record the cpm reading. If the reading is off scale, determine the iodine activity per Step 3.2.13 instead of Step 3.2.12.

3.2.12 Determine the iodine activity as follows for probe against the inlet side of cartridge:

$$\frac{(\quad)\text{ cpm cartridge} - (\quad)\text{ cpm background}}{(\qquad)\text{ liters}} \times 8.34 \times 10^{-8} = \text{uCi/cc}$$

NOTE: Minimum sensitivity for a 10 minute sample at 30 lpm, a 100 cpm net reading and a probe efficiency of 0.54% is 2.8×10^{-8} uCi/cc. This is equivalent to 0.08 Rem Thyroid (0-2 hour) and 0.8 Rem Thyroid (1 day).

NOTE: The possibility exists that the background may be too high to determine a reading from the cartridge. If this condition exists, move to a lower background area and re-survey the cartridge.

3.2.13 Determine the iodine activity as follows for the HP-190 probe one inch (one cartridge thickness) away from the inlet side of the cartridge.

$$\frac{(\quad)\text{ cpm cartridge} - (\quad)\text{ cpm background}}{(\qquad)\text{ liters}} \times 2.37 \times 10^{-7} = \text{uCi/cc}$$

3.2.14 Convert Iodine 131 Concentration to thyroid dose by the following formulas and mark on map.

(uCi/cc Iodine)(3×10^{6}) = Rem thyroid (0-2 hour)

(uCi/cc Iodine)(3×10^{7}) = Rem thyroid (1 day)

3.2.15 Place filter and cartridge in the envelope, record the required information on the envelope and save for lab analysis.

3.3 On-Site team sampling:

3.3.1 Install glass fiber filter and silver zeolite cartridge in the filter holder attached to the low volume sampler.

3.3.2 Remove anti-tamper cover plate and place master ON/OFF switch in ON position. This switch also resets the time. The switch is located in the lower left hand corner.

3.3.3 If charge status of unit is unknown, temporarily start unit and press the test button. "BAT." LED should light indicating a charge of 95% or greater. If LED does not light, recharge unit before use. Replace anti-tamper cover.

3.3.4 Unit is now ready for use.

3.3.5 At start of sampling period record start time, Press test, record time in digital display and a flow of 4.0 LPM (unless unit has been reset at another flow rate). Turn unit on using ON/OFF switch located to the right of the digital display.

NOTE: Master ON/OFF switch must be on for unit to operate. Master ON/OFF switch also resets time display.

3.3.6 If the "FAULT" LED is lit. This was activated by either an undervoltage, overcurrent, or overpressure (restricted flow) beyond the units capability. The motor is stopped and the time is latched. By pressing the "TEST" button, the time (in minutes) into sampling at which the fault occurred will be displayed indicating a valid sample period.

NOTE: The timer stops after 15-20 seconds into a fault condition to prevent unnecessary shutdown.

3.3.7 At end of sampling period turn pump off using ON/OFF switch located to right of digital display. Press "TEST" button, record time in digital display, stop time and all other pertinent information on data sheet.

3.3.8 Determine the background reading in cpm using the RM-14 and HP-190 probe and record the reading. If the background in the area is > 200 cpm, move to an area where the background is < 200 cpm. If background <200 cpm is difficult to locate, the Dose Assessment Manager can provide additional instructions.

3.3.9 Remove the particulate filter from the holder, place the HP-190 probe close but not touching the filter and record the cpm reading.

3.3.10 Determine the particulate activity as follows:

$$\frac{(\quad)\text{ cpm filter} - (\quad)\text{ cpm background}}{(\quad)\text{ volume in liters}} \times 2.37 \times 10^{-8} = \text{uCi/cc}$$

NOTE: Minimum sensitivity for a 30 minute sample at 4 lpm, a 50 cpm net reading, a probe efficiency of 1.9% is 6 x 10^{-9} uCi/cc.

3.3.11 Remove the silver zeolite cartridge from the holder, place the HP-190 probe against the inlet side of the cartridge and record the cpm reading.

3.3.12 Determine the iodine activity as follows:

$$\frac{(\quad)\text{ cpm cartridge} - (\quad)\text{ cpm background}}{(\quad)\text{ volume in liters}} \times 8.34 \times 10^{-8} = \text{uCi/cc}$$

NOTE: Minimum sensitivity for a 30 minute sample at 4 lpm, a 50 cpm net reading and a probe efficiency of 0.54% is 2 x 10^{-8} uCi/cc.

NOTE: The possibility exists that the background may be too high to determine a reading from the cartridge. If this condition exists, move to a lower background area and re-survey the cartridge.

3.3.13 Place the filter and cartridge on the envelope, record the required information on the envelope and save for lab analysis.

3.4 Emergency Survey Center and Technical Support Center Sampling:

3.4.1 Install glass fiber filter and silver zeolite cartridge in the filter holder for the H-809 B2 sampler.

3.4.2 Screw filter holder into H-809 B2 sampler.

3.4.3 Move sampler to desired location.

3.4.4 Set timer to 10 minutes.

3.4.5 Start sampler and record time and flow rate in lpm. The sampler will automatically shut off in 10 minutes.

3.4.6 Determine the liters of air sampled as follows:

_____ lpm x 10 minutes sampled = ____ liters

3.4.7 Determine the background reading in cpm using the RM-14 and HP-190 probe and record the reading. If the background in the area is > 200 cpm, move to an area where the background is < 200 cpm. If background <200 cpm is difficult to locate, the Dose Assessment Manager can provide additional instructions.

3.4.8 Remove the particulate filter from the holder, place the HP-190 probe close to but not touching the filter and record the cpm reading.

3.4.9 Determine the particulate activity as follows:

$$\frac{(\quad)\text{ cpm filter} - (\quad)\text{ cpm background}}{(\quad)\text{ liters}} \times 2.37 \times 10^{-8} = \text{uCi/cc}$$

NOTE: Minimum sensitivity for a 10 minute sample at 30 lpm a 100 cpm net reading, and a probe efficiency of 1.9% is 7.9×10^{-9} uCi/cc.

3.4.10 Remove the silver zeolite cartridge from the holder, place the HP-190 probe against the inlet side if the cartridge and record the cpm reading. If the reading is off-scale, determine the iodine activity per 3.4.12 instead of Step 3.4.11.

3.4.11 Determine the iodine activity as follows for probe against the cartridge:

$$\frac{(\quad)\text{ cpm cartridge} - (\quad)\text{ cpm background}}{(\quad)\text{ liters}} \times 8.34 \times 10^{-8} = \text{uCi/cc}$$

NOTE: Minimum sensitivity for a 10 minute sample at 30 lpm a 100 cpm net reading and a probe efficiency of 0.54% is 2.8×10^{-9} uCi/cc. This is equivalent to 0.08 Rem thyroid (0-2 hour) and 0.8 Rem Thyroid (1 day).

NOTE: The possibility exists that the background may be too high to determine a reading from the cartridge. If this condition exists, move to a lower background area and re-survey the cartridge.

3.4.12 Determine the iodine activity as follows for the HP-190 probe <u>one inch</u> (one cartridge thickness) away from the inlet side of the cartridge.

$$\frac{(\quad)\text{ cpm cartridge} - (\quad)\text{ cpm background}}{(\quad)\text{ liters}} \times 2.37 \times 10^{-7} = \text{uCi/cc}$$

3.4.13 Place the filter and cartridge in an envelope marked with the time of sample, liters sampled, and location and save for lab analysis.

3.5 For more accurate results, analysis may be performed in the plant environmental lab with the GeLi and multichannel analyzer per PC-1.4.

Rochester Gas and Electric Corporation

Inter-Office Correspondence

July 18, 1986

SUBJECT: Revisions to the Electric & Steam Production Nuclear Emergency Offsite Response Procedures

TO: Holders of the Electric & Steam Production Nuclear Emergency Offsite Response Procedures Manual

Enclosed is a revised procedure for the Electric & Steam Production Nuclear Emergency Offsite Response Procedures Manual. Manual holders should read the attached material and make the changes listed below. Superseded and deleted procedures should be destroyed and the attached acknowledgement form completed when these changes have been entered.

Instructions for making changes

Remove the following pages:	Insert the following pages:
Index pages i, ii	Index pages i, ii
ESP 2/6, 2/7	ESP 2/6, 2/7
ESP 3/1	ESP 3/1
ESP 4/3	ESP 4/3
ESP 5/1 through 5/C-3	ESP 5/1 through 5/C-3
ESP 8/1	ESP 8/1
ESP 10/4	ESP 10/4
ESP 16/4, 16/5	ESP 16/4, 16/5
ESP 17/2	ESP 17/2
ESP 19/1, 19/2, 19/3	ESP 19/1,19/2,19/3
	ESP 19/4
ESP 20/1 Through 20/11	ESP 20 through 20/2 and Attachment 1
	ESP 22/1

Jennifer McGuire

Jenny

Document Control

ROCHESTER GAS AND ELECTRIC CORPORATION

Inter Office Correspondence

July 17, 1986

SUBJECT: Revisions to Electric and Steam Production Nuclear Emergency Offsite Response Procedures

TO: Document Control

Please distribute the attached changes as listed below:

Replace	Page	-i- Index and -ii-
Replace	Pages	2/6, 2/7
Replace	Page	3/1
Replace	Page	4/3
Replace	Pages	5/1 through 5/C-3
Replace	Page	8/1
Replace	Page	10/4
Replace	Pages	16/4, 16/5
Replace	Page	17/2
Replace	Pages	19/1, 19/2, 19/3
Insert	Page	19/4
Remove	Pages	20/1 through 20/11
Insert	Pages	20 through 20/2 and Attachment 1
Insert	Page	22/1

David W. Burke
Corporate Emergency Planner

Attachments

ELECTRIC AND STEAM PRODUCTION DEPARTMENT

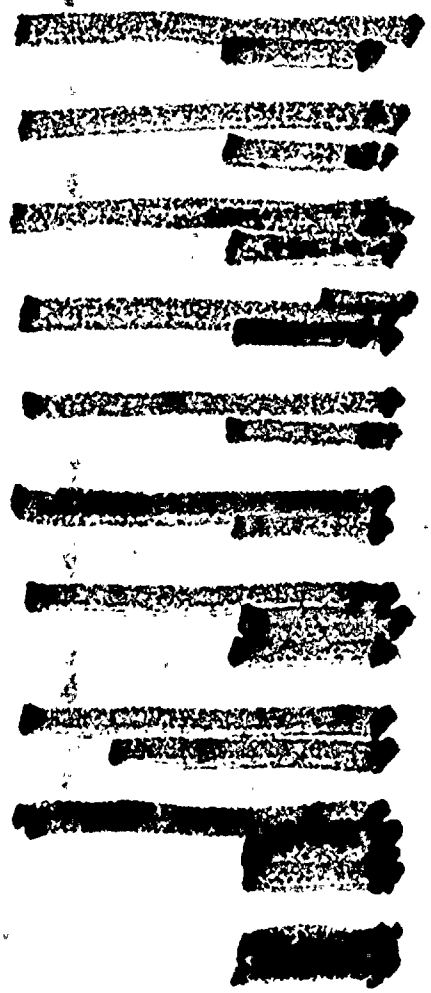
NUCLEAR EMERGENCY OFFSITE RESPONSE PROCEDURES

INDEX

Note: Revision of specific areas on each page is indicated by vertical lines in the right hand column.

ATTACHMENT 2
E.O.F.
KEY PERSONNEL CALL LIST

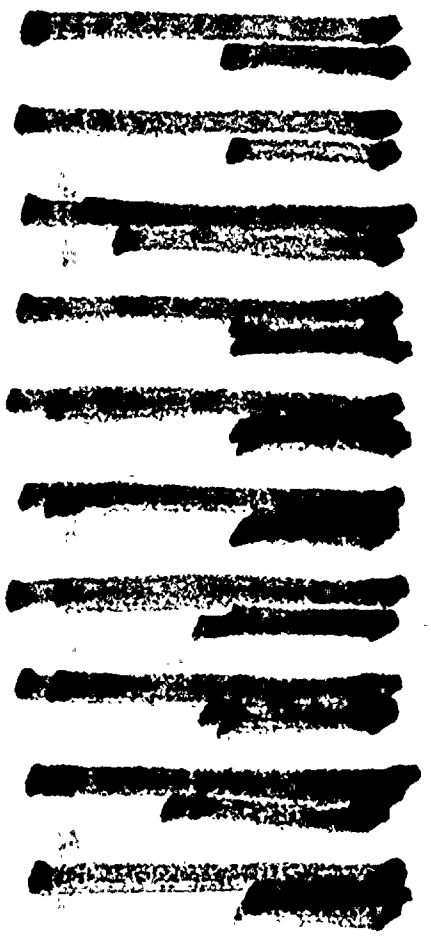
1)	David K. Laniak (Advisory Group)	Office: 546-2700, Ext. 4660 Home: 533-1288
2)	Bruce A. Snow (Nuclear Operations)	Office: 546-2700, Ext. 8058 Home: 671-5912
3)	Robert E. Smith (Engineering)	Office: 546-2700, Ext. 8074 Home: 872-3499
4)	John W. Oberlies (Corporate Spokesperson)	Office: 546-2700, Ext. 8808 Home: 461-3149
	John C. Noon (Corporate Spokesperson)	Office: 546-2700, Ext. 8803 Home: 342-1282
5)	Wilfred J. Schrouder, Jr. (Facilities and Personnel)	Office: 546-2700, Ext. 8791 Home: 877-1161
6)	Richard A. Sullivan (Public Relations)	Office: 546-2700, Ext. 8811 Home: 377-3828 Beeper: 297-0091
7)	Bernard R. Quinn (Offsite Health Physicist)	Office: 546-2700, Ext. 8146 Home: (315)-524-5201
8)	Howard E. Rowley (Offsite Agency Liaison)	Office: 546-2700, Ext. 8809 Home: 377-5096 Beeper: 297-0836
9)	David W. Burke (Corporate Emergency Planner)	Office: 734-8022 Home: 334-4744



ATTACHMENT 2
E.O.F.
KEY PERSONAL CALL LIST
ALTERNATES

	Bruce A. Snow (Recovery Manager)	Office: 546-2700, Ext. 8053 Home: 671-5912
1)	Richard E. Phillips (Advisory Group)	Office: 546-2700, Ext. 8939 Home: 223-2544
2)	Wesley H. Backus (Nuclear Operations)	Office: 546-2700, Ext. 71-302 Home: (315)-524-8506
3)	Robert C. Mecredy (Engineering)	Office: 546-2700, Ext. 8069 Home: 381-6430
4)	a. John E. Arthur (Engineering)	Office: 546-2700, Ext. 8117 Home: 889-1512
	b. John C. Noon (Corporate Spokesperson)	Office: 546-2700, Ext. 8031 Home: 342-1282
5)	Jeffrey W. Peters (Facilities and Personnel)	Office: 546-2700, Ext. 8750 Home: 385-3015
6)	Jack Jennejahn (Public Relations)	Office: 546-2700, Ext. 4957 Home: 392-3369
7)	Nelson A. Kiedrowski (Offsite Health Physicist)	Office: 265-3510, Ext. 216 Home: 315-524-2894
8)	Beth King (Offsite Agency Liaison)	Office: 546-2700, Ext. 8092 Home: 482-2578

Revision 13 June 1986



NUCLEAR EMERGENCY OFFSITE RESPONSE
CORPORATE RECOVERY MANAGER CALL LIST

1.0 PURPOSE:

1.1 To provide the Vice President of Electric and Steam Production and Superintendent of Nuclear Production a readily available listing of phone numbers to be used during a nuclear emergency.

2.0 REFERENCE;

2.1 Nuclear Emergency Response Plan

3.0 INSTRUCTIONS;

		Extension	Residence
3.1	Call sequence and phone numbers:		
3.1.1	Chairman of the Board	4984	244-5407
3.1.2	President	4989	872-2697
3.1.3	Executive Vice President	4980	467-5587
3.1.4	Manager of Public Relations	3811	377-3828
3.1.5	Plant Protection Department - Kodak Park		722-2121
3.1.6	Institute of Nuclear Power Operations (INPO) Emergency Call Number for "Alert and Above" action levels		(404) 953-0904

3.2 The Ginna Plant Nuclear Safety Audit and Review Board shall be called into session as a result of the emergency.

[redacted]

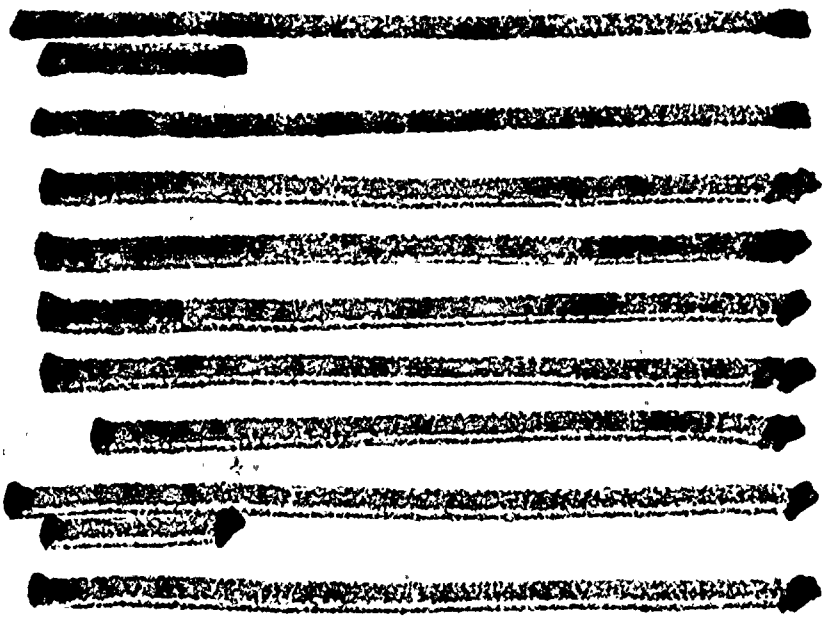
NUCLEAR OPERATIONS CALL LIST

NAME	HOME PHONE	BUSINESS PHONE
Wesley Backus	315-524-8506	546-2700, Ext. 71-302 **(Ginna)
Jack Paris	716-458-7332	546-2700, Ext. 8057
Frank Aman	315-524-7287	546-2700, Ext. 4003
Bertha Gohl	716-254-5596	546-2700, Ext. 4079
Michelle Fideor	716-338-1950	546-2700, Ext. 4078
Don Wilbert	716-889-4560	546-2700, Ext. 4081
Greg Joss	315-524-7552	71-489 **(Ginna)
Melvin Sexton	716-265-2309	546-2700, Ext. 71-453 **(Ginna)
Charlotte Buckman	716-227-2882	546-2700, Ext. 4708

ALTERNATES

Don Travis	716-359-1499	71-206 **(Ginna)
Andy MacNamara	716-482-3835	71-301 **(Ginna)
Amy Jo Spurles	716-392-2665	546-2700, Ext. 4136
Dewey Horning	315-524-7148	71-302 **(Ginna)
Charlie Anderson	716-265-0987	546-2700, Ext. 8119

**Ginna numbers may be dialed direct from the main office or by dialing 9-524-4446 and giving the operator the extension.



NUCLEAR EMERGENCY OFFSITE RESPONSE
EOF DOSE ASSESSMENTS CHECKLIST

1.0 PURPOSE:

1.1 To provide a method for estimating post-accident radiation doses to the public based upon the meterological and radiological information collected at and in the vicinity of Ginna Station.

1.2 The EOF Dose Assessment team should initially service as a support group to the Ginna TSC during the early postaccident phase; assisting in a paralled effort to ascertain out-of plant radiological conditions. Initially, the TSC maintains lead responsibility for providing recommendations to the Emergency Coordinator, Nuclear Operations Manager and Corporate Recovery Manager concerning protective actions to be taken. EOF Dose Assessment assumes lead responsibility only when conditions in Step 3.7 are met.

2.0 REFERENCES:

2.1 Nuclear Emergency Response Plan.

2.2 SC-420, "Tables of Protective Action Guides" and figures showing projected exposure.

3.0 INSTRUCTIONS:

3.1 Upon notification by EOF/Recovery Manager of an emergency at Ginna Station, the Dose Assessment Manager shall notify following personnel to institute the Appendix B call list:

Robert Burton	716-265-2167	RG&E Ext. 8397
Dudley Schuyler	716-586-1824	RG&E Ext. 4042
Wendel Knoll	716-248-2724	RG&E Ext. 8131

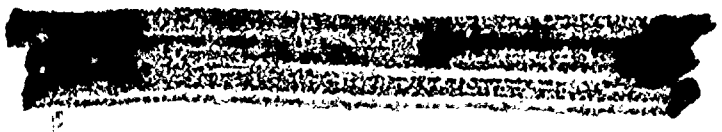
3.2 Assure that communications equipment is operable, preferably by a communications aide; this includes:

(a) Dose Assessment Direct Phone to TSC Dose Assessment (yellow phone - center desk)

_____

(b) Two Centrex telephones.

_____



(c) Health Physics Network (HPN) Telephone (center desk).

(d) Dose Assessment VHF Radio (communications desk).

(e) RG&E telephone extension, (8097 side desk).

(f) Bearcat Scanner (communications desk).

(g) NYS Hotline (red phone-center desk).

(h) Ginna Ext. 598 (side desk)

3.3.1 Contact TSC Dose Assessment Area and notify Health Physicist that the EOF Dose Assessment Staff is available to begin assisting in offsite evaluation efforts.

3.3.2 Obtain meteorological and radiological data available from TSC and/or from the MV-8000 computer link (including wind speed, direction and atmospheric stability information, effluent and area monitor readings and any available field measurements).

3.4 Initiate plotting of data on appropriate status boards and maps located in the EOF Dose Assessment Area.

3.5 Commence dose projection efforts as specified in Ginna Station procedure SC-420 "Supplementary Dose Calculations" may also be performed using alternate techniques.

3.6 Based upon plant status, projected or actual offsite radiological levels and projected exposure times, determine the appropriate protective actions (e.g. sheltering, evacuation to be recommended to the Corporate Recovery Manager). Confirm with the TSC Dose Assessment group. (Refer to Protective Action Guides in Table IV - SC-420).

3.7 The EOF Dose Assessment Group is to assume primary responsibility dose projections, coordinating offsite surveys and protective action recommendations from the TSC only if the following conditions are met:

(a) Minimum EOF Dose Assessment manpower is attained:

* lead dose assessment individual
* assistant dose assessment individual
* communications aide
* courier
* plotter

(b) Establishment of satisfactory flow of current information regarding plant status, plant effluent and area monitors, meteorological conditions, and survey team data.

(c) Communications established with survey teams, preferably direct radio contact, or indirect via relay from TSC.

(d) Verification that the Corporate Recovery Manager and the TSC Dose Assessment Group are cognizant of shift in dose assessment responsibility to the EOF.

(e) Verification that minimal backup support can be maintained at Ginna TSC to assist in dose assessment effort should flow of information to EOF be disrupted.

3.8 Two additional field monitoring teams may be dispatched from the EOF to supplement offsite survey efforts. The methodology and predesignated survey routes are included in Appendices A through C attached. Specific survey routes will be confirmed prior to team departure from EOF.

3.9 EOF survey teams shall be advised by the lead dose assessment individual of survey routes, checkpoints, communications, and protective equipment to be used in the field, prior to leaving the EOF. All survey teams shall sign out on survey team status board.

APPENDIX A

SUPPLEMENTAL OFFSITE SURVEY ROUTES

1.0 EOF Survey Team-1

1.1 Long-range Route (EOF-1):

1.1.1 Take 490 East to 590 North. (If rush hour, alternate route can be Culver to Atlantic Avenue.)

1.1.2 Take Browncroft Blvd. exit, head east to Creek Street.

1.1.3 Head north on Creek Street, continue to intersection of Creek and Empire Boulevard. (Eastway Plaza).

1.1.4 Cross intersection and proceed to Sibley's Eastway. Set up air sampler and commence operation (note start time and initial totalizer reading). Continue on Bay Road heading north.

1.1.5 Follow Bay Road North to Lake Road and turn west.

1.1.6 Continue west on Lake Road proceeding onto Seabreeze expressway (Route 590 S) heading south.

1.1.7 Take Route 404 Webster exit (East), and head east on Empire Boulevard.

1.1.8 Retrieve air sampler at Sibley's Eastway. Report air sample data and request further instructions.

1.2 Short-range Route (EOF-1):

1.2.1 Take East Avenue to Culver Road, turn north on Culver.

1.2.2 Proceed on Culver to Empire Boulevard. Start air sample (note start time and initial totalizer reading). Let sampler run for approximately 30 minutes. Report results to Dose Assessment.

1.2.3 Proceed northwest on Waring Road to Norton Street. Turn west on Norton.

1.2.4 Continue to Portland Avenue, turn left.

1.2.5 Head south on Portland to North Street

1.2.6 Follow North Street to East Avenue

1.2.7 Request further instructions.

2.0 EOF Survey Team - 2

2.1 Long-range Route (EOF-2):

2.1.1 Take 490 East, continue through "can of worms" to Route 441 (Linden Avenue) exit. (If rush hour, alternate route can be East Avenue to Linden).

2.1.2 Follow 441 through Penfield village, to Route 250 intersection. (Penfair Plaza).

2.1.3 Set up air sampler at Penfair Plaza and commence operation (note start time and initial totalizer reading). Continue east on Route 441 to Harris Road.

2.1.4 Turn north on Harris Road, and proceed to Atlantic Avenue.

2.1.5 Turn west on Atlantic, and continue to Route 250 intersection (Webster-Fairport Road). Turn left.

2.1.6 Return to Penfair Plaza on Route 250, retrieve air sampler and report readings to Dose Assessment.

2.1.7 Request further instructions.

2.2 Short-range Route (EOF-2):

2.2.1 Take Monroe Avenue, heading southeast to the 12 Corners.

2.2.2 Commence air sample at 12 Corners (note start time and initial totalizer reading). Let sampler run for approximately 30 minutes. Report results to Dose Assessment.

2.2.3 Turn north on Winton Road, proceed to Main Street.

2.2.4 Turn west on Main Street, follow Main to Culver Road.

2.2.5 Turn south on Culver, and proceed to East Avenue.

2.2.6 Request further instructions.

APPENDIX B

****
MESSAGE
****

Is this the _____ residence?

May I speak to _____ (called individual)

"There is a SITE EMERGENCY AT GINNA STATION. Report to the EOF Dose Assessment Area immediately. I repeat, report to the EOF Dose Assessment Area immediately. Do you understand?"

If individual does not answer the telephone, ask for him/her. Make proper entry on tally sheet.

TALLY SHEET

NAME	TELEPHONE WORK	TELEPHONE HOME	TIME	INDIVIDUAL AT HOME YES - NO	NO ANS.
M. V. BURGESS	4182	323-1261			
R. M. BURTON	8397	265-2167			
D. D. DAKIN	4174	266-6223			
C. H. FINK	4043	467-0543			
N. A. KIEDROWSKI	21-216	315-524-2894			
W. L. KNOLL	8131	248-2724			
S. T. MAC INTYRE	8128	442-0036			
D. J. MONEY	8127	394-1287			
J. F. PASQUINI	4418	315-597-6397			
J. J. PRILL	4173	482-0892			
E. W. PRYTHERCH	8133	227-5059			
B. R. QUINN	8146	315-524-5201			
K. M. SAHLER	4180	671-0957			
D. N. SCHUYLER	4042	586-1824			
G. A. THORNE	4045	247-4489			
J. L. WILLIAMS	8129	227-0814			

APPENDIX C

FIELD CALCULATIONS FOR LOW VOLUME AIR SAMPLES USING RM-14

1) Particulate - Filter Removed from Holder:

$$\frac{(\text{CPM Sample} - \text{CPM BKG})\ (2.4 \times 10^{-5})}{(\text{Volume of Sample in CC})} = \_\_\_\_\_ \text{uCi/cc Particulate}$$

2) Iodine - Cartridge Inlet Face to Probe - End Cap Removed:

$$\frac{(\text{CPM Sample} - \text{CPM BKG})\ (8.34 \times 10^{-5})}{(\text{Volume of Sample in CC})} = \_\_\_\_\_ \text{uCi/cc Iodine}$$

TAKING LOW VOLUME SAMPLE:

1. RECORD: Date, Time, Location, and Totalizer Reading (A).
2. Turn Unit ON and sample for approximately 30 minutes.
3. Turn Unit OFF - RECORD: Date, Time, Location & Totalizer Reading (B).
4. Sample Volume = (B-A) (Calibration factor) = cc.

   NOTE: Calibration Factor is noted on side of sampler.
5. Read filters with RM-14 and save in marked envelopes.

LOW VOLUME AIR SAMPLER CHECK:

1. Connect Battery Pack to Pump Unit.
2. Turn switch ON - Check flow meter for movement.
3. Turn Unit OFF.
4. INSURE Filter Assembly contains a GY-130 cartridge and a particulate filter before taking sample.

RADECO H 809C HIGH VOLUME AIR SAMPLER CHECK;

1. Connect cables to power source, Red clip to positive and Black clip to negative.
2. Turn on switch and check flow meter, flow meter will be off scale high with no filters in place.
3. Turn unit off.
4. Insure filter assembly contains a GY-130 cartridge and a particulate filter.

APPENDIX C (CONT'D)

TAKING RADECO HIGH VOLUME AIR SAMPLE;

1. Record: Date, Time and Location
2. Turn unit on and sample for 10 minutes.
3. Record the flow rate in cfm. (Normal is 1.5 cfm).
4. Sample volume = flow rate in cfm X minutes sampled.
5. Read filters with RM-14 and save in marked envelopes.

FIELD CALCULATIONS FOR HIGH VOLUME AIR SAMPLES USING RM-14:

1. Particulate - Filter removed from holder:

$$\frac{(\text{CPM Sample} - \text{CPM BKG})\ (8.38 \times 10^{-10})}{\text{(Volume of SAmple in Cubic Feet)}} = \_\_\_\_\_ \text{uCi/cc Particulate}$$

2. Iodine - Cartridge Inlet Face to Probe:

$$\frac{(\text{CPM Sample} - \text{CPM BKG})\ (3.0 \times 10^{-9})}{\text{(Volume of Sample in Cubic Feet)}} = \_\_\_\_\_ \text{uCi/cc Iodine - 131}$$

APPENDIX C (CONT'D)

RADIO USE PROCEDURE

1. Extend antenna full (if necessary).
2. Channel selector on Channel 3.
3. Turn unit ON.
4. Adjust squelch.
5. Depress switch to transmit, call "Technical Support Center" or"EOF/ Recovery Center".
6. Speak in normal voice, slowly and distinctly, into speaker/mike.
7. Release switch to receive.
8. Base station will terminate with its call sign.
9. If during a drill - precede all calls with, "This is a Drill".

AUTO DIGI-MASTER DOSE RATE METER

1. Turn unit ON.
2. Take readings noting if they are MR/HR or R/HR.

NOTE; UNIT READS OUT EVERY 2 SECONDS.

ATTACHMENT II
EOF/RECOVERY CENTER
POSITION QUALIFICATION LIST

(a) Recovery Manager:
- (1) Roger W. Kober
- (2) Bruce A. Snow

(b) Advisory Support Manager:
- (1) Dave Laniak
- (2) Richard Phillips

(c) Nuclear Operations Manager:
- (1) Bruce A. Snow
- (2) Wesley H. Backus

(d) Engineering Support Manager:
- (1) Robert Smith
- (2) Robert C. Mecredy

(e) Facilities and Personnel Manager:
- (1) Wilfred J. Schrouder, Jr.
- (2) Jeffery W. Peters

(f) Public Relations Manager:
- (1) Richard Sullivan
- (2) Jack Jennejahn

(g) Corporate Spokesperson:
- (1) John Oberlies
- (2) John E. Arthur
- (3) John C. Noon

(h) Offsite Dose Assessment Manager
- (1) Bernard Quinn
- (2) Nelson A. Kiedrowski

(i) Offsite Agency Liaison
- (1) Howard E. Rowley
- (2) Beth S. King

(j) Corporate Emergency Planner
- (1) David W. Burke

EOF/RECOVERY CENTER
POSITION QUALIFICATION LIST (cont.)

(k) EOF/Recovery Center Support Personnel:

Betty Gohl	(Secretary, Recovery Manager)
Michelle Fideor	(Receptionist, Check-In)
Amy Jo Spurles	(Receptionist - Alternate)
Michelle Fideor	(Telecopier - Outgoing Only)
Charlotte Buckman	(Telecopier - Incoming Only)
Jack Paris	(Communications)
Donald Buehlman	(Communications)
Don Wilbert	(Communications)
Andrew McNamara	(Communications
Donald Travis	(Communications)
Frank Aman	(Communications)
Mail Room	(Courier)
Mail Room	(Courier)
Mail Room	(Courier)
Greg Joss	(Status Board Keeper)
Dewey Horning	(Status Board Keeper)
Donald Travis	(Status Board Keeper)
Charlie Anderson	(Status Board Keeper)
Andrew McNamara	(Status Board Keeper)
Melvin Sexton	(Status Board Keeper)
	(Plant Computer Operator)
	(Plant Computer Operator)

Offsite Dose Assessment Personnel:

M. V. Burgess	Survey Team
D. D. Dakin	Survey Team
S. T. MacIntyre	Survey Team
D. J. Money	Survey Team
J. F. Pasquini	Survey Team
J. J. Prill	Survey Team
C. H. Fink	Midas Operator
W. L. Knoll	Data Poster
E. W. Prytherch	Radioman
P. K. Humphrey	Communications
K. M. Sahler	Communications
D. N. Schuyler	Weatherman
J. L. Williams	Calculator

ATTACHMENT I

QUARTERLY TELEPHONE NUMBER CHECK

1. Section (Check One)

Recovery Manager
Engineering Support Manager
Public Relations Manager
Ginna Station SC-600 to SC-606 Inclusive
Nuclear Operations Manger
Security Manager
Facilities and Personnel Manager
Advisory Support Manager
Offsite Agency Liaison

2. Our phone number list was checked on_____
(date)

No changes are required_____(initial)

Attached or is a revised copy _____(initial)
of the phone list.

3. Forward completed form to Corporate Emergency Planner.

NUCLEAR EMERGENCY OFFSITE RESPONSE PROCEDURES
ACCESS TO GINNA WEATHER TOWER

1.0 PURPOSE:

1.1 This procedure provides instructions for interpreting and accessing data in the MIDAS storage computer in the Meteorlogical Tower Trailer.

2.0 INSTRUCTIONS:

2.1 Set up for TI-Silent 700 in the EOF, 49 East Avenue.

2.1.1 On/Off - push switch to forward position (located top right corner)

2.1.2 On Line - depressed to right

2.1.3 Dial - 9-524-5711. When computer tone is heard, insert phone in acoustic coupler with mouthpiece to the left. Wait for the word "connected" to be printed. Enter command AV77 [return] to print all last 15 minute averages. To sign off, hang up phone and the word "disconnected" will be printed.

NOTE: There are short time periods when the phone connections are disabled while internal calculations are taking place. Whenever the 1200 BAUD line is in use, the 300 BAUD line is disabled. Normal communication times from the master MIDAS computer is a 30 minute period centered around 3:30, 7:30 and 11:30 EST.

2.1.4 To obtain:

Last 15 minute average - Type AVXX [RETURN]
Last collected value - Type PPXX [RETURN]

NOTE: If ILLEGAL REQUEST appears, retype the command again. Illegal request is returned if the command was typed wrong or a spurious character was included, i.e. - line feed.

For AVXX printout:

XX	=	01	-	Prints all speed averages
	=	02	-	Prints all direction averages
	=	04	-	Prints all temperature averages
	=	10	-	Prints all delta temperature averages
	=	20	-	Prints miscellaneous averages
	=	40	-	Prints rain averages
	=	77	-	Prints all averages

For PPXX printout:

Channel	Number	Name
XX	01	WS 33A
	02	WS 33B
	03	WS 150A
	04	WS 150B
	05	WS 250
	08	WD 33A
	09	WD 33B
	10	WD 150A
	11	WD 150B
	12	WD 250
	14	TER 33A
	15	TER 33B
	16	TE 150A
	17	TE 150B
	18	TE 250A
	19	TE 250B
	20	DT 150A
	21	DT 150B
	22	DT 250A
	23	DT 250B
	24	DEW 33
	25	TEG 33
	32	RAIN

INTERPRETATION OF DATA

15 min. averages for 01-15 min; 16-30 min; 31-45 min; 46-60 min.

WS - Wind Speed - Average divided by 10 = measured value
WD - Wind Direction - Average is read directly
TE - Temperature - Average divided by 10 = measured value
DT - Delta Temperature - Average divided by 10 = calculated value
DEW - Dewpoint Temperature - Average divided by 10 = measured value
TEG - Ambient Temperature at Dewpoint Monitor - Average divided by 10 = measured value
RAIN - Rainfall - Average divided by 100 = accumulated inches of rain
NAME - Parameter and height in meters on tower
AVGE - Average of values collected in last 15 minutes average
ST.DEV - Standard deviation of average data
MIN. - Minimum value for last 15 minute average
MAX. - Maximum value for last 15 minute average
I - Index code: 0 = Good; 1 = Questionable; 2 = Bad; 3 = Unsteady wing data; 4 = Calm Wind; 5 = Flat direction
MNDR - Meander range for wind direction
AVRN - Average of meander range
CNT - No longer used for data

ATTACHMENT I

ROCHESTER GAS AND ELECTRIC CORPORATION • 89 EAST AVENUE, ROCHESTER, N.Y. 14649-0001

TELEPHONE
AREA CODE 716 546-2700

May 20, 1986

Mr. James Papile
Radiological Emergency Preparedness Group
Empire State Plaza
22nd Floor, Corning Tower II
Albany, NY 12237

Dear ~~Mr. Papile~~ Jim,

This letter is to inform you that the "Ginna Access" system for monitoring plant conditions is not available while the new Plant Parameter Computer System (PPCS) and Safety Assessment System (SAS) is being installed.

According to our computer people some form of "Ginna Access" will again be available later in the year. In the interim you have been supplied with appropriate phone numbers.

If you have any questions on this letter do not hesitate to call me on (716) 724-8022.

Sincerely,

David W. Burke
Corporate Emergency Planner

Copies: Mr. B. A. Snow
Mr. D. L. Piede

OFFSITE AGENCY LIAISON CALL LIST

1.0 PURPOSE:

To provide the Offsite Agency Liaison with phone numbers to alert RG&E advisors to the New York State, Monroe and Wayne County Emergency Operations Centers.

2.0 INSTRUCTIONS:

2.1 Upon notification by the EOF/Recovery Manager of an emergency at Ginna Station, notify the following personnel to standby or report to their respective EOC post.

2.1.1	J. Robert Brown (N.Y.S.)	Office: Home:	(716) 546-2700 (ext. 4029) (716) 872-2148 (unlisted)
2.1.2	James F. Sweet (Wayne)	Office: Home:	(716) 546-2700 ext. 71-283 (315) 483-6795
2.1.3	Raymond B. Junot (Monroe)	Office: Home:	None (Retired) (716) 334-2690