

NRC
STATION PROCEDURE REVISION COVER SHEET

QAP 1100-T5
Revision 6
October 1981

ID/IX

Revision Description This revision
updates the procedure
to reflect change in
hospitals to Marine
Public.

<u>QEP</u>	<u>120-1</u>
Chapter	Procedure
<u>D. Jessen</u>	<u>4</u>
Originator	Revision

This procedure is required to be implemented prior to _____ Date
because of _____

DRAFT REVIEW

Tech. Staff Supervisor	Date
Department Head	Date
<u>[Signature]</u>	<u>9-6-83</u>
Originator	Date

FINAL APPROVAL

<u>T. N. Koppel</u>	<u>9-7-83</u>
Dept. Head <u>Lab Chem</u>	Date
<u>L. Hermer</u>	<u>9/7/83</u>
Tech. Staff Supervisor	Date
<u>L. Hermer</u>	<u>9/7/83</u>
Asst. Supt. <u>Admin</u>	Date

AUTHORIZATION

V. S. Kukulsky 9/8/83
Station Superintendency Effective Date

INSTRUCTIONS FOR REVISION INSERTION

REMOVE

QEP 120-0 Rev. 3
QEP 120-1 Rev. 3

INSERT

QEP 120-0 Rev. 4
QEP 120-1 Rev. 4

REVISION RECEIPT FORM

Please sign and date below, and return this sheet to the Officer Supervisor -
Quad Cities Station. Your Station Procedure copy number is 58.

Signature _____

Date _____

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QEP 120-0
Revision 4
September 1983

ID/1C,1D

OPERATIONS DIRECTOR

120-0
Operations Director

Rev. 4 09-08-83

120-1
Operations Director Implementing Procedure

Rev. 4 09-08-83

APPROVED
SEP 08 1983
Q.C.O.S.R.

OPERATIONS DIRECTOR
IMPLEMENTING PROCEDURE

QEP 120-1
Revision 4
August 1983

ID/4A

A. PURPOSE

The purpose of this procedure is to outline the method used to implement the Station Operations Director duties.

B. REFERENCES

1. GSEP Phone List.
2. QEP 340 Block Procedures: Corrective Actions.
3. QEP 360-2, Plant Evacuation and Assembly.
4. QEP 360-3, Site Evacuation.
5. QEP 370-1, First Aid Procedure.
6. QEP 410-1, Control Room.
7. QEP 430-1, On-Site Operational Support Center.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. Responsibilities.
 - a. To direct a staff in determining the nature and extent of the emergency pertaining to equipment and plant facilities.
 - b. To protect personnel and perform rescue operations as needed.
 - c. To take measures to terminate the condition causing the emergency.
 - d. To protect equipment and facilities from further damage.
 - e. To restore plant to pre-accident status.

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SEP 03 1983
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2. Notification.

Initial Notification by:

a. Acting Station Director.

(1) Shift Supervisor.

(2) Senior NSO.

b. Station Director.

F. PROCEDURE

1. Verify that the System Power Supply Load Dispatcher has been notified.
2. Verify that the Station Director has been notified.
3. Make an estimate of the emergency from an operational viewpoint, and initiate immediate corrective action to limit or contain the accident.
4. Notify NRC as necessary.
5. Notify local agencies for assistance as required.
6. Organize rescue teams to aid injured personnel.
 - a. Perform rescue operations for injured personnel. (See Rescue Implementing Procedure).
 - b. Call ambulance services as required.
7. Notify hospitals as required.
 - a. Moline Public Hospital
Moline, Illinois
8. Assist in the transfer of injured personnel off-site.
9. Assist in planning and implementing detailed procedures regarding all phases of the GSEP related activities.
10. Perform switching and valving operations, equipment operations, equipment checking, and miscellaneous operations as required.
11. Assist in intelligence operations, such as survey, inspections, and obtaining plant operating data.
12. Implement protective actions for onsite personnel, to include site assembly and evacuation (when ordered by the Station Director).
13. Ensure adequate manning of the Onsite OSC and Control Room. Designate an individual to manage and supervise activities at the Onsite OSC.

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14. Assist technical personnel in decontamination work as necessary.
15. Request additional technical and non-technical personnel as necessary to restore facility to pre-accident status.
16. Inform the Station Director of the progress of control and restoration efforts.
17. Keep a record of events and data compiled during all phases of the GSEP related activities.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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QAP 1100-T5
Revision 6
October 1981

STATION PROCEDURE REVISION COVER SHEET

ID/LX

Revision Description This revision
specifies EOE initiation
for all site and general
emergency conditions.

QEP
Chapter

460-1
Procedure

H. Tietz
Originator

5
Revision

This procedure is required to be implemented prior to Sept. 24, 1983
because of NRC commitment

DRAFT REVIEW

Tech. Staff Supervisor _____ Date _____

Department Head _____ Date _____

Originator _____ Date _____

FINAL APPROVAL

[Signature] 9-2-83
Dept. Head Rad Chem Date

G. Tietz 9/6/83
Tech. Staff Supervisor Date

L. Gerner 9/6/83
Asst. Supt. Admin Date

AUTHORIZATION

[Signature] 9/8/83
Station Superintendent Effective Date

INSTRUCTIONS FOR REVISION INSERTION

REMOVE

QEP 460-0 Rev. 4
QEP 460-1 Rev. 4

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QEP 460-0 Rev. 5
QEP 460-1 Rev. 5

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Date _____

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NOV 6 1983

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QEP 460-0
Revision 5
September 1983

ID/3G,3H

EMERGENCY OPERATIONS FACILITY

<u>460-0</u> Emergency Operations Facility	Rev. 5	09-08-83
<u>460-1</u> Emergency Operations Facility Set-Up	Rev. 5	09-08-83
<u>460-T1</u> Procedure Deleted	Rev. 2	12-15-82

APPROVED
SEP 08 1983
Q.C.O.S.R.

EMERGENCY OPERATIONS
FACILITY SET-UP

QEP 460-1
Revision 5
August 1983

ID/4X

A. PURPOSE

The purpose of this procedure is to aid the environs staff personnel in setting up the Emergency Operations Facility for initial use during an emergency.

B. REFERENCES

1. QEP 550-T4, Emergency Operations Facility Supplies.
2. QEP 440-1, Emergency Communications Facilities.

C. PREREQUISITES

1. The Emergency Operations Facility will be initiated for all site and general emergency conditions.
2. Upon the decision to initiate the EOF, the Environs Director will instruct the Environs Staff to set up the EOF to accomodate the Environs Staff's needs. The Environs Staff will immediately relocate to the EOF.
3. The Environs Director will instruct the Environs Field Teams to gather the appropriate supplies for Field Team duties, relocate as directed, and await further instructions.

D. PRECAUTIONS

1. This procedure is meant as a guide to the Environs Staff and may be deviated from upon approval of the Environs Director or the Rad-Chem Director.
2. A key for the EOF may be obtained from the Shift Engineer.

E. LIMITATIONS AND ACTIONS

1. None.

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F. PROCEDURE

1. Upon relocation to the EOF, communications with the TSC should be verified using the yellow phone. A regular telephone may be used, if the yellow phone is not functioning.
2. After verifying communications with the TSC, set up the GSEP radio by connecting it with the appropriate phone jack and plugging it into an outlet. Verify that the radio is in the "SCRAMBLE" mode, and test communications by contacting the TSC. At this time, the Environs Director may relocate to the EOF.
3. Upon arrival of the Environs Teams at the EOF, test communications with their portable radios in the "SCRAMBLE" mode. Notify the TSC that the Environs Teams are ready to be dispatched.
4. Instruct one of the field teams to travel toward Iowa on a route dictated by the wind direction.
5. Tape one film dosimeter and one zeroed pencil dosimeter outside the EOF, above the main doors. Verify presence of sampling supplies and dosimetry as described in QEP 550-T4.
6. Conduct periodic dose rate and contamination surveys in the EOF and immediately surrounding area as deemed necessary by the Environs Director.
7. Assist the Environs Director as necessary.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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STATION PROCEDURE REVISION COVER SHEET

ID/LX

Revision Description This revision
adds a statement so as
to efficiently follow
up on emergency drill
recommendations.

QEP

Chapter

QEP 530-2

Procedure

GERNER

Originator

9

Revision

This procedure is required to be implemented prior to 9/15/83
 because of NRC Commitment Date

DRAFT REVIEW

Tech. Staff Supervisor Date

Department Head Date

Originator Date

FINAL APPROVAL

T.J. Roush 8-26-83
 Dept. Head RAD/CHEM Date

G. Tait 8/26/83
 Tech. Staff Supervisor Date

L. Gerner 8/26/83
 Asst. Supt. ADMIN. Date

AUTHORIZATION

N.S. Williams 8/29/83
 Station Superintendent Effective Date

INSTRUCTIONS FOR REVISION INSERTIONREMOVE

QEP 530-0 Rev. 15
 QEP 530-2 Rev. 8

INSERT

QEP 530-0 Rev. 16
 QEP 530-2 Rev. 9

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EXERCISES AND DRILLS

<u>530-0</u> Exercises and Drills	Rev. 16	08-29-83
<u>530-1</u> Emergency Exercise	Rev. 1	12-16-80
<u>530-2</u> Emergency Drills	Rev. 9	08-29-83
<u>530-3</u> Off-Shift Augmentation Drill	Rev. 3	08-17-83
<u>530-S1</u> Monthly NARS (ESDA) Drill Quad-Cities Station	Rev. 5	02-07-83
<u>530-S2</u> Monthly Test of the NRC Health Physics Network	Rev. 1	01-05-82
<u>530-S3</u> Monthly Test of the NRC Emergency Notification System	Rev. 3	03-31-83

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EMERGENCY DRILLS

QEP 530-2
Revision 9
August 1983

ID/30

A. PURPOSE

The purpose of this procedure is to list the required drills and their frequencies and to test specific facets of the Generating Station Emergency Plans.

B. REFERENCES

1. GSEP, Section 8.3.2.
2. GSEP, Section 7.2.
3. QEP 440-1, Emergency Communication Facilities.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. The communications drill is rated satisfactory if the initiating party is able to transmit and receive acknowledgement for a brief exercise message to each of the agencies, designated in the site specific annex within 15 minutes of the simulated declaration. (Simulated declaration will be established immediately prior to picking up the NARS phone to initiate the drill.) The drill can be rated satisfactory even if NARS fails and backup systems are used to complete notification; however, corrective actions are required in event of NARS failure. The drill is rated unsatisfactory if the required transmission and acknowledgement is not completed within 15 minutes.
2. If communications equipment fails to operate properly, contact Illinois ESDA; phone (217) 782-7860 and the Corporate Command Center immediately following the drill. If the drill is rated unsatisfactory, immediately notify the Production Nuclear Duty Person during normal business hours, or the Production Nuclear Duty Person through the System Power Dispatcher during other hours in addition to initiating action to have the system repaired. An additional drill will be conducted immediately upon completion of equipment repairs any time a drill is rated unsatisfactory.
3. If the NRC health physics network fails, notify the NRC Region III office at (312)-932-2500.

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4. If the NRC Emergency Notification System phone fails, notify the NRC Operations Center at (202) 951-0550.

F. PROCEDURE

1. Emergency drills, as described in GSEP, Section 8.3.2, GSEP, Section 7.2. and this procedure shall be conducted at a frequency as listed in the below table:

DRILL	DESCRIPTION	FREQUENCY
1. Communications Systems	QEP 530-2 step F.2	ANNUAL
a. Microwave/radio communications	GSEP 7.2.2	ANNUAL
b. NRC communications	GSEP 7.2.4	ANNUAL
c. Station communications	GSEP 7.2.2	ANNUAL
d. N.A.R.S.	QEP 530-2 step F.3 GSEP 7.2.1	MONTHLY
e. NRC health physics network	GSEP 7.2.4 QEP 530-2 step F.7	MONTHLY
f. NRC Emergency Notification System	GSEP 7.2.4 QEP 530-2 step F.8	MONTHLY
2. Environmental Monitoring Drill	QEP 530-2 step F.4 GSEP 8.3.2.3	ANNUAL
3. Medical Emergency Drill	QEP 530-2, step F.5 GSEP 8.3.2.5	ANNUAL
4. Health Physics Drill	QEP 530-2, step F.6 GSEP 8.3.2.4	SEMI-ANNUAL

- a. To be able to efficiently follow-up on drill recommendations, an AIR will be written on the drill recommendations.
2. Communications drill.
- a. To verify communications procedures and communications equipment that would be required in the event of a major accident, the capability to communicate on the microwave/radio communications, NRC communications, station communications and the N.A.R.S communications systems will be tested during the annual communications drill.

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b. Conduct of test.

Standard messages will be transmitted from key locations to verify that information transmitted in the nuclear accident report and environmental assessment formats can be accurately transmitted and readily understood. Each message will be independent and will not relate to other messages. The communicators who ultimately receive the messages will be requested to return the completed message forms so that a comparative evaluation can be made.

c. Critique.

The communications drill checklist will be used as a guide while the drill is in progress. A verbal critique of communications procedures will be conducted immediately following the drill. A written critique will be provided for records.

d. Standard.

The drill is rated satisfactory if:

- (1) The Exercise Nuclear Accident Report message is accurately received by the CCC, State EOC's and REAC, and local EOC's within 15 minutes from the simulated declaration of an emergency.
- (2) The environmental assessment messages are accurately received by Illinois REAC.
- (3) Federal Emergency Response agencies are contacted by any facility.
- (4) Communications by either primary or backup means is established from:
 - (a) the control room to CCC, SPS, TSC, EOF, EOC and REAC;
 - (b) TSC to EOF and CCC;
 - (c) EOF to TSC, EOC, CCC, SPS and REAC;
 - (d) CCC to TSC, EOF, EOC and REAC;
 - (e) Field assessment teams to EOF, TSC or CCC.

The drill is rated unsatisfactory if any of the above standards are not achieved. Corrective action is required if any primary or backup system fails to operate properly.

3. N.A.R.S. Communications System.

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- a. The dedicated Nuclear Accident Reporting System (NARS) communications is the primary communication system to be tested. If NARS does not enable understandable communication, available backup system, to include dial phone, will be employed to contact designated agencies to demonstrate communications procedures to be used in the event of NARS failure. Each station will initiate a monthly communications drill to verify the capability to notify designated company, state and local agencies if a general emergency was declared. Initiation capabilities from the EOF, TSC and Control Room will be demonstrated periodically.
- b. Conduct of test.

The drill will be conducted in the following manner using QEP 530-S:

- (1) Establish and record declaration time.
- (2) Activate NARS:
 - (a) Remove handset.
 - (b) Dial required code (23).
 - (c) Confirm stations on line.

NOTE

The hand set button must be pressed when transmitting.

- (3) Transmit message test: "THIS IS A TEST. THIS IS (NAME OF FACILITY). STAND BY FOR NOTIFICATION DRILL. THE SIMULATED DECLARATION TIME IS (DECLARATION TIME). THE CURRENT TIME IS (CURRENT TIME). STAND BY TO ACKNOWLEDGE RECEIPT OF THIS EXERCISE MESSAGE BY STATING YOUR AGENCY AND INITIALS."
- (4) Call roll of activities (site specific annex) and record initials of acknowledging individual.
- (5) Upon completion of acknowledgements, inquire if anyone has not been called and close the conference call.
- (6) Contact agencies not acknowledging the drill by backup communications means.
- (7) Record times of all acknowledgements.
- (8) Initiate corrective actions if required.

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c. Agencies to be notified:

Illinois Emergency Services & Disaster Agency
Illinois Department of Nuclear Safety*
Rock Island Communications
Rock Island E.S.D.A.*
Scott County Sheriff, Davenport, Iowa
Corporate Command Center*
System Power Supply
Clinton County EOC
Iowa Office of Disaster Services
Whiteside County EOC*
Whiteside County Sheriff

NOTE

Extensions with an asterisk are not manned 24 hours a day. Successful communications with all other agencies constitutes a successful test, if during other than normal working hours.

4. Environmental Monitoring Drill.

- a. Field monitoring teams will be selected to operate under the direction of a Rad/Chem Director or an Environs Director from the station. Two teams will be utilized unless otherwise specified. A situation will be portrayed to indicate a simulated release based on actual meteorological conditions at the time of the drill. The teams will conduct sampling of water, grass or other vegetation, soil, and air and conduct actual field monitoring of samples. The controller accompanying each team will provide simulated readings to indicate the level of radiation expected from the plume at that location. Teams will record and report findings to the Environs Director in the EOF using radio or backup communications. Samples will be transported to and analyzed in the station laboratory facilities. Procedures used in analysis will be evaluated.

The corporate Environmental Center will be activated and its personnel will be required to process and analyze the simulated field readings and laboratory findings. Communications between field personnel, the Environs Director, and the environmental center will be tested. A controller will judge the performance of corporate personnel to support field activities and reach the appropriate recommendation for protective action.

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b. Responsibilities.

The CECo. General Office will schedule, direct, and evaluate the drill. Environmental Center participants will be selected by the General Office from a list of qualified personnel. The Generating Station will:

- (1) Provide two qualified individuals to act as controllers and to assist in preparing the drill.
- (2) Provide a list of personnel designated as qualified to perform duties of Rad/Chem Director, Environs Director, and Environs Group field team member. Provide selected personnel that are reasonably available to participate in the drill.
- (3) Provide communication, protective, sample gathering and transportation equipment to conduct the drill.
- (4) Provide EOF and laboratory facilities to conduct the drill.

c. Critique.

A verbal critique will be conducted at the conclusion of the drill by the control team from the General Office and the station.

Following the verbal critique, the control team will meet to provide comments for the written critique to the General Office representative. The written critique will be provided to the station after review at the General Office.

5. Medical Emergency Drill.

- a. Commonwealth Edison employs the Radiation Management Corporation (RMC) to provide procedures, training and drills for onsite and off-site organizations dealing with emergency medical treatment. RMC will conduct the training and supervise medical and decontamination aspects of the drill. CECo will supervise GSEP related notification aspects of the drill. The drill will normally be conducted on the following the training sessions. Victims simulated to be contaminated and injured will be used as controllers. The drill will include treatment and decontamination of the victims from the time the accident is reported until the hospital has decontaminated and treated the simulated patients. The drill will be followed by a critique.

b. Responsibilities.

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The CECo General Office will:

- (1) Prepare a general schedule for the drill.
- (2) Provide backup assistance in concluding local scheduling when needed.
- (3) Provide an observer to control and evaluate portions of the exercise outside of RMC's area of expertise.
- (4) Provide written and oral critique comments.

The Generating Station will:

- (1) Arrange exact dates of drill with RMC, CECo. General Office and off-site support agencies.
- (2) Assign personnel to participate in on-site training.
- (3) Assign personnel to participate as victims under RMC direction.
- (4) Participate in the drill.

Radiation Management Corporation will:

- (1) Conduct a training program.
- (2) Control the medical portion of the drill.
- (3) Evaluate the drill with qualified medical and health physics controllers.
- (5) Conduct an oral and written critique.

c. Corrective actions.

Deficiencies in team or individual actions during the drill will be corrected by instruction during the critique. Deficiencies in equipment or physical arrangements discovered during the exercise will be evaluated by RMC, CECo., and off-site support agencies and resolved following the written report.

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6. Health Physics Drill.

- a. One team of Rad/Chem Technicians will be selected to perform direct monitoring and sample collecting functions. Controllers will provide the initial situation and meter readings to simulate elevated radiation levels. The team will report elevated measurements in accordance with station procedures. Airborne and liquid samples collected will be analyzed in accordance with station procedures. Results of the analysis will be recorded. At least once each year the drill will include obtaining and analyzing an actual liquid sample from the plant. The controller will specify collection of a sample that is required to be analyzed for normal plant operations whenever possible. Results of the analysis will be processed in accordance with normal procedures.

b. Responsibilities.

The CECO General Office will:

- (1) Schedule, direct and evaluate the drill.

The Generating Station will:

- (1) Provide a technically qualified individual to act as a controller and to assist in planning the drill.
(2) Provide a list of qualified technicians. Provide selected personnel to participate in the drill.
(3) Provide equipment and facilities to conduct the drill.

c. Critique.

A verbal critique will be conducted at the conclusion of the drill by the controllers from the General Office and the station. Following the verbal critique, the control team will discuss comments for the written critique. The written critique will be provided to the station after review at the General Office.

7. NRC health physics network.

- a. The NRC health physics network provides dedicated communications between the Station and NRC headquarters in Bethesda, Maryland, and Glen Ellyn, Illinois.
- b. Phones are located in the Rad-Chem Supervisor's office, the on-site NRC office, and the emergency operations facility.
- c. Conduct of test. The drill will be conducted in the following manner using QEP 530-S2:
- (1) Choose one of the three phones available. Each phone must be tested once every three months, on a rotating basis, testing one phone per month.

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- (2) Pick up the receiver and dial 22. This number should reach NRC headquarters in Bethesda, Maryland. Pick up the receiver and dial 23. This number should reach Region III headquarters in Glen Ellyn, Illinois.

NOTE

No dial tone or ringing will be heard.

- (3) The test message should be:

This is a test. This is the Quad-Cities Nuclear Power Station. Please verify that communications have been established by stating your initials.

- (4) Should a test be unsuccessful, the NRC shall be notified and one of the other HP network phones shall be tested to verify that communication is possible. NRC Region III should be notified so that appropriate corrective actions may be taken.

8. NRC Emergency Notification System (red phone).

- a. The NRC Emergency Notification System provides dedicated communications between the station and the NRC Operations Center in Bethesda, Maryland.
- b. Phones are located in the on-site NRC office, the Emergency Operations Facility, the Technical Support Center, and the station Control Room.
- c. Conduct of test. The drill will be conducted in the following manner using QEP 530-S3:
 - (1) All phones must be tested each month.
 - (2) Pick up the receiver and wait. The phone should automatically reach NRC headquarters in Bethesda, Maryland.
 - (3) The test message should consist of:

This is (NAME) from the Quad-Cities Nuclear Power Station. I'm calling from our (FACILITY NAME) to test the Emergency Notification System. Please acknowledge the receipt of this message by stating your initials.
 - (4) Record the initials of the call receiver on QEP 530-S3.
 - (5) Should a test be unsuccessful, the NRC Operations Center shall be notified so that appropriate corrective actions may be taken. The Operations Center number is (202) 951-0550.

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AUG 29 1963
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G. CHECKLISTS

1. QEP 530-S1, Monthly NARS Drill Quad-Cities Station.
2. QEP 530-S2, Monthly Test of the NRC Health Physics Network.
3. QEP 530-S3, Monthly Test of NRC Emergency Notification System.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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AUG 29 1963
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STATION PROCEDURE REVISION COVER SHEET

ID/1X

Revision Description This revisionprovides for repeating
any failed sections
of the off-shift
augmentation drill.QEP

Chapter

530-3

Procedure

D. Jessen

Originator

3

Revision

This procedure is required to be implemented prior to Sept. 15, 1983
Date

because of _____

DRAFT REVIEW

Tech. Staff Supervisor

Date

Department Head

Date

Originator

Date

8-15-83FINAL APPROVALDepx. Head Rad Chem8-16-83

Date

Tech. Staff Supervisor

Date

Asst. Supt. Admin

Date

8/16/83AUTHORIZATIONL. Gorman8/17/83

Station Superintendent Effective Date

INSTRUCTIONS FOR REVISION INSERTIONREMOVEINSERT

QEP 530-3 RW. 2

QEP 530-3 RW. 3

REVISION RECEIPT FORMPlease sign and date below, and return this sheet to the Officer Supervisor -
Quad Cities Station. Your Station Procedure copy number is 37.

Signature

Date

-1-(final)

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NOV 6 1983

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OFF-SHIFT AUGMENTATION DRILL

QEP 530-3
Revision 3
August 1983

ID/5C

A. PURPOSE

The purpose of this procedure is to outline the method used to conduct the semi-annual off-shift augmentation drill.

B. REFERENCES

1. GSEP Table 6.1-1, Simplified Emergency Notification Scheme.
2. QEP 320-1, Activation of the Emergency Organization.
3. QEP 310-1, Initial Notification.
4. QEP 310-T1, Guidance for Augmentation of the On-Site Emergency Organization Within 30 Minutes.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. Off-shift shall be any time other than regular working hours (0800-1630, Monday thru Friday).
2. If no Director for a given responsibility can be contacted, an appropriate Caller or a Station Director may be deputized to act as an interim Director.

F. PROCEDURE

1. On a semi-annual basis, the Quad-Cities Nuclear Power Station should conduct an off-shift augmentation drill in order to test the ability to staff the Station's emergency organization within the time frame necessary to adequately respond to an emergency.

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2. The drill should be initiated by handing the on-shift Shift Engineer a pre-written message. Beginning with the Shift Engineer, personnel are to relay the message in the sequence specified by QEP 310-T1. The message should be:

"This is a drill. A GSEP condition of General Emergency is being simulated. Please contact those individuals you are designated to contact as specified by your copy of the Prioritized Notification List. Indicate on the listing the times at which you contact the required personnel. Return your copy of the Prioritization Notification List to the GSEP Coordinator as soon as practical. Relay this message in the sequence specified by QEP 310-T1, until adequate staff augmentation is achieved."

3. The GSEP Coordinator will tabulate the data to determine if the drill was successful.
4. The drill is considered successful if the general emergency requirements of QEP 310-T1 are met. This is to be interpreted that the appropriate personnel would be able to be on-site within 30 minutes of being notified, and the appropriate notifications are all completed within 30 minutes from the start of the drill. If the drill is not successful, the failed sections should be repeated within a month to fulfill the requirements of QEP 310-T1.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

APPROVED
AUG 17 1983
Q.C.O.S.R.

NRC
STATION PROCEDURE REVISION COVER SHEET

QAP 1100-T5
Revision 6
October 1981

ID/LX
Revision Description This revision
updates the GSEP
phone list to change
the listing for the
NRC Region III office.

<u>QEP</u>	<u>700-T3</u>
Chapter	Procedure
<u>JESSEN</u>	<u>5</u>
Originator	Revision

This procedure is required to be implemented prior to September 1, 1983
because of New NRC phone number.

DRAFT REVIEW

Tech. Staff Supervisor	Date
Department Head	Date
<u>[Signature]</u>	<u>8-24-83</u>
Originator	Date

FINAL APPROVAL

<u>[Signature]</u>	<u>8-26-83</u>
Dept. Head <u>RAD/CHEM</u>	Date
<u>[Signature]</u>	<u>8/26/83</u>
Tech. Staff Supervisor	Date
<u>L. Turner</u>	<u>8/26/83</u>
Asst. Supt. <u>ADMIN.</u>	Date

AUTHORIZATION

<u>[Signature]</u>	<u>8/29/83</u>
Station Superintendent	Effective Date

INSTRUCTIONS FOR REVISION INSERTION

REMOVE

QEP 700-0 Rev. 7
" 700-T3 Rev. 4

INSERT

QEP 700-0 Rev. 8
" 700-T3 Rev. 5

REVISION RECEIPT FORM

Please sign and date below, and return this sheet to the Officer Supervisor -
Quad Cities Station. Your Station Procedure copy number is 38.

Signature	Date
	-1-(final)

APPROVED
NOV 6 1983
Q.C.O.S.R.

QEP 700-0
Revision 8
August 1983

ID/2I,2J

TELEPHONE DIRECTORIES

700-0
Telephone Directories

Rev. 8 08-29-83

700-T2
Employee List

Rev. 4 02-10-83

700-T3
Supplemental Phone Listing

Rev. 5 08-29-83

APPROVED
AUG 29 1983
Q.C.O.S.R

SUPPLEMENTAL PHONE LISTING

QEP 700-T3
Revision 5
August 1983

ID/1F

This listing supplements the GSEP phone number listing as given in the Quad-Cities Station Directory and in the Local Support Agency Directory.

<u>Agency</u>	<u>Phone No.</u>
Department of Energy (RAT)	312-972-4800
Illinois Dept. of Public Health	217-782-6550
U. S. Coast Guard (St. Paul)	612-725-7452
NRC Region III	312-790-5500
51st Ordinance Unit, Ft. Sheridan, IL	312-926-2081
F.B.I.	309-786-2663
Army Corps of Engineers	309-788-6361
NRC (Washington)	301-492-7403
Rock Island County Sheriff	309-786-2100
Iowa Emergency Services	515-281-3231
Illinois Emergency Services	217-782-7860
Cordova Police	309-654-2600
Albany Police	309-887-4370
Outside number to EOF	815-772-7430
Outside numbers to TSC	309-654-2559
	309-654-2508
	309-654-2538
	309-654-2564
	309-654-2592
Weather Service Office (Moline Airport)	309-762-1726
General Electric Emergency Support	408-971-1038
American Nuclear Insurers	203-677-7305

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AUG 29 1983

Q.C.O.S.R.

ID/4M

QUAD-CITIES NUCLEAR POWER STATION
EMERGENCY PLAN PROCEDURES

QEP 000-1
Revision 2
March 1982

- 000 Quad-Cities Nuclear Power Station Emergency Plan Procedures
- 100 Station Group Directors' Duties
110 Station Director
120 Operations Director
130 Technical Director
140 Maintenance Director
150 Stores Director
160 Administrative Director
170 Security Director
180 Rad/Chem Director
- 200 Emergency Conditions
- 300 Emergency Measures
310 Notification of Responsible Authorities
320 GSEP Activation
330 Assessment Actions
340 Corrective Actions
350 Recommendations for Offsite Protective Actions
360 Protective Measures for Onsite Personnel
370 Provision of Aid to Affected Onsite Personnel
- 400 Facilities and Equipment
410 Control Room
420 Onsite Technical Support Center
430 Onsite Operational Support Center
440 Communications Systems
450 Assessment Facilities
460 Emergency Operations Facility
- 500 Maintaining Emergency Preparedness
510 Administrative
520 Training
530 Exercises and Drills
540 Public Information
550 Emergency Equipment and Supplies
- 600 Recovery
610 Reentry
620 Recovery Operations
- 700 Telephone Directories

APPROVED
MAR 23 1982
Q.C.O.S.R.

ID/1A,1B

STATION DIRECTOR

<u>110-0</u> Station Director	Rev. 10	06-23-83
<u>110-1</u> Station Director Implementing Procedure	Rev. 8	12-23-82
<u>110-2</u> Acting Station Director (Shift Engineer) Implementing Procedure	Rev. 3	06-23-83
<u>110-T1</u> RCT Task Prioritization	Rev. 1	04-15-82
<u>110-T2</u> Flow Chart for Rapid Off-Site Protective Decisions	Rev. 1	06-23-83

STATION DIRECTOR
IMPLEMENTING PROCEDURE

QEP 110-1
Revision 8
December 1982

ID/1D

A. PURPOSE

The purpose of this procedure is to outline the method used to implement the Station Director duties.

B. REFERENCES

1. GSEP Phone List.
2. QEP 200-2, Classification of an Incident Involving Hazardous Material.
3. QEP 200-T1, Quad-Cities Emergency Action Levels.
4. QEP 310-1, Initial Notification.
5. QEP 360-2, Plant Evacuation and Assembly.
6. QEP 360-3, Site Evacuation.
7. QEP 110-T1, RCT Task Prioritization.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. Responsibilities.
 - a. To have responsible charge of the GSEP Station group and direct a staff in organizing and coordinating the emergency efforts at and within the immediate vicinity of the station.
 - b. To ensure adequate manning and access control of the Onsite TSC when activated.
 - c. To keep the GSEP Command Center Director fully informed of the status of the emergency and the measures being taken to deal with the emergency.
 - d. Establish agreements required for service specified in Section 4 of the site annex unless another Director has been assigned the responsibility of obtaining this agreement.

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DEC 23 1982
Q.C.O.S.R.

2. Notification.

a. Initial notification by:

(1) Shift Engineer.

(2) Senior NSO.

3. The Station Director has the authority for declaring an emergency, recommending protective actions to local authorities, and authorizing emergency radiation exposures in excess of 10 CFR 20.101 limits. This authority may not be delegated.

F. PROCEDURE

1. Obtain information as required from:

a. Shift Engineer.

b. Radiation Protection Department. The RCT's should conduct appropriate surveys and sampling activities until the arrival of the Rad/Chem Director. Prioritize RCT sampling tasks to ensure the acquisition of the most pertinent data during the early phases of a GSEP condition. Samples should be obtained in the order listed in QEP 110-T1, if possible.

2. Categorize the incident using procedures QEP 200-2 and 200-T1.

a. Transportation Accident.

b. Unusual Event.

c. Alert.

d. Site Emergency.

e. General Emergency.

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DEC 22 1992

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NOTE

In the case of a General Emergency, the responsible state and local governmental agencies are to be notified within 15 minutes after declaring the condition as a General Emergency. The necessary time should be taken to accurately determine the condition of the emergency, and once the condition is officially declared; the Red Phone and NARS Phone notifications must be completed within 15 minutes. It is not prudent, however, to use excessive amounts of time to classify the emergency and to avoid the inevitable timely notifications that must be made for a General Emergency GSEP classification.

3. Notify the following as necessary per the instructions given by procedure QEP 310-1:
- a. System Power Supply Load Dispatcher.
 - b. Station Director.
 - c. Command Center Director.
 - d. Operations Director.
 - e. Technical Director.
 - f. Maintenance Director.
 - g. Stores Director.
 - h. Administrative Director.
 - i. Security Director.
 - j. Rad/Chem Director.
4. Actions required-complete as necessary.

- a. Personnel Accounting-contact Security Director. _____

(1) Personnel accounted for or assembled. _____

(2) Personnel missing (list)

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DEC 23 1992

Q.C.O.S.R.

- b. Injured personnel-contact Operations Director. _____

(1) Radiation Protection notified for first aid/survey and de-contamination. _____

(2) Ambulance arranged. _____

(3) Hospital House Supervisor Notified. _____

(4) Command Center notified. _____

NAME	HOSPITAL	AMBULANCE
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

c. Plant Access-contact Security Director. _____

(1) Gate House secure.

(a) Locked by guard. _____

(b) Open to allow off-site access and notified to direct
off-site assistance. _____

d. Evacuation planned-contact Operations Director.

(1) Non-essential personnel-list groups

_____	_____
_____	_____
_____	_____
_____	_____

(2) Site evacuation-contact Operations Director.

(a) Route planned. _____

(b) Estimated dose expected. _____

(c) Assembly area.

1. _____

2. _____

3. _____

(d) Survey personnel available.

(3) Local area evacuation-proposed. (Refer to generic GSEP
tables 6.3-1 and 6.3-2, and Section 7.3.3.)

(a) Sector(s) involved and avoidable dose.

(b) Coordination through:

1. Illinois Emergency Services and Disaster Agency.

2. Iowa Office of Disaster Services.

(c) Environs team notified for assistance and continuing
information. _____

e. Contact Industrial Relations regarding injuries (after incident is
under control).

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DEC 23 1982

Q.C.O.S.R.

f. Recovery.

- (1) Determine extent of contamination.
 - (a) On-Site - contact Rad/Chem Director.
 - (b) OffSite - contact Environs Director.
- (2) Protective measures set for personnel.
- (3) Dose management set.
- (4) Unit status set and stable-contact Operations Director.
- (5) Damage estimated.
- (6) Development of specific recovery plans.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

APPROVED
DEC 23 1982
J.C.O.S.R.

ACTING STATION DIRECTOR
(SHIFT ENGINEER)
IMPLEMENTING PROCEDURE

QEP 110-2
Revision 3
June 1983

ID/3T

A. PURPOSE

The purpose of this procedure is to outline the method to implement the GSEP duties of the Acting Station Director (Shift Engineer, or Shift Foreman).

B. REFERENCES

1. QEP 200-T1, Emergency Action Levels (EAL's).
2. QEP 200-T2, EAL - Procedure Cross Reference.
3. QEP 310-1, Initial Notification.
4. QEP 310-T1, Emergency Organization Augmentation.
5. QEP 310-T2, NARS Form.
6. QEP 360-2, Plant Evacuation and Assembly.
7. QEP 350-T1, Protective Action Guidelines (PAG's).
8. QEP 110-T2, Flow Chart for Rapid Offsite Protective Decisions.
9. QEP 110-T1, Task Prioritization for RCT Personnel.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. A cross-reference is contained in QEP 200-T2 which associates the EAL's with applicable station procedures.
2. A preface is contained in front of the QGA and QOA procedure manuals which lists those procedures which relate to GSEP events. The preface instructs the reactor operator to inform the Shift Engineer of a condition requiring possible classification as a GSEP event.

QEP 110-2
JUN 28 1983
Q.C.O.S.M.

F. PROCEDURE

1. Classify the event as either a Transportation Accident, Unusual Event, Alert, Site Emergency, or General Emergency using the EAL Table, QEP 200-T1.
2. Perform notifications as follows:
 - a. Transportation Accident:
 - (1) Notify System Power Dispatcher, using the NARS Form. Fill out as much as possible on the form. Instructions on how to fill out the form are given in step F.3 of this procedure.
 - (2) Notify On-Call Duty Person to initiate appropriate GSEP Station Group activation. Refer to QEP 310-T1 for notification scheme.
 - (3) Notify NRC Operations Center using Red Phone.
 - (4) Await further GSEP instructions.
 - b. Unusual Event:
 - (1) Notify System Power Dispatcher, using the NARS Form. Fill out as much as possible on the form. Instructions on how to fill out the form are given in step F.3 of this procedure.
 - (2) Notify On-Call Duty Person to initiate appropriate GSEP Station Group activation. Refer to QEP 310-T1 for notification scheme.
 - (3) Notify NRC Operations Center using Red Phone.
 - (4) Perform necessary immediate and subsequent corrective actions. Await further GSEP instructions.
 - c. Alert:
 - (1) Notify System Power Dispatcher, using the NARS Form if Corporate Command Center is not manned. Otherwise, notify the Corporate Command Center. Fill out as much as possible on the NARS Form. Instructions on how to fill out the form are given in step F.3 of this procedure.
 - (2) Notify On-Call Duty Person to initiate appropriate GSEP Station Group activation. Refer to QEP 310-T1 for notification scheme.
 - (3) Notify NRC Operations Center using Red Phone.
 - (4) Perform necessary immediate and subsequent corrective actions. Await further GSEP instructions.

d. Site Emergency:

- (1) Notify System Power Dispatcher, using the NARS Form if Corporate Command Center is not manned. Otherwise, notify the Corporate Command Center. Fill out as much as possible on the NARS Form. Instructions on how to fill out the form are given in step F.3 of this procedure.
- (2) Sound the assembly/evacuation siren.
- (3) Notify On-Call Duty Person to initiate appropriate GSEP Station Group activation. Refer to QEP 310-T1 for notification scheme.
- (4) Notify NRC Operations Center using Red Phone.
- (5) Perform necessary immediate and subsequent corrective actions. Await further GSEP instructions.

e. General Emergency:

- (1) Notify System Power Dispatcher, using the NARS Form if Corporate Command Center is not manned. Otherwise, notify the Corporate Command Center. Fill out as much as possible on the NARS Form. Instructions on how to fill out the form are given in step F.3 of this procedure. Use QEP 110-T2 to determine offsite protective actions.
- (2) Sound the assembly/evacuation siren.
- (3) Notify On-Call Duty Person to initiate appropriate GSEP Station Group activation. Refer to QEP 310-T1 for notification scheme.
- (4) Notify NRC Operations Center using Red Phone.
- (5) If the Corporate Command Center or the EOF have not been activated notify state and local agencies. Using the NARS (Green) Phone, Dial 23. Notify all parties utilizing the NARS Form.

NOTE

In the case of a General Emergency, the responsible state and local governmental agencies are to be notified within 15 minutes after declaring the condition as a General Emergency. The necessary time should be taken to accurately determine the condition of the emergency, and once the condition is officially declared; the Red Phone and NARS Phone notifications must be completed within 15 minutes. It is not prudent, however, to use excessive amounts of time to classify the emergency and to avoid the inevitable timely notifications that must be made for a General Emergency GSEP classification.

- (6) Perform necessary immediate and subsequent corrective actions.
Await further GSEP instructions.

3. NARS Form:

- a. Items 1 through 7 are self-explanatory.
- b. To complete item 8, refer to the Protective Action Guidelines (PAG's) given in QEP 350-T1 and in GSEP Table 6.3-1.
 - (1) For a Transportation Accident, check box A.
 - (2) For an Unusual Event, Alert, or Site Emergency, enter the PAG table with the classification and release situation (item 6). Since projected doses would probably not be available, use the appropriate containment radiation level to determine the recommended protective action, and which box to check for item 8.
 - (3) For a General Emergency, use QEP 110-T2 for protective action recommendations.
- c. Item 9 is self-explanatory.
- d. For item 10, only the chimney is an elevated release point.
- e. Items 11 through 14 are self-explanatory.
- f. Do not fill in item 15.
- g. Items 16 and 17 are self-explanatory.
- h. For a Transportation Accident only, fill in item 18. Item 19 is self-explanatory.
- i. Item 20 should be the Shift Engineer or his designee at the Station.
- j. Item 21 should be the addressee of the message (SPSO, NRC, etc.).
- k. Item 22 may be filled in later.

4. Prioritization of Tasks for RCT Personnel: Samples should be obtained in the order listed in QEP 110-T1 if practicable.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

ID/3V

RCT TASK PRIORITIZATION

QEP 110-T1
Revision 1
April 1982

SYMPTOMS	SAMPLING TASKS
A. High Radiation Containment Monitors indicate high Primary Containment Activity. Main Chimney and Reactor Vent Gaseous Effluent Monitors indicate no Increase.	A. Containment, Coolant.
B. Shift Engineer concludes there has been a loss of 1 or more fission product barriers: 1. Cladding Failure. 2. +2 psig Drywell Pressure and -59 inches Vessel Level. 3. Loss of Primary Containment.	B.1. Coolant, Containment. B.2. Coolant, containment. B.3. Containment, Reactor Vent.
C. Indication of Loss of Coolant Accident. 1. Inside Containment. 2. Outside Containment.	C.1. Containment, Coolant. C.2. Reactor Vent, Main Chimney, Coolant.
D. Fuel Handling Accident with damage to irradiated fuel and Refuel Floor ARM \geq 100 mR/hr. 1. Standby Gas Treatment System Operational and Secondary Containment Isolation Effective. 2. Standby Gas Treatment System not Operational or Secondary Containment Isolation Ineffective.	D.1. Main, Chimney Reactor Vent. D.2. Reactor Vent, Main Chimney.

APPROVED
APR 15 1982

Q.C.O.S.R.

SYMPTOMS	SAMPLING TASKS
<p>E. Radioactivity Effluent Release from the Plant.</p> <ol style="list-style-type: none"> 1. Gaseous Effluent Release from Main Chimney in excess of Technical Specification Instantaneous Release Limit. 2. Gaseous Effluent Release from Reactor Vent in excess of Technical Specification Instantaneous Release Limit. 3. Liquid Effluents concentration of gross beta activity above background in discharge bay in excess of Technical Specifications. 4. Liquid Effluents concentration of Isotopic in the Discharge Bay in excess of 10 CFR 20 Appendix B Table II, Column 2 MPCw Limits. 	<p>E.1. Main Chimney.</p> <p>E.2. Reactor Vent.</p> <p>F. Discharge Bay.</p> <p>E.4. Discharge Bay.</p> <p style="text-align: right;">APPROVED APR 15 1982 Q.C.O.S.R.</p>

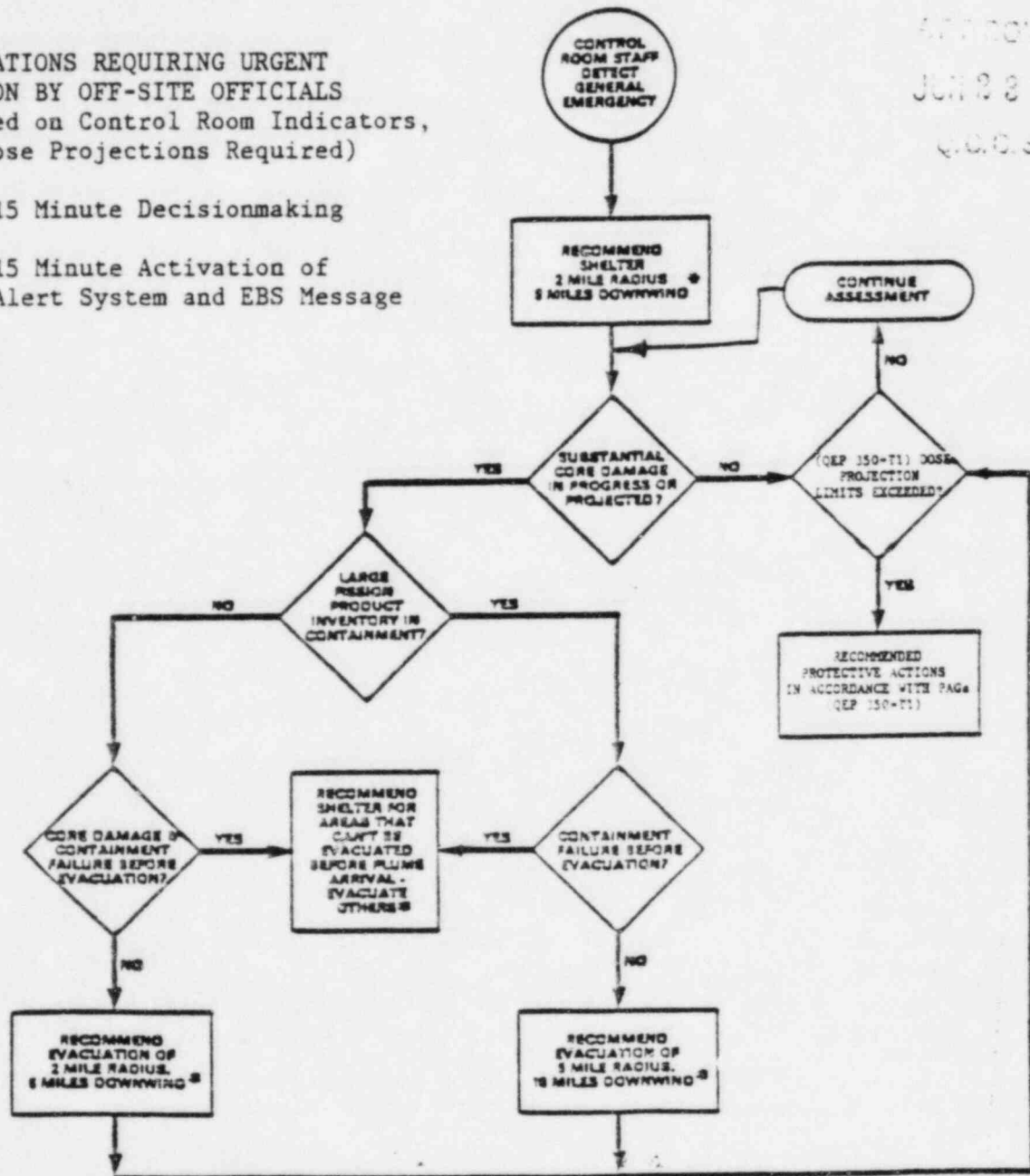
FLOW CHART FOR RAPID
OFF-SITE PROTECTIVE DECISIONS

QEP 110-T2
Revision 1
June 1983

The following actions will be based on observable instrumentation and plant status indicators (EALS) in the Emergency Plan and reviewed by off-site officials.

- * SITUATIONS REQUIRING URGENT ACTION BY OFF-SITE OFFICIALS
(Based on Control Room Indicators, No Dose Projections Required)

- 15 Minute Decisionmaking
- 15 Minute Activation of Alert System and EBS Message



SOURCE: Appendix 1, NUREG-0654/FEMA-REP-1, Rev. 1

For all evacuations, shelter the remainder of the plume EPZ and relocate the population affected by any ground contamination promptly following plume passage.

ID/1C,1D

OPERATIONS DIRECTOR

120-0
Operations Director

Rev. 3 02-16-82

120-1
Operations Director Implementing Procedure

Rev. 3 02-16-82

APPROVED
FEB 16 1982
Q.C.O.S.R.

OPERATIONS DIRECTOR
IMPLEMENTING PROCEDURE

QEP 120-1
Revision 3
February 1982

ID/4A

A. PURPOSE

The purpose of this procedure is to outline the method used to implement the Station Operations Director duties.

B. REFERENCES

1. GSEP Phone List.
2. QEP 340 Block Procedures: Corrective Actions.
3. QEP 360-2, Plant Evacuation and Assembly.
4. QEP 360-3, Site Evacuation.
5. QEP 370-1, First Aid Procedure.
6. QEP 410-1, Control Room.
7. QEP 430-1, On-Site Operational Support Center.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. Responsibilities.
 - a. To direct a staff in determining the nature and extent of the emergency pertaining to equipment and plant facilities.
 - b. To protect personnel and perform rescue operations as needed.
 - c. To take measures to terminate the condition causing the emergency.
 - d. To protect equipment and facilities from further damage.
 - e. To restore plant to pre-accident status.

APPROVED
FEB 16 1982
Q.C.O.S.R.

2. Notification.

Initial Notification by:

a. Acting Station Director.

(1) Shift Supervisor.

(2) Senior NSO.

b. Station Director.

F. PROCEDURE

1. Verify that the System Power Supply Load Dispatcher has been notified.
2. Verify that the Station Director has been notified.
3. Make an estimate of the emergency from an operational viewpoint, and initiate immediate corrective action to limit or contain the accident.
4. Notify NRC as necessary.
5. Notify local agencies for assistance as required.
6. Organize rescue teams to aid injured personnel.
 - a. Perform rescue operations for injured personnel. (See Rescue Implementing Procedure).
 - b. Call ambulance services as required.
7. Notify hospitals as required.
 - a. Jane Lamb Memorial Hospital
Clinton, Iowa
8. Assist in the transfer of injured personnel off-site.
9. Assist in planning and implementing detailed procedures regarding all phases of the GSEP related activities.
10. Perform switching and valving operations, equipment operations, equipment checking, and miscellaneous operations as required.
11. Assist in intelligence operations, such as survey, inspections, and obtaining plant operating data.
12. Implement protective actions for onsite personnel, to include site assembly and evacuation (when ordered by the Station Director).
13. Ensure adequate manning of the Onsite OSC and Control Room. Designate an individual to manage and supervise activities at the Onsite OSC.

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FEB 16 1982

Q.C.O.S.R.

14. Assist technical personnel in decontamination work as necessary.
15. Request additional technical and non-technical personnel as necessary to restore facility to pre-accident status.
16. Inform the Station Director of the progress of control and restoration efforts.
17. Keep a record of events and data compiled during all phases of the GSEP related activities.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

APPROVED
FEB 16 1982
Q.C.O.S.R.

ID/1E, 1F

TECHNICAL DIRECTOR

130-0

Technical Director

Rev. 4

06-27-83

130-1

Technical Director Implementing Procedure

Rev. 4

06-27-83

APPROVED
JUN 27 1983
Q.C.O.S.H.

TECHNICAL DIRECTOR
IMPLEMENTING PROCEDURE

QEP 130-1
Revision 4
June 1983

ID/4B

A. PURPOSE

The purpose of this procedure is to outline the method used to implement the Station Technical Director duties.

B. REFERENCES

1. QEP 700-T2, Station Phone List.
2. QEP 620-1, Recovery Following GSEP Emergencies.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. Responsibilities.
 - a. To direct a staff in determining the nature and extent of the emergency, and provide this information and other intelligence to the Station Director.
 - b. To determine effectiveness of restoration efforts.
2. Notification.
 - a. Initial notification by:
 - (1) Acting Station Director.
 - (a) Shift Supervisor.
 - (b) Senior NSO.
 - (2) Station Director.

F. PROCEDURE

1. Make an estimate of the extent of the emergency and make recommendations to the Station Director.
2. Keep the Station Director informed of the plant status and assist in emergency and restoration planning.

3. Evaluate vital plant parameters during an emergency to determine the overall condition of safety-related systems, the core, and the fission product barriers.
4. Accumulate, tabulate, and evaluate data on plant conditions such as plant operating data, inspections, and other pertinent data.
5. Identify critical data points and control parameters that the Operations Staff should monitor.
 - a. The following operational and radiological parameters are critical to the Technical Director's evaluation, and should be trended during an emergency as deemed applicable:
 - (1) Reactor water level.
 - (2) Reactor pressure.
 - (3) Drywell pressure.
 - (4) Torus level.
 - (5) Drywell hydrogen concentration.
 - (6) Drywell radiation.
 - (7) Main chimney activity.
 - (8) Status of equipment out-of-service important to safety.
6. Supervise the total on-site technical staff effort. Acquire sufficient technical and non-technical personnel from the Station Director to provide adequate assistance during the stabilization and the restoration phases.
7. Assist the Rad/Chem Director for onsite radiological matters.
8. Prepare required recovery procedures.
9. Keep a running log of events and data compiled during all phases of the accident.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

ID/1G,1H

MAINTENANCE DIRECTOR

140-0

Maintenance Director

Rev. 2

02-16-82

140-1

Maintenance Director Implementing Procedure

Rev. 2

02-16-82

APPROVED
FEB 16 1982
Q.C.O.S.R.

MAINTENANCE DIRECTOR
IMPLEMENTING PROCEDURE

QEP 140-1
Revision 2
February 1982

ID/4C

A. PURPOSE

The purpose of this procedure is to outline the method used to implement the Station Maintenance Director duties.

B. REFERENCES

1. QEP 700-T2, Station Phone List.
2. QEP 340-5, Station Fire Fighting.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. Responsibility.
 - a. To direct a staff in providing labor, tools, and equipment needed for emergency repairs, rescue operations, and for restoring the plant to its pre-accident status.
2. Notification.
 - a. Initial notification by:
 - (1) Acting Station Director.
 - (a) Shift Supervisor.
 - (b) Senior NSO.
 - (2) Station Director.

APPROVED
FEB 16 1982
Q.C.O.S.R.

F. PROCEDURE

1. Assist in rescue operations by providing labor, tools, and equipment.
2. Obtain the necessary work force to construct necessary barriers, shields, and equipment.
3. Repair, replace, and adjust equipment vital to the safety of the plant and station personnel.

4. Inform the Station Director on the progress of emergency efforts and restoration efforts.
5. Assist the Station Director in planning recovery and restoration repairs.
6. Direct the total on-site maintenance and equipment restoration effort.
7. Expand the on-site maintenance operation as necessary.
8. Request additional equipment through the GSEP organization in order to expedite recovery and restoration. Equipment such as bulldozers, road graders, trucks, cranes or pumps may be required.
9. Keep a running log of events and data compiled during all phases of the GSEP related activities.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

APPROVED
FEB 16 1982
Q.C.O.S.R.

STORES DIRECTOR

ID/1I,1J

150-0

Stores Director

Rev. 1 06-20-80

150-1

Stores Director Implementing Procedure

Rev. 1 06-20-80

APPROVED

JUN 20 1980

Q.C.O.S.R.

STORES DIRECTOR
IMPLEMENTING PROCEDURE

QEP 150-1
Revision 1
June 1980

ID/1A

A. PURPOSE

The purpose of this procedure is to outline the method used to implement the Station Stores Director's duties.

B. REFERENCES

1. " QEP 700-T2, Station Phone List.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. Responsibility.
 - a. To obtain and deliver to the point of need all parts, protective equipment, and material necessary to maintain uninterrupted work in the emergency and restoration efforts.
2. Notification.
 - a. Initial notification by:
 - (1) Station Director.

F. PROCEDURE

1. The following actions will be taken by the Stores Director upon notification by the Station Director of a GSEP condition.
 - a. Expedite delivery of needed materials to the Generating Station.
 - b. Keep the Station Director informed as to the progress of emergency efforts.
 - c. Inventory required emergency materials so that the necessary supplies are not depleted.
 - d. Provide adequate protective clothing for emergency personnel.
 - e. Provide adequate respiratory protective equipment for emergency personnel.

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f. Keep a record of GSEP related activities.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

ID/2K,2L

ADMINISTRATIVE DIRECTOR

160-0

Administrative Director

Rev. 2

03-31-83

160-1

Administrative Director Implementing
Procedure

Rev. 2

03-31-83

APPROVED
MAR 31 1983
Q.C.O.S.R.

ADMINISTRATIVE DIRECTOR
IMPLEMENTING PROCEDURE

QEP 160-1
Revision 2
March 1983

ID/20

A. PURPOSE

The purpose of this procedure is to outline the method used to implement the Administrative Director duties.

B. REFERENCES

1. QEP 700-T2, Employee List.
2. GSEP Table 4.2-6.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. Responsibilities:
 - a. To provide administrative services during a GSEP condition including food and lodging services as required.
 - b. To direct a clerical staff as needed during the course of an emergency.
2. Notification:
 - a. Initial notification by:
 - (1) Acting Station Director.
 - (a) Shift Supervisor.
 - (b) Senior NSO.
 - (2) Station Director.

F. PROCEDURE

1. Coordinate with the Station Director and the Operations Director in arranging for relief and continual manning of the station emergency crews.

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2. Arrange for food and sleeping facilities for the onsite employees.
3. Direct a staff in the typing of emergency procedures and interim reports during an emergency.
4. Coordinate recordkeeping efforts of the station during an emergency.
5. Maintain a record of the GSEP related activities.
6. Arrange to relocate duplicator and telecopier from service building to the TSC.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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Q.C.O.S.R.

ID/2M,2N

SECURITY DIRECTOR

170-0

Security Director

Rev. 4

04-29-83

170-1

Security Director Implementing Procedure

Rev. 4

04-29-83

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APR 29 1983

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SECURITY DIRECTOR
IMPLEMENTING PROCEDURE

QEP 170-1
Revision 4
April 1983

ID/2P

A. PURPOSE

The purpose of this procedure is to outline the method used to implement the Security Director duties.

B. REFERENCES

1. GSEP Table 4.2-7.
2. QSP, Security Procedures.
3. QAP 1900 series, Administrative Security Procedures.
4. QEP 360-2, Plant Evacuation and Assembly.
5. QEP 360-3, Site Evacuation.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. Responsibilities:
 - a. To maintain plant security during an emergency.
 - b. To provide accountability for personnel in the protected area when an emergency occurs.
2. Notification:
 - a. Initial notification by:
 - (1) Acting Station Director.
 - (a) Shift Supervisor.
 - (b) Senior NSO.
 - (2) Station Director.

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APR 29 1983
D.C.O.S.R.

F. PROCEDURE

1. Upon notification of an emergency, control access to the protected area as described in station procedures.
2. Inform the Station Director of the overall plant security situation.
3. Account for all personnel inside the protected area within 30 minutes, in accordance with station procedures, when requested by the Operations Director.
4. Provide guard personnel as needed to control access to the Control Room, Technical Support Center and the Emergency Operations Facility.
5. Coordinate with the Rad/Chem Director for controlling ingress and egress to other specified areas, as required.
6. Maintain a record of the GSEP related activities.
7. If an assembly area is not habitable, inform the access control guard of an alternate site.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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APR 29 1993
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QEP 180-0
Revision 4
October 1982

ID/20,2P

RAD/CHEM DIRECTOR

180-0

Rad/Chem Director

Rev. 4

10-14-82

180-1

Rad/Chem Director Implementing Procedure

Rev. 4

10-14-82

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RAD/CHEM DIRECTOR
IMPLEMENTING PROCEDURE

QEP 180-1
Revision 4
October 1982

ID/2Q

A. PURPOSE

The purpose of this procedure is to outline the method used to implement the Rad/Chem Director duties.

B. REFERENCES

1. GSEP Table 4.2-8.
2. QEP 330 Block Procedures, Assessment Actions.
3. QEP 350-T1, GSEP Guidelines for Recommended Off-Site Protective Actions for Gaseous Plume Exposure.
4. QEP 350-T2, GSEP Guidelines for Protection Against Ingestion of Contamination for the Off-Site Public.
5. QEP 360-2, Plant Evacuation and Assembly.
6. QEP 360-3, Site Evacuation.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. Responsibilities:
 - a. To direct a staff in determining the extent and nature of radiological or hazardous material problems onsite (and initially offsite) to the degree necessary to assess personnel exposures or plant releases.
 - b. To provide radiological and hazardous material information and recommendations to the Station Director.

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2. Notification:

a. Initial notification by:

(1) Acting Station Director.

(a) Shift Supervisor.

(b) Senior NSO.

(2) Station Director.

F. PROCEDURE

1. Assist in planning personnel rescue operations and with respect to hazardous material accidents, provide monitoring services as required.
2. Decide which of the predetermined personnel evacuation routes is to be used when deemed necessary.
3. Ensure that personnel are decontaminated, if necessary.
4. Assist in the transfer of injured and non-essential personnel.
5. Ensure that appropriate bioassay procedures have been implemented for onsite personnel when a radioactivity incident has occurred.
6. Accumulate, tabulate, and evaluate data on plant conditions such as meteorological and radiation area monitoring readings, hazardous material surveys, and other pertinent data. ARM readings may be tabulated on QEP 330-T9. General arrangement drawings are provided in the TSC giving locations of the ARM stations.
7. Ensure use of protective clothing, respiratory protection, and access control within the plant as deemed appropriate to control personnel exposures.
8. Request through the Health Physics Director:
 - a. Additional or special personnel monitoring devices (TLDs, whole body counters, etc.)
 - b. Engineering evaluations of temporary shielding or special equipment and tools.
 - c. Additional health physics support personnel.
 - d. Additional instrumentation and equipment, as required.
9. Set up, as appropriate, a group qualified to receive contaminated and injured personnel and perform first aid duties.

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10. Coordinate initial offsite monitoring efforts of the Environs Group until such activities can be directed by a designated Environs Director.
11. Maintain a record of the GSEP related activities.
12. During site assembly, Radiation Chemistry Technicians will be dispatched to the assembly areas to monitor and decontaminate, if necessary all personnel still wearing protective clothing. A Radiation Chemistry Technician will also be dispatched to the machine shop to monitor the area for direct and airborne radiation problems.
13. Prioritize RCT sampling tasks to ensure the acquisition of the most pertinent data during the early phases of a GSEP condition. Samples should be obtained in the order listed in QEP 110-T1, if practicable.
14. When sample results are transmitted to the Rad/Chem Director, he should verify that information relative to the time of sample collection is provided.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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OCT 14 1992
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EMERGENCY CONDITIONS

<u>200-0</u> Emergency Conditions	Rev. 14	05-24-83
<u>200-1</u> Classification of GSEP Conditions	Rev. 3	05-05-82
<u>200-2</u> Classification of an Incident Involving Hazardous Materials	Rev. 2	01-22-82
<u>200-T1</u> Quad-Cities Emergency Action Levels	Rev. 10	05-24-83
<u>200-T2</u> Emergency Action Levels - Procedure Cross Reference	Rev. 2	03-07-83
<u>200-T3</u> Hazardous Substances	Rev. 2	10-29-82

CLASSIFICATION OF GSEP CONDITIONS

QEP 200-1
Revision 3
April 1982

ID/4D

A. PURPOSE

The purpose of this procedure is to guide in the classification of a GSEP condition. This procedure directs the Station Director to the Emergency Action Level (EAL) Table, QEP 200-T1.

B. REFERENCES

1. GSEP Section 6.
2. QEP 200-T1.
3. QEP 310 Block.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. If more than one distinctive EAL of different classification levels, e.g. an EAL for Alert and an EAL for Site Emergency are reached; the highest classification level reached or a higher classification level is declared.
2. If more than one distinctive EAL of the same classification level, e.g. two EALs for Site Emergency are reached; consideration is given to classification at a higher level.

F. PROCEDURE

1. Locate the condition in QEP 200-T1 which best describes the existing situation.
2. Classify the GSEP condition as to its extent as indicated in the right hand columns of QEP 200-T1.
3. Take action as described in GSEP Section 6, and QEP Block 310.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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CLASSIFICATION OF AN INCIDENT
INVOLVING HAZARDOUS MATERIALS

QEP 200-2
Revision 2
January 1982

ID/4E

A. PURPOSE

The purpose of this procedure is to define hazardous material incidents and to outline the actions required when such an incident is identified.

B. REFERENCES

1. Illinois Public Act 79-1442.
2. Appendix A to General Company Order No 19.
3. QEP 200-T3.

C. PREREQUISITES

1. Periodic training on this procedure should be conducted.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. A hazardous material as defined in reference 1 is "a substance or material in a quantity and form which may pose an unreasonable risk to health and safety or property and which is designated a hazardous material pursuant to the 'Hazardous Material Transportation Act', (PL93-633)".
2. A hazardous material incident is one in which as a direct result of hazardous materials:
 - a. A person is killed.
 - b. A person is injured and requires hospitalization.
 - c. Property damage in excess of \$50,000 occurs.
 - d. Fire, breakage, spillage or suspected contamination occurs involving radioactive materials.
 - e. Fire, breakage, spillage or suspected contamination occurs involving etiologic-agents.

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14. If any log time or time-date needs to be changed follow steps F.13.a. to F.13.d.
15. If any problems arise not covered in this procedure consult the CT-2 technical manual and radiation chemistry supervision.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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ESTIMATION OF OFF-SITE DOSE FROM AN
UNPLANNED RELEASE OF
RADIOACTIVE EFFLUENTS

QEP 330-4
Revision 1
December 1980

ID/2T

A. PURPOSE

The purpose of this procedure is to provide a method for obtaining a quick estimate of the actual or projected off-site radiation dose commitment from an unplanned release of gaseous or liquid radioactive effluents after estimating the amount of activity in the release or the amount of activity projected to be released.

B. REFERENCES

1. Memo from J.C. Golden "Quick Estimate of Off-Site Dose from an Unplanned Release" dated May 6, 1980.
2. QEP 330-T2.
3. QEP 330-T3.
4. QEP 350-T1.

C. PREREQUISITES

1. Prior to estimating off-site dose, the following information must be obtained:
 - a. The approximate amount of radioactivity released; or
 - b. If it is desired to obtain the projected dose resulting from a continuing release, an estimate of the projected duration of the release must be made and used in conjunction with an existing or assumed release rate.

D. PRECAUTIONS

1. This procedure was developed only for providing a quick estimate of off-site dose and does not consider actual meteorological conditions at the time of the release. Worst case meteorological conditions have been assumed in the development of these values. Consequently, in most cases, the dose estimates obtained from this procedure will conservatively overestimate off-site exposures.

E. LIMITATIONS AND ACTIONS

1. This procedure may be used by the Station Director for recommending off-site protective action when a general emergency has been declared due to a gaseous release. For guidance on protective action recommendations, see QEP 350-T1.

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2. When making a projected dose estimate for the purpose of recommending protective actions during a general emergency condition resulting from a gaseous release:
 - a. It shall be assumed that the release will continue for a minimum of two hours.
 - b. If possible, the station will make an estimate of the duration or releases expected to continue for greater than two hours.
 - c. When new information about the nature of conditions related to the release indicates the original estimated duration of the release should be revised, dose projections shall be recalculated.
 - d. In the event that projected dose calculations are not completed at the time state and local authorities are notified, recommend protective actions corresponding to these conditions as per QEP 350-T1.
 - e. Upon staffing of the Corporate Command Center, more accurate determinations of off-site dose will be performed by the Environmental Director.

F. PROCEDURE

1. Gaseous release.

For a gaseous release, refer to QEP 330-T2 and perform the following actions:

- a. Using radioactive effluent release rates determined from monitoring instrumentation or laboratory analyses, estimate the amount of activity (Ci) that has been, or is, projected to be released.
- b. Classify the type of release (iodine or noble gas).
- c. Determine the release mode (chimney or vent/ground level).
- d. Obtain the dose factor corresponding to the above conditions.
- e. Determine off-site dose from the product of activity (Ci) X dose factor (mrem/Ci) X distance correction factor.

2. Liquid release.

For a liquid release, refer to QEP 330-T3 and perform the following actions:

- a. Estimate the quantity (Ci) of radioactive liquid effluent released or projected to be released.
- b. Categorize release as to its isotopic nature (e.g., gross beta-gamma, Cs-137, Sr-90 etc.)

- c. Obtain dose factor for the corresponding type of release.
- d. Determine ingestion dose from the product of activity (Ci) released X dose factor (mrem/Ci).

G. CHECKLISTS

- 1. None.

H. TECHNICAL SPECIFICATION REFERENCES

- 1. None.

ESTIMATING HIGH ACTIVITY RELEASES
DURING ACCIDENT CONDITIONS

QEP 330-5
Revision 1
December 1980

ID/3E

A. PURPOSE

This procedure outlines the methods by which estimates of station releases of gaseous radioactive materials will be made during accident conditions.

B. REFERENCES

1. GY-130 Silver Zeolite Technical Data Sheets.
2. QEP 330-T4.

C. PREREQUISITES

1. Obtain 0-5R and 0-1R direct-reading dosimeters.
2. Obtain finger TLD-rings for both hands.
3. Use only GY-130 Silver Zeolite cartridges.

D. PRECAUTIONS

1. Minimize direct handling of samples.

E. LIMITATIONS AND ACTIONS

1. This procedure should only be used if the main chimney noble gas monitors are reading full scale.
2. Limit whole body exposure to 3 Rems/quarter and extremity exposure to 18-3/4 Rems/quarter.

F. PROCEDURE

NOTE

Either the Direct Radiation Method (step F.1) or the Grab Sample Method (step F.2) may be used to perform this procedure; however, the Grab Sample Method is more accurate and should be given preference.

1. Noble Gases (Direct Radiation Method)
 - a. Obtain a model RO-3A high range dose rate instrument which is operable and is currently in calibration.
 - b. Obtain a portable radio capable of communicating with the control room.

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- c. Proceed to the main chimney sample house.
 - d. Place sample system on PURGE.
 - e. Measure the dose rate on the sample line at the predesignated location.
 - f. Place sample system on OPERATE.
 - g. Measure the increase in dose rate on the sample line at the predesignated location.
 - h. The net increase in dose rate is proportional to the release rate.
 - i. Note time of reading.
 - j. Contact control room to determine chimney flow.
 - k. Refer to QEP 330-T4 to determine release rate.
 - l. Notify the control room of release rate.
 - m. Measurements should be taken at least every 15 minutes.
2. Noble Gases (Grab Sample)
- a. Obtain a shielded container, a gas syringe, and an evacuated 15 cc off gas vial.
 - b. Proceed to main chimney sample house.
 - c. Turn on sample pump if it is not already on.
 - d. Withdraw 1.0 cc of off gas with the gas syringe from the septum sample point.
 - e. Inject the off gas into the evacuated vial.
 - f. Place vial into the shielded container.
 - g. Perform an isotope analysis on the sample, using the station's normal methods.
3. Radioiodines and particulates.
- a. Obtain an operable calibrated high range dose rate instrument.
 - b. Obtain a shielded container to transport sample in.
 - c. Obtain a pair of tongs for handling the sample with.
 - d. Proceed to main chimney sample house.

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- e. Note the sample flow and time, then turn the operating pump OFF.
- f. Measure the dose rate at contact with the sample holder.
- g. Disconnect the sample holder.
- h. Open the sample holder.
- i. Using the tongs, place the filter paper in a plastic bag and place in the shielded container.
- j. Using the tongs, place the cartridge in a plastic bag and place in the shielded container.
- k. Install new GY-130 cartridge and filter in sample holder.
- l. Reconnect the sample.
- m. START sample pump.
- n. Note the time and flow when sample was started.
- o. Transport samples to the designated area for analyses.

G. CHECKLISTS

- 1. None.

H. TECHNICAL SPECIFICATION REFERENCES

- 1. None.

AIR SAMPLING UNDER ACCIDENT
CONDITIONS

QEP 330-6
Revision 3
October 1982

ID/30

A. PURPOSE

This procedure outlines the methods by which airborne radioiodine samples and particulate samples are safely obtained under conditions of potentially extremely high radioiodine, noble gas, and particulate airborne concentrations.

B. REFERENCES

1. GY-130 Silver Zeolite Technical Data Sheets.
2. H-809 VII Technical Data Sheets.
3. QCP 800-2.
4. QRP 1360-1.

C. PREREQUISITES

1. Obtain an operable, calibrated, high range exposure rate instrument.
2. Obtain 0-5R and 0-1R direct-reading dosimeters.
3. Obtain finger TLD-rings for both hands.
4. Obtain RADCO H-809 high volume air sampler with combination cartridge-filter head, 47 mm glass fiber filter paper, and GY-130 Silver Zeolite cartridge.
5. Obtain Self Contained Breathing Apparatus, if necessary.

D. PRECAUTIONS

1. Minimize direct contact between you and the sample.
2. Take care to avoid contaminating the sampling media.
3. Plan all phases of the operation prior to entering any high radiation exposure rate areas.
4. Insure that the instrument has been calibrated.
5. The air sampler should not be used in the variable mode.

E. LIMITATIONS AND ACTIONS

1. Take all appropriate steps to insure that the radiation exposure you receive does not exceed 3 and 18-3/4 Rems to the whole body or extremities, respectively, per quarter.
2. This procedure should only be used in such cases when QRP 1360-1, Air Sampling of Suspected Radioactive Airborne Areas, is rendered useless by conditions in the plant.
3. When using the Cutie Pie ionization survey instrument, it should be bagged to prevent noble gas intrusion into the ionization chamber.

F. PROCEDURE

1. Use a 47 mm glass fiber particulate filter. Mark the smooth side of the filter paper. This will serve as the inlet side.
2. Use a GY-130 Silver Zeolite cartridge. Draw an arrow on the side of the cartridge pointing in the direction of the flow.
3. Load the filter paper and the cartridge into the combinations sampler head. The particulate filter is supported by the honeycomb backing, and sealed by the outer aluminum ring.
4. Preparation of the sampler should if possible, be performed in a low exposure rate area.
5. To sample, place the VAR-OFF-HI switch in the Hi position.
6. Note the sample start time, and flow rate.
7. The sample time should be selected such that an adequate amount of activity is collected, and personnel radiation exposure is minimized. In areas of suspected extremely high airborne radioactive material concentrations, the sampling time should be limited to avoid sample preparation and analysis problems.

NOTE

A 1 minute sample should be adequate to assess radioiodine concentrations that would require respiratory protective measures, if isotopic analysis is available. If conditions allow, a 5-minute sample should be taken to assure more accurate results for both radioiodine and particulate analysis.

8. When the sample is completed note the flow rate and time, and turn the sampler off.
9. Return the cartridge and filter paper to the designated area for analysis.

10. The GY-130 silver zeolite cannisters display a low retention for noble gases. Radioiodines of all species should be retained with a high efficiency. The glass fiber particulate filter will be used for the particulate analysis as it has a high efficiency for particulate retention.
11. The batch number of the cannister should be recorded, should specific information on the cannister efficiency be needed.
12. Perform the analysis as specified by QCP 800-2. For particulate analysis.
13. The analysis results should be reported to Radiation Protection supervision promptly.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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IN-PLANT IODINE-131
MEASUREMENT DURING
POST-ACCIDENT CONDITIONS

QEP 330-7
Revision 5
October 1982

ID/3F

A. PURPOSE

The purpose of this procedure is to outline the methods for measuring I-131 in the plant following an accident, in order to assess the airborne radiological conditions.

B. REFERENCES

1. Quad-Cities Station, Project No. 5954-00 Sargent & Lundy; Post-Accident Radiation Levels, A Review of the Quad-Cities Station in Response to Item 2.1.6.b of NUREG-0578.

C. PREREQUISITES

1. Obtain self-contained breathing apparatus, if necessary.

D. PRECAUTIONS

1. Verify that while performing this procedure, radiation levels are monitored.
2. Measure sample cartridges for radiation level to insure samples are safe to handle.
3. Based upon the analyses of Reference 1, exposure rates under post-accident conditions may severely limit residence time in many plant locations. In particular, the following areas should be carefully assessed prior to I-131 sampling and analysis.
 - a. All of the reactor building.
 - b. Turbine building elevation 639'.
 - c. Turbine building between units, elevation 611'6".
 - d. HPCI access tunnel.

E. LIMITATIONS AND ACTIONS

1. This procedure is designed for use during a post-accident situation when a "go-no go" decision needs to be made concerning entry into an area where airborne I-131 is present.

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2. This procedure assumes a sample volume of 30 ft³. If another volume is used, adjust the 4100 net peak area accordingly. A 4100 net peak area for a 30 ft³ sample is equal to 1 MPC for I-131, 9 X 10⁻⁹ uci/cc.
3. When using the Cutie Pie ionization survey instrument, it should be bagged to prevent noble gas intrusion into the ionization chamber.

F. PROCEDURE

1. Equipment needed.
 - a. Post-Accident Radionuclide - Analysis Portable System (PARAPS).
 - b. Portable air sampler.
 - c. Silver zeolite cartridge.
 - d. Glass fiber filter paper.
2. Start up of the detection system.
 - a. Turn on the AC line conditioner.
 - b. Turn on the nim bin power supply.
 - c. Turn power on to the detector bias supply.
 - d. Using the 10 turn pot on the bias supply, raise the voltage to 3,000 volts.
 - e. Turn the 11/34 computer power switch to the "DC ON" position.
 - f. Turn on the disc drive and put the RUN/LOAD switch in the run position. The disc ready light should light in a few minutes.
 - g. Turn on the 7050 MCA.
 - h. Turn on the line printer.
3. Proceed with the air sampler and sample media to the area where the sample is to be taken. Place a silver zeolite cartridge in the sample holder, and a glass fiber filter paper in the filter holder. Turn the air sampler on, note the flow rate, sample time, and sample for 10 minutes.
4. Remove cartridge and filter from sampler. Place samples in separate plastic sample bags; label each sample. Place cartridge, in the sample bag on the 10 cm shelf.
5. Steps 6 through 10 is the primary method to determine the samples activity. If either the 11/34 computer or the disc drive is not working, steps 11 through 26 can be used to determine if the area sampled may be entered.

6. Initialize the system using the Automated Analytical Instrumentation System's (AAIS) Central System Procedure (CSP).
7. Set the system prime using the AAIS's CSP.
8. Log on the sytem using the AAIS's CSP.
9. Determine the iodine activity by running the AAIS's Central Chemical Procedure for iodine radionuclide analysis.
10. If another sample is to be analyzed, repeat step 13.
11. On the Ortec 7050 MCA, depress "LT".
12. Depress "600" on the data entry pad.
13. Depress "ENTER".
14. Depress "STOP".
15. Depress both "ERASE" buttons at the same time.
16. Depress "START". The 7050 MCA will now start a count for 10 minutes.
17. Check the deadtime. If over 30%, stop count. Call a chemist.
18. Observe the MCA screen and find the cursor.
19. Move the cursor to channel 729.
20. Depress horizontal expand button 5 times. If a peak is present, it is Iodine 131.
21. After the count is over depress "SET" on the region of interest pad so that the "SET" light comes on. The cursor will become brighter.
22. Move the cursor to highlight the entire peak. As you highlight each channel it will become brighter.
 - a. If you make a mistake depress "CLEAR" and remove the highlight from the affected channels. Then repeat step 20.
23. Depress "SET" so that the "OFF" light goes on.
24. Depress the "GROSS-NET" button so that "NET" is lit.

25. Observe the net peak area in the upper right hand corner of the screen, second row down. It will say: AREA(N)=_____ (net peak area).
- a. If the net peak area after a ten minute count is less than 4100 counts, it is safe to enter the area without supplied air.
 - b. If the area is greater than 4100 counts, do not enter the area unless supplied air is used.
 - c. If the net peak area exceeds 4,100,000 counts, do not enter the area and contact the Radiation Chemical Supervisor.
26. If another sample is to be analyzed, repeat steps 14 through 25.

G. CHECKLISTS

- 1. None.

H. TECHNICAL SPECIFICATION REFERENCES

- 1. None.

HANDLING AND ANALYSIS OF POST
ACCIDENT REACTOR COOLANT SAMPLES

QEP 330-8
Revision 5
October 1982

ID/3D

A. PURPOSE

This procedure outlines the methods by which high activity reactor coolant samples may be analyzed with minimal personnel radiation exposure.

B. REFERENCES

1. CCP-0031.
2. QEP 330-T6.
3. QEP 330-T7.

C. PREREQUISITES

1. Obtain an operable, calibrated, high range exposure rate instrument.
2. Obtain 0-5R and 0-1R direct-reading dosimeters.
3. Obtain finger TLD-rings for both hands.

D. PRECAUTIONS

1. Minimize any direct contact between you and the sample.
2. Sample hood flows should be maximized. Close all hoods to 18 inches or less.

E. LIMITATIONS AND ACTIONS

1. Take all appropriate steps to insure that the radiation exposure you receive does not exceed 3 and 18-3/4 Rems to the whole body or extremities, respectively, per quarter.
2. Samples may be counted in the counting room on Ge(Li) detector #1 if the room is habitable or they may be counted on PARAPS located at the TSC.
3. Shielded handling areas should be in readiness at the hot lab in case further dilution of samples is needed.
4. When using the Cutie Pie ionization survey instrument, it should be bagged to prevent noble gas intrusion into the ionization chamber.

F. PROCEDURE

1. If the dose rate on the sample is minimal and no further dilution is needed; count the sample immediately at the TSC using PARAPS or in the counting room using Ge(Li) detector #1.
2. Initiate procedure CCP-0031 (BWR Coolant Radionuclide Analysis).
3. After the isotopic analysis is complete, properly dispose of all refuse.
4. If further dilution is required to perform the isotopic, take the sample to the hot lab using the freight elevator. Complete steps F.5. thru F.8 before performing an isotopic analysis.
5. Equipment.
 - a. Tongs.
 - b. Lead bricks.
 - c. Two hypodermic needles (about 18G x 2").
 - d. Separatory funnel 1000 ml.
 - e. Funnel.
 - f. Flask with tabulation, 1000 ml.
 - g. Flask with tabulation, 500 ml.
 - h. Erlenmeyer flask 1000 ml.
 - i. Glass wool.
 - j. Tygon tubing, 1/4" ID.
 - k. Hamilton connectors, Iver lock and male.
 - l. One size 8 one hole stopper.
 - m. One size 7 one hole stopper.
 - n. One size 6 no hole stopper.
 - o. Pipette, 1 ml.
 - p. Pipette suction bulb.
 - q. Ring stand with ring clamp.
6. Build a sample cave made out of lead bricks in a radioisotope hood in the hot lab. Use QEP 330-T6 as a guide. Set up the sample dilution equipment as shown in QEP 330-T7 (sample vial will be added later).

7. Pour 1000 ml of demin water into both the separatory funnel and Erlenmeyer flask.
8. Analysis.
 - a. Place the two hypodermic needles into the septum of the vial. Make sure the needles touch the bottom of the vial.
 - b. Turn on the lab vacuum pump and open the hood vacuum valve.
 - c. Open the stopcock on the separatory funnel. The demin water will move into and out of the vial into the 1000 ml flask.
 - d. Turn off the lab vacuum pump and close the hood vacuum valve after the separatory funnel is empty of the 1000 ml of demin water.
 - e. Remove the stopper from the flask with the sample.
 - f. Pipette 1 ml of the diluted sample into the Erlenmeyer flask that is in compartment C (the Erlenmeyer flask should contain 1000 ml of demin water).
 - g. Place the size 8 no hole stopper on the Erlenmeyer flask and mix the contents. Use this dilution as the stock solution in further analyses.
9. Follow-up.
 - a. Insure that the Radiation-Chemical Supervisor is promptly notified of:
 - (1) The results of the analysis.
 - (2) Personnel radiation exposure received.
 - (3) The disposition of associated material.
 - (4) The exposure rates observed in the various procedure phases.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

ESTIMATING PLANT RELEASE USING
THE STACK GAS MONITORS

QEP 330-9
Revision 1
December 1980

ID/2M

A. PURPOSE

This procedure provides a method for estimating plant releases using the stack gas monitors.

B. REFERENCES

1. None.

C. PREREQUISITES

1. Current calibration curves for the stack gas monitors should be posted in the control room near the 912-4 panel.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. This procedure should be performed on both the A and B stack gas monitors, and the results averaged.

F. PROCEDURE

1. Read the stack gas monitor count rate meter in cps (located on panel 912-4).
2. Place the stack gas sample system control switch on panel 912-4 in the PURGE position. Read the meter after a one-minute purge.
3. Return the control switch to the OPERATE position.
4. Subtract the reading from step F.2. from the reading from step F.1. to obtain the net monitor reading.
5. Find the net monitor reading on the horizontal axis of the $\mu\text{ci/sec}$ vs. cps chart.

NOTE

See QEP 330-T5 for an example of the $\mu\text{ci/sec}$ vs. cps chart.

6. Follow a vertical line up from the net monitor reading to the calibration line drawn on the graph.

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7. Follow a horizontal line from the point where the net monitor reading intercepts the calibration line to the left vertical axis.
8. The value from the vertical axis will be the estimated release rate in $\mu\text{ci/sec}$ from the main chimney at a predesignated flow rate.
9. If the main chimney flow rate is different than the value referenced, then a flow correction is needed. The release rate must then be calculated using the equation at the top of the calibration curve.

Example: $\mu\text{ci/sec} = \text{net monitor reading} \times 229 \times \frac{\text{flow}}{2.85\text{E}5}$

where 2.85E5 is the reference chimney flow in cfm.

$$\text{Net monitor reading} = 200$$

$$\text{Flow} - \text{cfm} = 3.20\text{E}5$$

$$\mu\text{ci/sec} = 200 \times 229 \times \frac{3.20\text{E}5}{2.85\text{E}5} = 5.14\text{E}4 \mu\text{ci/sec}$$

10. If the net monitor reading is not represented on the horizontal axis, use the equation at the top of the calibration curve to determine the $\mu\text{ci/sec}$ corresponding to the net monitor value.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

ON-SITE ENVIRONMENTAL SAMPLING
DURING EMERGENCY SITUATIONS

QEP 330-10
Revision 2
October 1982

ID/5D

A. PURPOSE

The purpose of this procedure is to outline the steps necessary to assure proper on-site environmental sampling during emergency situations.

B. REFERENCES

1. QEP 330-T8, On-Site Environmental Sampling Locations.
2. EG-11, Environmental Sample Collection Procedures and Transport of Low-Specific Activity ($<.002 \mu\text{Ci/g}$) Environmental Radiological Samples.
3. QEP 550-T2, Operational Support Center Emergency Supplies Cabinet.
4. Post Accident Radiation Levels - Quad-Cities Station, Sargent and Lundy.

C. PREREQUISITES

1. Only instruments calibrated within the frequency designated for those instruments should be used. The calibration due date shall be indicated on the instrument.

D. PRECAUTIONS

1. Environmental dose rates during accident situations may be higher than usual.

E. LIMITATIONS AND ACTIONS

1. The Radiation-Chemistry Director will instruct on-site health physics teams on which samples are needed.
2. The equipment stored in the Operational Support Center (designated in QEP 550-T2) may be used for on-site environmental sampling if deemed necessary by the Radiation-Chemistry Director.
3. When using the Cutie Pie ionization survey instrument, it should be bagged to prevent noble gas intrusion into the ionization chamber.

F. PROCEDURE

1. The health physics teams should be chosen by the Radiation-Chemistry Director or his alternate from the Radiation Chemistry personnel assembled in the Operational Support Center (OSC). After completing assigned sampling, the teams will return to the O.S.C.
2. Sample locations will be chosen by the Radiation-Chemistry Director or his alternate using QEP 330-T8, On-Site Environmental Sampling Locations. Sampling points are designated by a capital "X".
3. All samples should be obtained using the procedures outlines in EG-11 unless otherwise specified by the Radiation-Chemistry Director. The Sample Collection Data Sheet in EG-11 should be used to log all samples.
4. Samples will usually be transported to the Technical Support Center, where they will be analyzed using the PARAPS analytical equipment located in the TSC storeroom.

G. CHECKLISTS

1. EG-11, page 8 - Sample Collection Data Sheet.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

ESTIMATION OF I-131 RELEASE
BY FIELD TEAM MEASUREMENTS

QEP 330-11
Revision 1
May 1983

ID/IH

A. PURPOSE

The purpose of this procedure is to make a quick estimate of iodine releases from field team measurements.

B. REFERENCES

1. None.

C. PREREQUISITES

1. Plastic bags.
2. Air sampler.
3. Charcoal or Silver Zeolite cartridges.
4. Pulse rate meter with HP 210 probe.
5. Labels.

D. PRECAUTIONS

1. To prevent contamination of the probe all samples should be placed in a plastic bag prior to counting.
2. Count sample cartridges with the sample inlet side towards the detector.

E. LIMITATIONS AND ACTIONS

1. Minimize the amount of non-iodine activity in the sample by using silver zeolite cartridges if possible.
2. If background activity is high, shield the sample or transport it to a lower background area for counting.
3. Counting geometry for this procedure is with the sample cartridge setting on a firm surface (in a plastic bag) with the flow inlet side facing up and placing the HP 210 detector probe on the cartridge. This should be done in a shielded sample holder if one is available.

F. PROCEDURE

1. Obtain the air sample from the desired location in accordance with station or environs group procedures.
2. Identify the sample inlet or note the direction of flow through the sample cartridge.

3. Place the sample in a small plastic bag and label with the following information:

Sample location _____
 Sampled by _____
 Time on _____ Flow on _____
 Time off _____ Flow off _____

4. Count the cartridge with the sample inlet side facing the detector. Be sure to wait a sufficient amount of time for the count rate to stabilize.

NOTE

Samples are to be counted in as low as a background area as possible.

5. Remove the sample cartridge and determine a background count rate. Be sure to wait a sufficient amount of time for the count rate to stabilize.
6. Determine the net count rate by subtracting the background count rate from step F.5. from the sample count rate in step F.4.
7. Determine the sample volume using the following method:

$$(\text{rate}) (\text{time}) (2.832 \text{ E4 ml/ft}^3) = \text{_____ ml}$$

where rate = average sample flow rate in ft³/min

time = time during sampling in min.

2.832 E4 = conversion factor

8. Determine the Iodine-131 concentration from the following method:

$$(\text{cpm}) \left(\frac{\text{dpm}}{1.8\text{E}-2 \text{ cpm}} \right) \left(\frac{\mu\text{Ci}}{2.22\text{E}6 \text{ dpm}} \right) \left(\frac{1}{\text{ml}} \right) = \text{_____} \frac{\mu\text{Ci}}{\text{ml}}$$

when cpm = net count rate from step F.6.

dpm/1.8E-2 cpm = efficiency factor

$\mu\text{Ci}/2.22\text{E}6 \text{ dpm}$ = conversion factor

ml = sample volume from step F.7.

9. Report the results of the analysis to Radiation/Chemistry Supervision.
10. Save the sample for further analysis.

G. CHECKLISTS

1. QEP 330-S1, Iodine Concentration Worksheet, :

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

CALCULATING MAIN CHIMNEY NOBLE GAS
RELEASE RATES UNDER POST ACCIDENT
CONDITIONS FROM SPING MONITOR READINGS

QEP 330-12
Revision 1
June 1983

ID/1S

A. PURPOSE

The purpose of this procedure is to show how to convert monitor readings for the SPING channel 9 high range noble gas monitor into release rates.

B. REFERENCES

1. QOP 1700-10, Reactor Vent SPING and Main Chimney SPING Strip Chart Recorders and Control Termination.
2. QEP 330-3, SPING Control Termination Operation.

C. PREREQUISITES

1. Check that the SA-9 detector count rate and the main chimney volumetric flow rate are available in the control room.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. If the main chimney flow monitor is inoperable use the design rated flow.

F. PROCEDURE

1. Obtain a monitor reading from the control terminal in cpm _____ (A).
2. Obtain a main chimney volumetric flow reading in cfm _____ (F).
3. Note the time post-accident in hours _____ (t).
4. Using the graph in QEP 330-T10 or the table in QEP 330-T11 find the SA-9 detector sensitivity in cpm/ μ Ci/cc _____ S(t).

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5. Calculate $Q(t)$, the estimated noble gas activity rate, in $\mu\text{Ci/sec}$, of the actual mix at post-accident time t .

$$Q(t) = \frac{2 \times A}{s(t)} \times F \times (472)$$

Where: A = monitor reading from control terminal in cpm.

F = main chimney volumetric flow in cfm.

$S(t)$ = SA-9 detector sensitivity at time t in cpm/ $\mu\text{Ci/cc}$.

6. If the control terminals are inoperable, monitor readings may also be obtained from the strip chart recorders. See Radiation Chemistry Supervision for incorporation of these monitor readings into release rate calculations.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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IODINE CONCENTRATION WORKSHEET

QEP 330-S1

Revision 1

May 1983

Sample location _____ Sample Date _____

Sampled by _____

Time on _____ Flow on _____

Time off _____ Flow off _____

Sample count rate _____ cpm

Background count rate _____ cpm

Net count rate _____ cpm

Volume of Sample

(rate) (time) (2.832 E4 ml/ft³) = _____ mlwhere rate = average sample flow rate in ft³/min

time = time during sampling in min.

2.832 E4 = conversion factor

_____ X _____ X 2.832E4 ml/ft³ = _____ ml

Iodine-131 Concentration

$$(\text{cpm}) \left(\frac{\text{dpm}}{1.8\text{E}-2 \text{ cpm}} \right) \left(\frac{\mu\text{Ci}}{2.22\text{E}6 \text{ dpm}} \right) \left(\frac{1}{\text{ml}} \right) = \frac{\mu\text{Ci}}{\text{ml}}$$

where cpm = net count rate from step F.6.

dpm/1.8E-2 cpm = efficiency factor

 $\mu\text{Ci}/2.22\text{E}6 \text{ dpm}$ = conversion factor

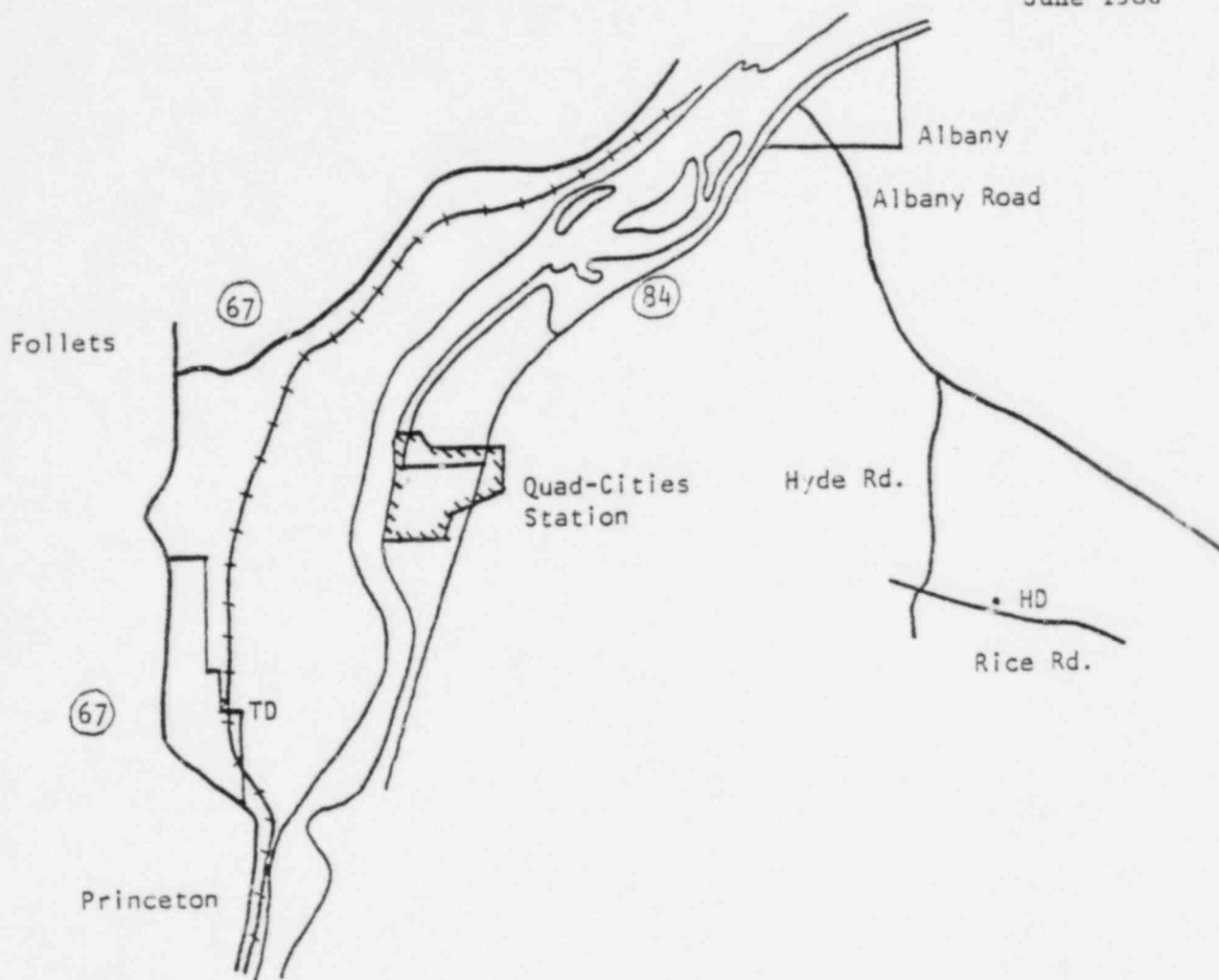
ml = sample volume

REVIEWED BY _____ DATE _____

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QUAD-CITIES STATION
ENVIRONS MONITORING - DAIRY FARMS

QEP 330-T1
Revision 1
June 1980



Information and Directions.

1. HD-Hansen Dairy Farm: 309-887-4695.

The Hansen Dairy Farm may be reached by taking Illinois 84 to Albany, Illinois. Turn right at sign "To Erie" (Park Avenue), go one block, turn left, go approximately 50 feet, turn right (State Street - Albany Road). Continue on the road for approximately 2 miles, turn right onto Hyde Road, go 2 miles, continue through an S-curve in the road, and turn right onto Rice Road. The Hansen Dairy is the first farm on the left.

2. TD-Turner Dairy: 319-289-4750.

Take US 67 South from Clinton, through the towns of Shaffton and Follets. Go left on the first road after you cross the Wapsipinicon River. After about 1/2 mile the road will make a 90 degree turn and head south. Follow the road for about 1-1/2 miles, where the road will turn east and cross railroad tracks. The Turner Dairy is on the left, just before the railroad tracks.

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DOSE FACTORS FOR GASEOUS RELEASES

QEP 330-T2
Revision 2
February 1982

Total Dose (mrem) = Dose Factor $\left(\frac{\text{mrem}}{\text{Ci}}\right)$ X Release (Ci) X Distance Correction Factor

Release Type (Characteristic Radionuclides)	Organ of Interest	Dose Factors (mrem/Ci) (1)	
		Chimney Release	Rx. Bldg. Vent or Ground Level Release
Noble Gases	Whole Body	0.001	0.02
Iodine (2)	Thyroid	8.	355.

Release Mode	Distance Correction Factors					
	Site Boundary ($\frac{1}{2}$ mi)	1/2	1 mi	2 mi	5 mi	10 mi
Chimney	1.0	0.4	.07	.04	0.02	0.01
Rx. Bldg. Vent/Ground Level	1.0	0.6	.3	.2	0.07	0.03

(1) Total dose at site boundary for short term release assuming worst case meteorology.

(2) Factors are for inhalation pathway. Milk pathway is significantly higher if contaminated milk is drunk over a two week period.

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MAR 10 1982
Q.C.O.S.R.

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DOSE FACTORS FOR LIQUID RELEASES

QEP 330-T3
Revision 1
December 1980

Total Dose (mrem) = Dose Factor (mrem/Ci) X Release (Ci)

	<u>Dose Factors (mrem/Ci) (2)</u>	<u>Organ of Interest</u>
Gross Beta-gamma	0.25	Whole Body
Tritium	0.025	Whole Body
I-131	12.5	Thyroid
Cs-137	0.15	Whole Body
Sr-90	7.1	Bone
Sr-89	0.38	Bone

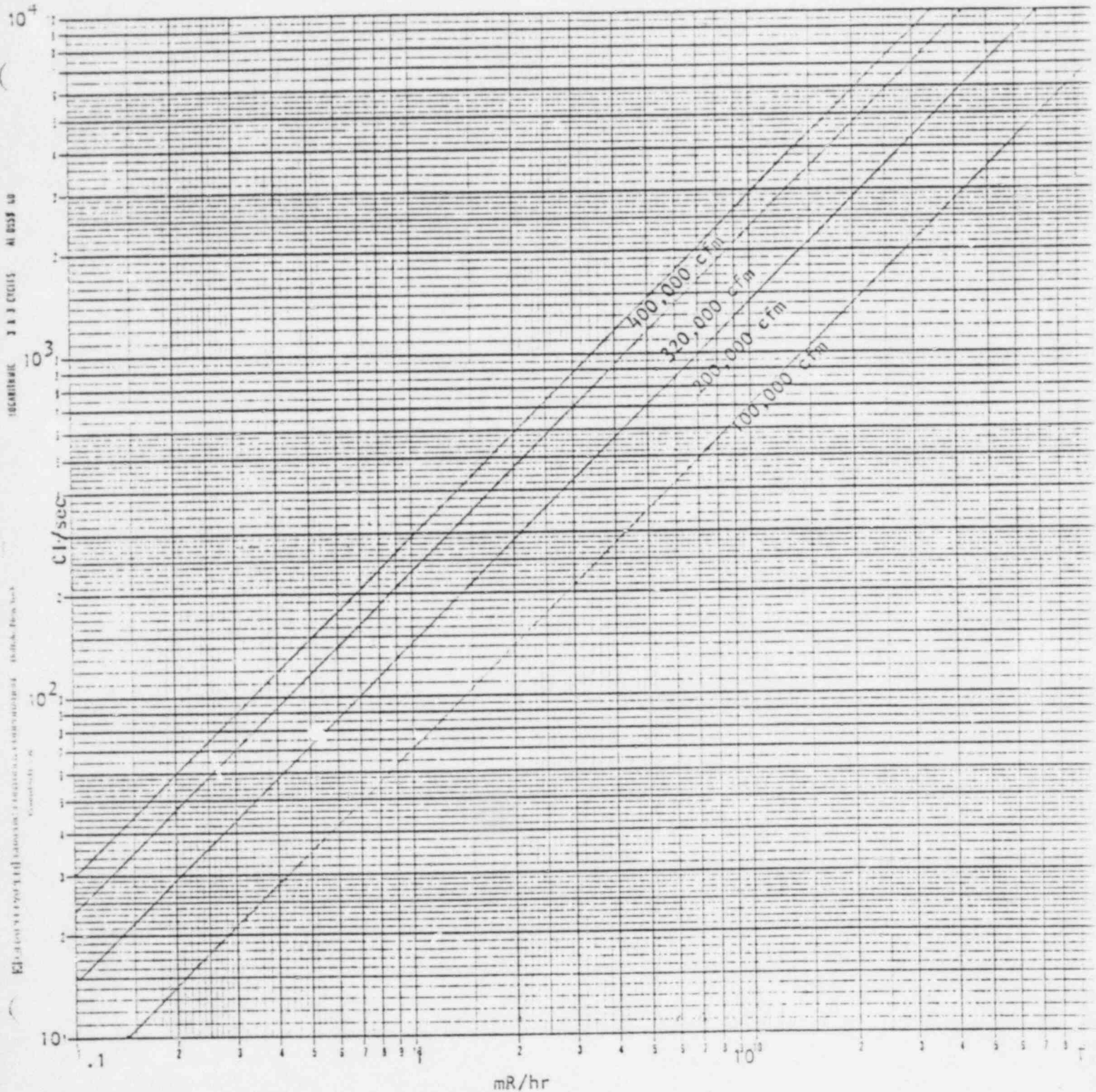
- (1) Total ingestion dose at nearest public water intake; no radioactive decay or loss due to sedimentation is assumed.
- (2) For a mixture of known isotopes, the total dose would be calculated by summing the dose contribution from each individual isotope.

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D S R

MAIN CHIMNEY RELEASE RATE TABLE



at 12 inches from a 4" section of
1/2 inch sample line

1-(Final)

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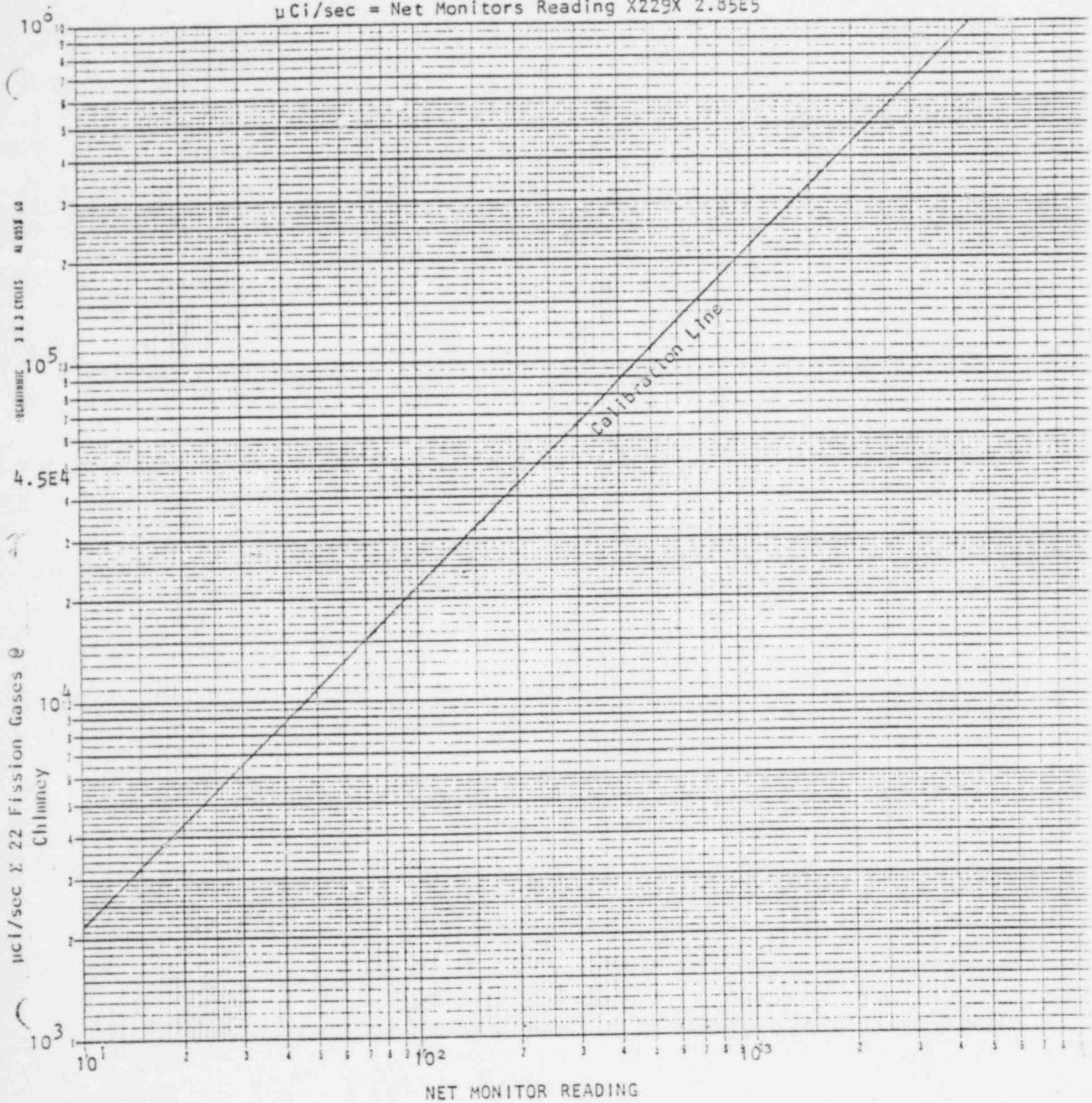
DEC 17 1980

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TYPICAL STACK GAS MONITOR
CALIBRATION CURVE

QEP 330-T5
Revision 1
December 1980

$$\mu\text{Ci/sec} = \text{Net Monitors Reading} \times 229 \times \frac{\text{Flow}}{2.85 \times 10^5}$$



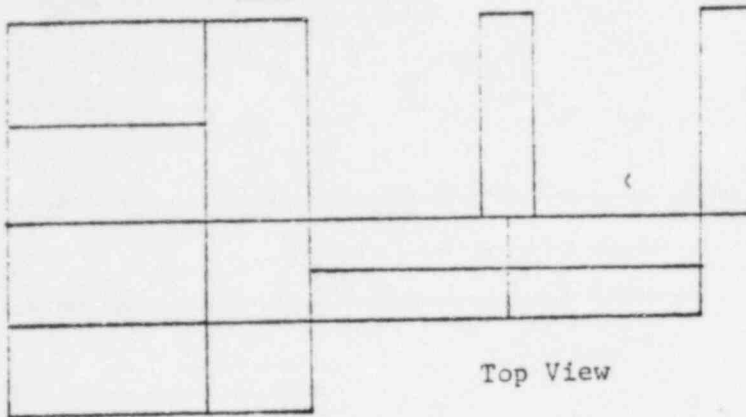
MAIN CHIMNEY MONITOR 8

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DEC 17 1980

SAMPLE CAVE

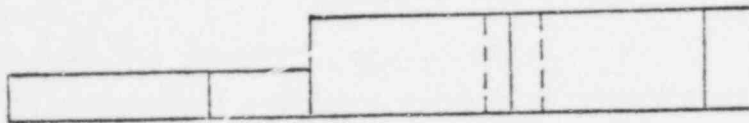
QEP 330-T6
Revision 1
May 1981

Rear of Hood

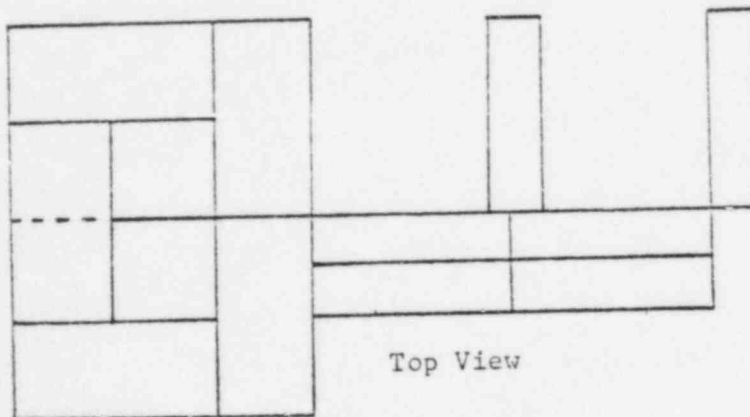


Top View

STEP 1

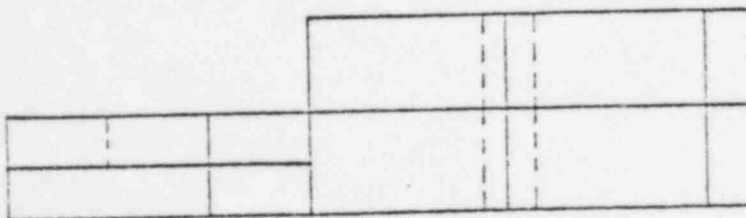


Front View



Top View

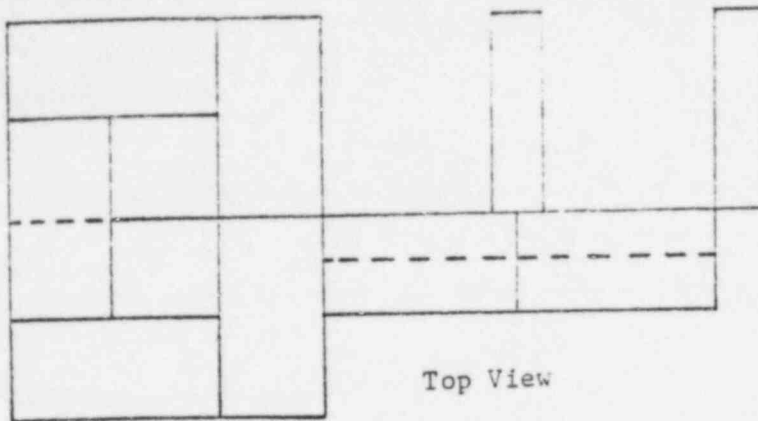
STEP 2



Front View

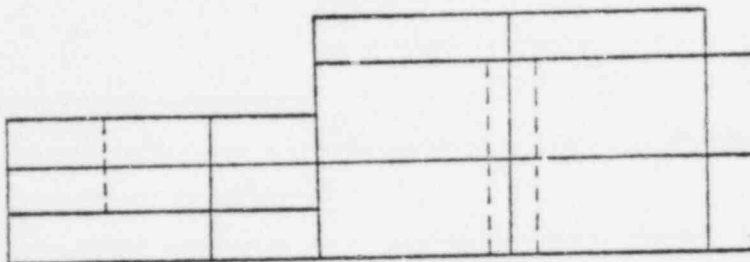
APPROVED
MAY 18 1981
Q. O. S. P.

OEP 330-T6
Revision 1

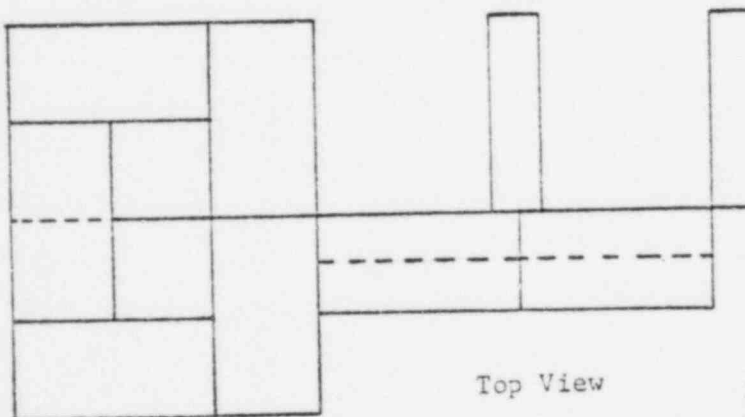


Top View

STEP 3

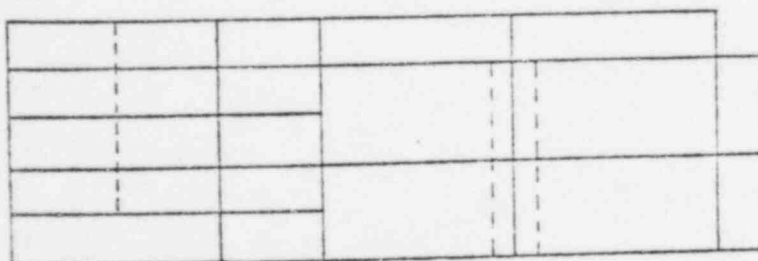


Front View



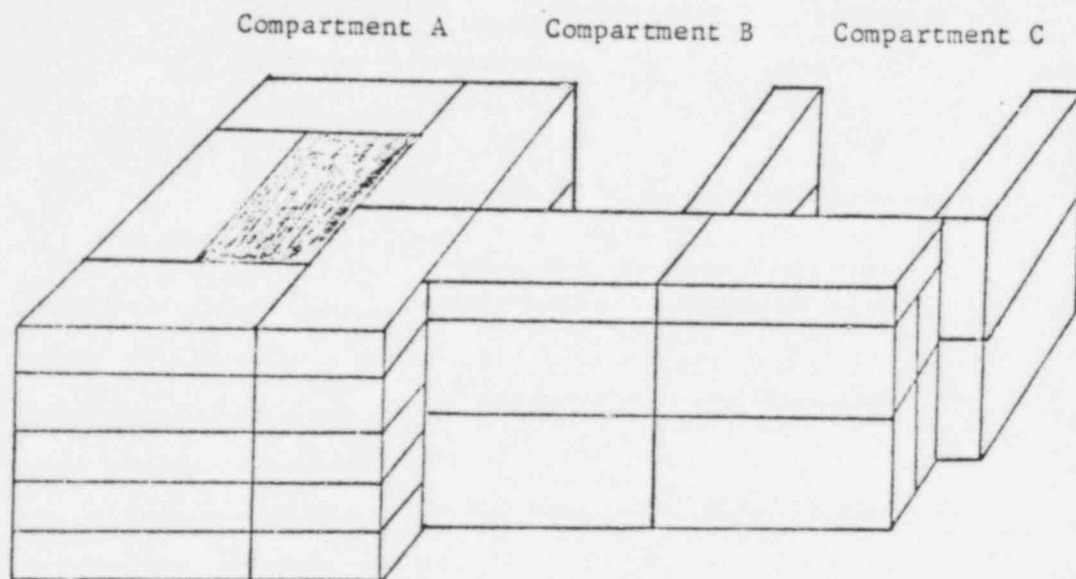
Top View

STEP 4



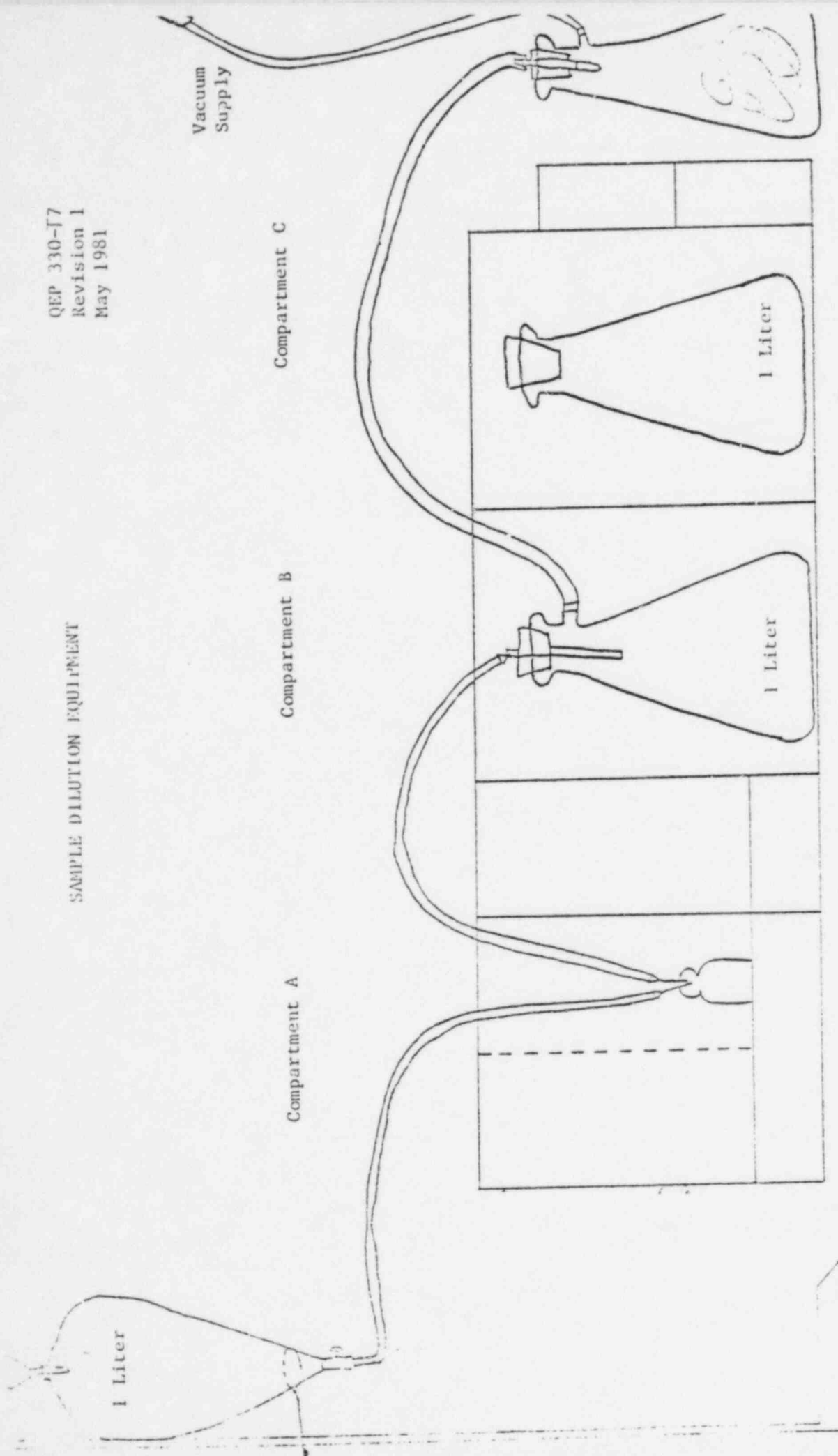
Front View

APPROVED
MAY 18 1961
Q. J. O.S.P.



QEP 330-T7
Revision 1
May 1981

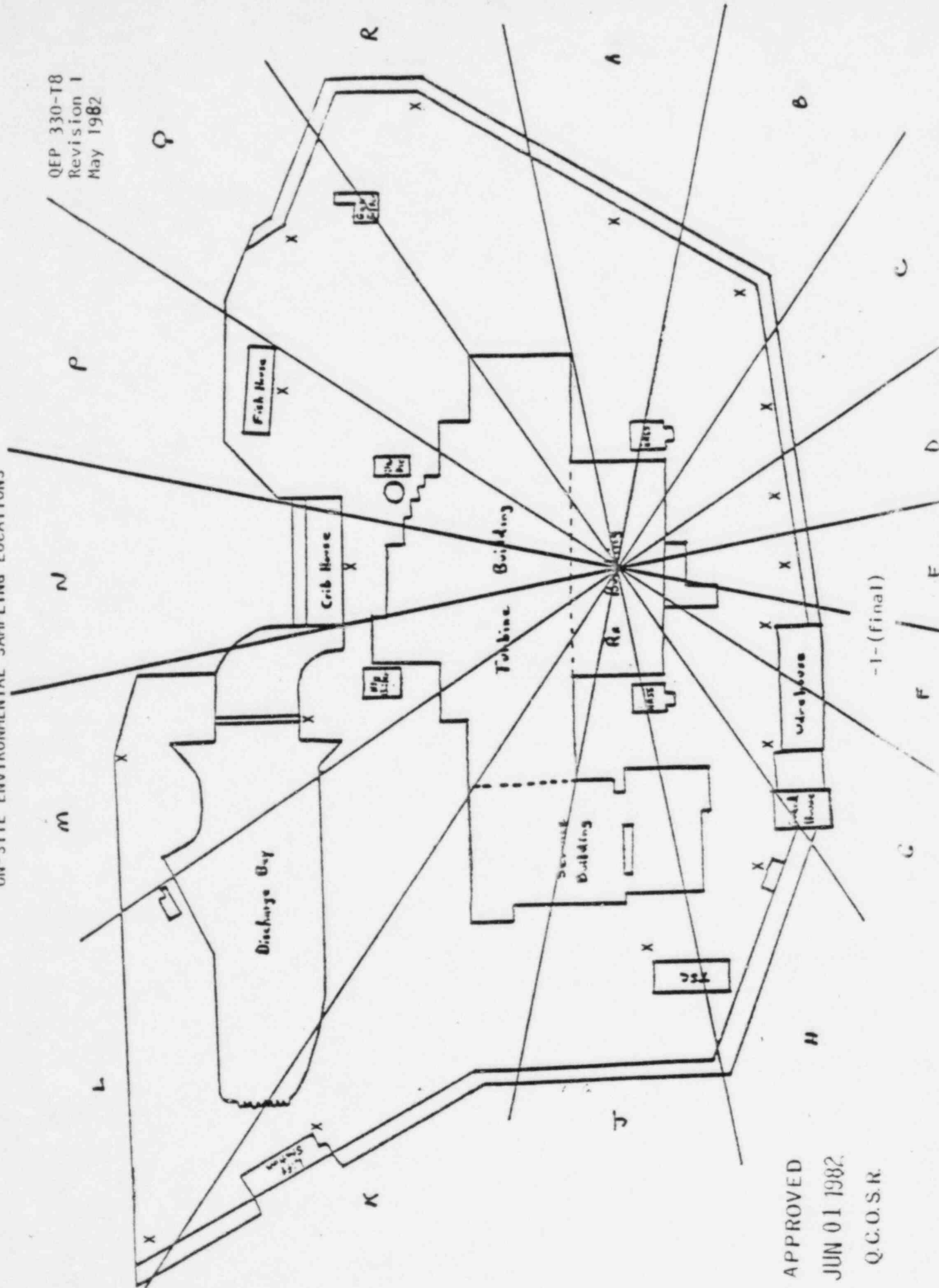
SAMPLE DILUTION EQUIPMENT



APPROVED
MAY 28 1981
O. O. S.

ON-SITE ENVIRONMENTAL SAMPLING LOCATIONS

QEP 330-T8
Revision 1
May 1982



APPROVED
JUN 01 1982
Q.C.O.S.R.

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AREA RADIATION MONITOR SYSTEM

QEP 330-T9

Revision 1

October 1982

UNIT ONE

STATION NO.	BUILDING	ELEV	COLUMN	DETECTOR LOCATION	RANGE (MR/HR)	READING (MR/HR)
739-1	Rx Bldg	690-6		Reactor Bldg Crane	0.1-1000	
1	Rx Bldg	690-6	H-15	Refueling Floor Low Range	.01-100	
2	Rx Bldg	690-6	H-15	Refueling Floor High Range	10-1,000,000	
3	Rx Bldg	690-6	N-14	Refueling Floor Equip. Hatch	0.01-100	
4	Rx Bldg	666-6	N-14	New Fuel Storage Area	0.0-1000	
5	Rx Bldg	666-6	L-18-19	Contaminated Equipment Storage	0.01-100	
6	Rx Bldg	647-6	M-15	Fuel Pool Pump Area	0.01-100	
7	Rx Bldg	647-6	M-18	Control Rod Drive Storage & Repair Room	0.01-1000	
8	Rx Bldg	647-6	J-17	Cleanup Instrument Rack Area	0.01-100	
9	Rx Bldg	623-0	J-18-19	Cleanup Pump Area	0.01-100	
10	Rx Bldg	623-0	M-13-41	Mezzanine Floor Access Area	0.01-100	
11	Rx Bldg	595-0	K-18-19	South CRD Module Area	0.01-100	
12	Rx Bldg	595-0	K-13-14	North CRD Module Area	0.01-100	
13	Rx Bldg	595-0	J-H-13	TIP Drive Area	0.01-100	
14	Rx Bldg	595-0	H-14-15	TIP Cubicle	1-10,000	
15	Rx Bldg	554-0	N-17	Torus Area	1-10,000	
16	Rx Bldg	554-0	G-15	HPCI Cubicle	1-10,000	
17	Rx Bldg	554-0	G-14	RCIC Cubicle	1-10,000	
18	Turb Bldg	639-0	E-25	Operating Floor Access - South	0.01-100	
19	Turb Bldg	639-0	D-14	Operating Floor Elevator Area	0.01-100	
20	Turb Bldg	626-6	C-20-21	Air Ejector Area - 1B	0.01-100	
21	Turb Bldg	626-6	C-18-19	Air Ejector Area - 1A	0.01-100	
22	Turb Bldg	623-0	G-25	Reactor Control Room	0.01-100	
23	Turb Bldg	595-0	C-19	Feedwater Heater Area W. Hallway	0.01-1000	
24	Turb Bldg	595-0	G-21	Feedwater Pump Area	0.01-100	
25	Turb Bldg	572-6	D-18	Control Rod Drive Feed Pump Area	0.01-1000	
26	Turb Bldg	547-0	D-E-19	Condensate/Booster Pump	0.01-100	
27	Radwaste	597-0	C-14	Radwaste Control Room	0.01-100	

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AREA RADIATION MONITOR SYSTEM

QEP 330-T9

Revision 1

UNIT ONE

STATION NO.	BUILDING	ELEV	COLUMN	DETECTOR LOCATION	RANGE (MR/HR)	READING (MR/HR)
28	Radwaste	597-0	B-13-14	Radwaste Operating Area - South Wall	0.01-100	_____
29	Radwaste	572-0	-----	Radwaste Pump Room Access	0.01-100	_____
30	Radwaste	620-0	-----	Radwaste Centrifuge Access	0.01-100	_____
1-1743A	Rx Bldg.	690-6	N-15	Refueling Floor West Wall	1.0-1,000,000	_____
1-1743B	Rx Bldg.	690-6	H-14	Refueling Floor East Wall	1.0-1,000,000	_____
1-1735A	Turb Bldg.	658-10	G-H-16	Rx Bldg Vent System	.01-100	_____
1-1735B	Turb Bldg	658-10	G-H-6	Rx Bldg Vent System	.01-100	_____
31	Filter	574-6		Carbon Bed Vault	1.0-1,000,000	_____
32	Turbine	648-6	CD-18	Recombiner Area Level 1	.01-100	_____
33	Turbine	668-0	CD-18	Recombiner Area Level 2	.01-100	_____
34	Radwaste	605-0		Radwaste Catwalk Shield - East Wall	1-10,000	_____
35	Radwaste	595-0		Radwaste North Truckbay - North Wall	0.1-1,000	_____

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AREA RADIATION MONITOR SYSTEM

QEP 330-T9

Revision 1

UNIT TWO

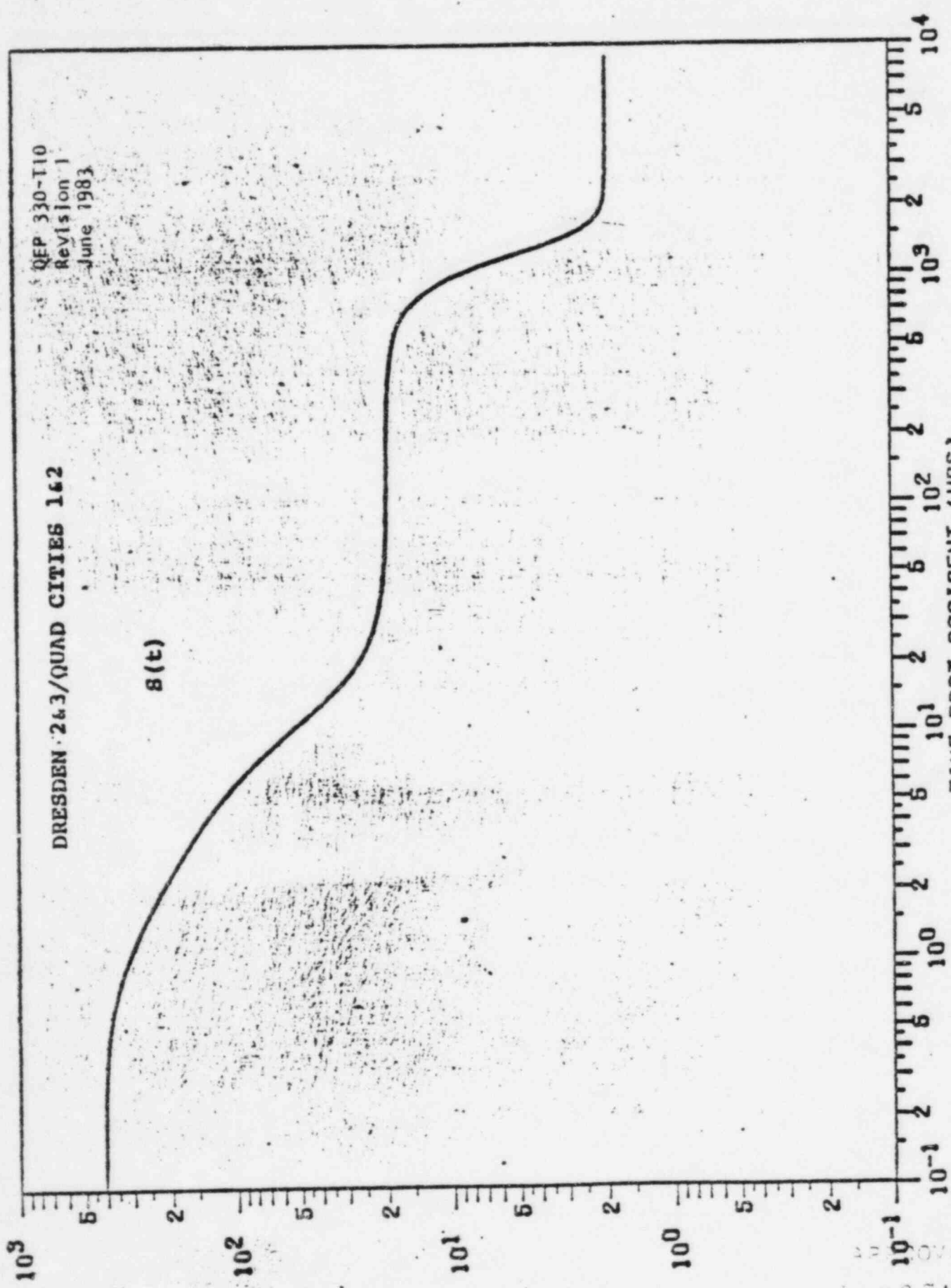
STATION NO.	BUILDING	ELEV	COLUMN	DETECTOR LOCATION	RANGE (MR/HR)	READING (MR/HR)
1	Rx Bldg.	690-6	H-11	Refueling Floor Low Range	0.01-100	
2	Rx Bldg.	690-6	H-11	Refueling Floor High Range	10-10 ⁶	
3	Rx Bldg.	647-6	M-11	Fuel Pool Pump Area	0.01-100	
4	Rx Bldg.	647-6	J-9	Cleanup Inst. Rack Area	0.01-100	
5	Rx Bldg.	623-0	J-7-8	Cleanup Pump Area	0.01-100	
6	Rx Bldg.	595-0	K-13	South CRD HYD Area	0.01-100	
7	Rx Bldg.	595-0	K-7	North CRD HYD Area	0.01-100	
8	Rx Bldg.	595-0	H-13	Tip Drive Area	0.01-100	
9	Rx Bldg.	595-0	H-11-12	Tip Cubicle	1-10,000	
10	Rx Bldg.	554-0	N-9	Torus Area	1-10,000	
11	Rx Bldg.	554-0	G-11	HPCL Cubicle	1-10,000	
12	Rx Bldg.	554-0	G-12	RCIC Cubicle	1-10,000	
13	Turb. Bldg.	639-0	F-1	Operating Floor	0.01-100	
14	Turb. Bldg.	626-6	C-5	Air Ejector Area	0.01-100	
15	Turb. Bldg.	626-6	C-8-9	Air Ejector Area	0.01-100	
16	Rx Bldg.	666-6	N-17	Standby Gas Treatment Unit 1	0.01-100	
17	Turb. Bldg.	595-0	C-7	Feedwater Heater Area	0.1-1000	
18	Turb. Bldg.	595-0	G-5	Feedwater Pump Area	0.01-100	
19	Turb. Bldg.	595-0	D-13	Condensate Demin. Panel	0.01-100	
20	Serv. Bldg.	595-0		Machine Shop Area	0.1-1000	
21	Turb. Bldg.	572-6	D-8	CRD Feedwater Pump Area	0.1-1000	
22	Turb. Bldg.	547-0	E-7	Condensate Booster Pump Area	0.01-100	
23	Rx Bldg.	666-6	N-9	Standby Gas Treatment Unit 2	0.01-100	
24	Serv. Bldg.			Service Bldg. Office	0.01-100	
1-1743A	Rx Bldg.	690-6		Refueling Floor	1.0-1,000,000	
1-1743B	Rx Bldg.	690-6		Refueling Floor	1.0-1,000,000	
1-1735A	Turb. Bldg.	658-10		Rx Bldg. Vent System	.01-100	
1-1735B	Turb. Bldg.	658-10		Rx Bldg. Vent System	.01-100	
25	Filter Bldg.	574-6		Charcoal Vault	1.0-1,000,000	
26	Turb. Bldg.	648-6		Recombiner Level 1	.01-100	
27	Turb. Bldg.	668-0		Recombiner Level 2	.01-100	
28	Filter Bldg.			Filter House Level 1	.01-100	
29	Filter Bldg.			Filter House Level 2	.01-100	
30	Filter Bldg.			Filter House Level 3	.01-100	

APPROVED
OCT 18 1982

QEP 330-T10
Revision 1
June 1983

DRESDEN 243/QUAD CITIES 142

$S(t)$



COUNT RATE TO CONCENTRATION RATIO (CPM/UCI/CC)

APPROVED
JUN 27 1983
J. C. O. S. R.

TIME POST ACCIDENT (HRS)

-1-(final)

90-9 AFTERSTAR RESPONSE FROM POSTACCIDENT NOBLE GASES

SA-9 DETECTOR RESPONSE

QEP 330-T11

Revision 1

June 1983

Pt. #	Time (hr)	SA-9 Detector Response (cpm/uci/sec)	Pt. #	Time (hr)	SA-9 Detector Response (cpm/uci/sec)	Pt. #	Time (hr)	SA-9 Detector Response (cpm/uci/sec)
1	2.778+004	9.029+002	53	5.600+001	1.997+001	105	2.640+003	1.923+000
2	2.831+002	4.045+002	54	6.000+001	1.987+001	106	2.760+003	1.931+000
3	1.669+001	4.034+002	55	6.400+001	1.980+001	107	2.880+003	1.929+000
4	2.503+001	4.015+002	56	6.800+001	1.975+001	108	3.000+003	1.928+000
5	3.336+001	3.986+002	57	7.200+001	1.971+001	109	3.120+003	1.928+000
6	4.169+001	3.891+002	58	7.600+001	1.967+001	110	3.240+003	1.927+000
7	5.003+001	3.800+002	59	8.000+001	1.965+001	111	3.360+003	1.926+000
8	5.836+001	3.697+002	60	8.400+001	1.962+001	112	3.480+003	1.926+000
9	6.669+001	3.589+002	61	8.800+001	1.961+001	113	3.600+003	1.925+000
10	7.503+001	3.479+002	62	9.200+001	1.959+001	114	3.720+003	1.925+000
11	8.336+001	3.367+002	63	9.600+001	1.958+001	115	3.840+003	1.925+000
12	9.169+001	3.259+002	64	1.200+002	1.953+001	116	3.960+003	1.925+000
13	1.000+000	3.153+002	65	1.440+002	1.949+001	117	4.080+003	1.925+000
14	1.084+000	3.050+002	66	1.680+002	1.945+001	118	4.200+003	1.924+000
15	1.167+000	2.953+002	67	1.920+002	1.940+001	119	4.320+003	1.924+000
16	1.250+000	2.859+002	68	2.160+002	1.935+001	120	4.440+003	1.924+000
17	1.334+000	2.770+002	69	2.400+002	1.929+001	121	4.560+003	1.924+000
18	1.417+000	2.686+002	70	2.640+002	1.923+001	122	4.680+003	1.924+000
19	1.500+000	2.606+002	71	2.880+002	1.915+001	123	4.800+003	1.923+000
20	1.584+000	2.531+002	72	3.120+002	1.907+001	124	4.920+003	1.923+000
21	1.667+000	2.460+002	73	3.360+002	1.898+001	125	5.040+003	1.923+000
22	1.750+000	2.393+002	74	3.600+002	1.888+001	126	5.160+003	1.923+000
23	1.834+000	2.329+002	75	3.840+002	1.877+001	127	5.280+003	1.923+000
24	1.917+000	2.270+002	76	4.080+002	1.864+001	128	5.400+003	1.923+000
25	2.000+000	2.213+002	77	4.320+002	1.850+001	129	5.520+003	1.923+000
26	2.500+000	1.928+002	78	4.560+002	1.834+001	130	5.640+003	1.923+000
27	3.000+000	1.714+002	79	4.800+002	1.816+001	131	5.760+003	1.922+000
28	3.500+000	1.543+002	80	5.040+002	1.797+001	132	5.880+003	1.922+000
29	4.000+000	1.401+002	81	5.280+002	1.775+001	133	6.000+003	1.922+000
30	4.500+000	1.279+002	82	5.520+002	1.752+001	134	6.120+003	1.922+000
31	5.000+000	1.173+002	83	5.760+002	1.728+001	135	6.240+003	1.922+000
32	5.500+000	1.078+002	84	6.000+002	1.697+001	136	6.360+003	1.922+000
33	6.000+000	9.934+001	85	6.240+002	1.666+001	137	6.480+003	1.922+000
34	6.500+000	9.171+001	86	6.480+002	1.632+001	138	6.600+003	1.922+000
35	7.000+000	8.487+001	87	6.720+002	1.595+001	139	6.720+003	1.922+000
36	7.500+000	7.870+001	88	6.960+002	1.557+001	140	6.840+003	1.922+000
37	8.000+000	7.314+001	89	7.200+002	1.515+001	141	6.960+003	1.922+000
38	1.000+001	6.584+001	90	7.400+002	1.468+001	142	7.080+003	1.922+000
39	1.200+001	4.448+001	91	7.600+002	1.422+000	143	7.200+003	1.922+000
40	1.400+001	3.701+001	92	1.080+003	1.374+000	144	7.320+003	1.922+000
41	1.600+001	2.208+001	93	1.200+003	1.320+000	145	7.440+003	1.922+000
42	1.800+001	2.379+001	94	1.320+003	1.260+000	146	7.560+003	1.922+000
43	2.000+001	2.855+001	95	1.440+003	1.200+000	147	7.680+003	1.922+000
44	2.200+001	2.501+001	96	1.560+003	1.140+000	148	7.800+003	1.922+000
45	2.400+001	2.371+001	97	1.680+003	1.080+000	149	7.920+003	1.922+000
46	2.600+001	2.249+001	98	1.800+003	1.020+000	150	8.040+003	1.922+000
47	3.200+001	2.169+001	99	1.920+003	1.024+000	151	8.160+003	1.921+000
48	3.600+001	2.112+001	100	2.040+003	1.983+000	152	8.280+003	1.921+000
49	4.000+001	2.073+001	101	2.160+003	1.960+000	153	8.400+003	1.921+000
50	4.400+001	2.045+001	102	2.280+003	1.947+000	154	8.520+003	1.921+000
51	4.800+001	2.024+001	103	2.400+003	1.940+000	155	8.640+003	1.921+000
52	5.200+001	2.009+001	104	2.520+003	1.935+000	156	8.760+003	1.921+000

ID/1Q,1R

CORRECTIVE ACTIONS

<u>340-0</u> Corrective Actions	Rev. 11	12-23-82
<u>340-1</u> Operation During Earthquake Conditions	Rev. 4	05-18-82
<u>340-2</u> Operation During Tornado Warning	Rev. 1	06-20-80
<u>340-3</u> Lock and Dam Number 14 Failure	Rev. 2	02-19-81
<u>340-4</u> Action to be Taken in the Event of an Oil Spill to the Mississippi River	Rev. 3	12-07-81
<u>340-5</u> Station Fire Fighting	Rev. 4	02-16-82
<u>340-6</u> Chlorine Dioxide Spill	Rev. 1	10-01-82
<u>340-7</u> Chemical Spill Clean-Up	Rev. 1	10-29-82
<u>340-S1</u> Fire Drill Worksheet	Rev. 3	12-23-82

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DEC 23 1982
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ID/4I

A. PURPOSE

The purpose of this procedure is to guide action to be taken during earthquake conditions.

B. REFERENCES

1. None.

C. PREREQUISITES

1. An earthquake is reported.
2. Actuation of the seismic detector and recorder.

D. PRECAUTIONS

1. A seismic detector and recorder are used to record local earthquake intensity.

E. LIMITATIONS AND ACTIONS

1. If plant conditions are not normal, the reactor must be shutdown and depressured to atmospheric conditions.
2. Off-site seismic information may be obtained from the National Earthquake Information Center in Boulder, Colorado 80302.

F. PROCEDURE

1. Immediate Action.
 - a. Verify plant operating conditions are normal.
 - b. If conditions are not normal, Unit 1 (Unit 2) reactor must be shut down and depressurized to atmospheric conditions.
2. Subsequent Action.
 - a. Inspect plant for damage and possible leaks.
 - b. Verify no abnormal changes in the following:
 - (1) Feedwater flow.
 - (2) Condenser vacuum.
 - (3) Unit load.
 - (4) Main steam flow.

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MAY 18 1982

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- c. Verify drywell for the following:
 - (1) Equipment sump and floor drain sump discharge rates normal.
 - (2) Air sample system activity normal.
 - (3) Temperatures normal at recorders and indicator at drywell environs rack 2251(2)-38.
 - (4) Leak detection system temperatures normal on panel 901-21 (902-21).
 - d. Verify turbine building air sample system activity normal.
 - e. Verify main steam line and turbine extraction piping is not damaged.
 - f. Verify there is no sudden increase in off gas flow.
 - g. Verify there is no sudden increase in off gas and stack gas activity.
 - h. Verify there are no spurious trips of equipment.
3. If the seismic detector (strong-motion accelerograph) in the Unit 1 condensate pump room basement has actuated, an ACTION indicating light will be on to indicate the system has been triggered. If it has triggered, notify the Master Instrument Mechanic and have the IM's perform the following:
- a. Obtain key for accelerograph from I.M. Shop.
 - b. Insert key and turn to TEST.
 - c. Engage the test toggle switch and hold for 1 second. Repeat several times to make sure all recordings are in the take-up magazine.
 - d. Remove cover from the accelerograph.
 - e. Detach the take-up magazine, move it 1 or 2 inches away from the camera, and cut the film. Reset the ACTION light.
 - f. Process the film and replace cover.
 - g. Refer to Teledyne-Geotech Manual for interpretation of results.

G. CHECKLIST

- 1. None.

H. TECHNICAL SPECIFICATION REFERENCES

- 1. None.

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MAY 18 1982

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OPERATION DURING TORNADO WARNING

QEP 340-2
Revision 1
June 1980

ID/3K

A. PURPOSE

The purpose of this procedure is to guide in the operation during a tornado warning.

B. REFERENCE

1. None.

C. PREREQUISITES

1. Receipt of a tornado warning.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. Immediate Action.
 - a. All personnel are to be evacuated from the operating floor of the turbine building, the refueling floor of the reactor building, and from outside the building to within the superstructure below these floors.
 - b. New fuel assemblies in the process of being inspected will be placed in the new fuel storage vault and the concrete cover will be installed. All fuel movements in the storage pools and reactor cavities will be terminated and any fuel in process of being transferred will be placed in the pool storage racks. No fuel assemblies will be left on the jib crane hooks or the refueling grapple. Small tools will be secured in their storage position.
 - c. The main overhead crane will be moved to either the North or South end of the building against the rail stops and secured in this position. The refueling grapple crane will be moved over the reactor cavity with the grapple in the full up position. Place all jib cranes on refueling floor in a position other than over the fuel pool.
 - d. Verify all access doors and windows are secured.

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- e. Verify that the Unit 1, Unit 2 and Unit $\frac{1}{2}$ Emergency Diesel Generators are operable, or Tech Spec 3.9.E. is satisfied, when notified that a tornado warning exists. Insure adequate diesel engine fuel supply is on hand.

G. CHECKLISTS

- 1. None.

H. TECHNICAL SPECIFICATION REFERENCES

- 1. None.

LOCK AND DAM NUMBER 14 FAILURE

QEP 340-3
Revision 2
February 1981

ID/4L

A. PURPOSE

The purpose of this procedure is to guide operation if lock and dam 14 fails open.

B. REFERENCES

1. None.

C. PREREQUISITES

1. Receipt of a report that lock and dam 14 has failed.

D. PRECAUTIONS

1. Terminate radwaste discharge.

E. LIMITATIONS AND ACTIONS

1. If the operation of ECCS systems is required to remove decay heat, suppression chamber cooling will be required within 2 hours. This procedure permits the use of the water impounded in the intake flume and discharge flume to be used as an evaporative heat sink which will impound 3,960,000 gallons of water. The maximum amount of water required by the system at this state will be approximately 7000 gpm which means that without any recirculation, the impounded water will last a minimum of 9.4 hours. It will be necessary to make-up water to the intake flume under this condition by portable pumping equipment which will move the water from the main river channel to the plant. Pumps capable of pumping 7000 gpm water will be maintained on site and backup pumps are available from the local fire stations. The maximum amount of water required for makeup will be approximately 20 gpm. The make-up will be provided from the plant well water system.

F. PROCEDURE

1. Immediate Action.
 - a. Verify electrical power for bus 13 (23) and bus 14 (24) for RHR service water pumps.
 - b. OPEN ice melting line.
 - c. Terminate radwaste discharge.
 - d. Position portable emergency diesel pumps to take a suction on the river and discharge to the intake flume.

- e. Conduct an orderly shutdown of Unit 1 and Unit 2.
- f. Establish communications between the control room and crib house.
- g. CLOSE the discharge flume gates to the river.

2. Subsequent Action.

- a. Run portable emergency diesel pumps as necessary to makeup water to the intake flume.
- b. Use only one RHR service water pump if possible for suppression chamber cooling.

G. CHECKLISTS

- 1. None.

H. TECHNICAL SPECIFICATION REFERENCES

- 1. None.

10-11-80
11-14-80
11-15-80

ACTION TO BE TAKEN IN THE EVENT OF
AN OIL SPILL TO THE MISSISSIPPI RIVER

QEP 340-4
Revision 3
October 1981

ID/1B

A. PURPOSE

The purpose of this procedure is to guide in the action to be taken in the event of an oil spill to the Mississippi River. This procedure is also applicable to PCB releases.

B. REFERENCES

1. None.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. Identify the source and immediately terminate the discharge of oil to the river or take whatever steps possible to minimize the release rate.

E. LIMITATIONS AND ACTIONS

1. If possible, trip extra circulating water pumps to slow the rate to the river and to lessen the turbulence in the discharge bay.

F. PROCEDURE

1. Immediate Actions.
 - a. In the event of an oil spill or other accidental discharge of hazardous material to the Mississippi River, the following personnel shall be notified immediately by the Shift Engineer:
 - (1) Station Superintendent.
 - (2) Operating Assistant Superintendent.
 - (3) Operating Engineer.
 - (4) Rad Chem Supervisor.
 - b. Immediate reporting will normally be made by the Station Superintendent or his designee unless they cannot be reached. In such case, the Shift Engineer will initiate the necessary reporting. The following agencies will be notified promptly of a spill:

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- (1) United States Coast Guard ATTN: Duty Officer National Response Center 400 Seventh Street, SW Washington, D.C. 20590

800-424-8802

or

U.S. Coast Guard 9th District Office 1240 East 9th Street
Cleveland, Ohio 44199

216-522-3983

or

the Designated EPA/Coast Guard OSC or Commanding Officer of any Coast Guard unit in the vicinity of the discharge.

- (2) United States Environmental Protection Agency - Region V
Office 536 South Clark Street, Chicago, Illinois 60604

312-353-2318 (Oil Spill and Containment)

- (3) Division Vice-President Nuclear Stations.

- (4) Director of Water Quality, Environmental Affairs.

2. Subsequent Actions.

- a. If possible, trip extra circulating water pumps to slow the rate to the river and to lessen the turbulence in the discharge bay.
 - b. Clean-up the oil in the bays by skimming the oil off the top of the water using the portable oil skimmer and discharging it into one of the two on-site oil separators. Roto-Rooter of Davenport, Iowa, is also available to assist if necessary; they can respond to a callout in less than four hours.
 - c. If step 2.b is not feasible, soak up the oil from the surface of the water using oilsoak pillows.
3. Any oil discharged to the river will either by via the intake bay or the discharge bay. Depending on the turbulence in these bays, it should be possible to contain the oil within one of the bay areas.

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Q.C.O.S.R.

4. Immediate notification is required to the National Response Center in the event of a release to the environment of 10 pounds or more of PCB. Reasonable notice should be provided to potential injured parties. Refer to SPCC Plan for definitions and detailed reporting requirements. Fluid leaks greater than 0.5 gallons from PCB transformers, containers, or equipment are reportable. Leaks contained in a building or on concrete or pavement are not reportable. Leaks to the ground or stone-covered surfaces are reportable. As soon as there is knowledge of an incident, immediate notification is made to the Division Lead Dispatcher or Shift Engineer. They will notify the National Response Center:

800-424-8802

5. The following information should be provided:
 - a. Name of on-site person and phone number.
 - b. Date, time, and location of spill.
 - c. Extent of injuries or contamination.
 - d. Type and quantity of material.
 - e. Cause of spill.
 - f. Precautionary measures being taken.
 - g. Other agencies notified.
6. A PCB Spill Log may be used to collect the above information, and a copy will be sent to C.E.Co. Environmental Affairs. The Response Center should be notified on a timely basis, and it is better to make the call before all information is available, rather than to wait.
7. Notify C.E.Co. Environmental Affairs of the incident as soon as possible during normal working hours, at extension 4457.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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Q.C.O.S.R.

STATION FIRE FIGHTING

QEP 340-5
Revision 4
February 1982

ID/1E

A. PURPOSE

The purpose of this procedure is to provide instructions and explain the responsibilities of the station fire fighting organization.

B. REFERENCES

1. QOS 4100-3, Monthly Fire Protection System Inspection.
2. QMS 100-1, Monthly Fire Inspection.
3. QOS 4100-4, Monthly Fire Suppression System Valve Position Inspection.
4. QOS 4100-1, Fire Protection Weekly.
5. QAP 1170-3, Fires.
6. NFPA #27th section.
7. QAP 300-12, Tagging Equipment.
8. QEP 200-T1, Quad-Cities Emergency Action Levels.
9. QEP 700-T3, Supplemental Phone Listing.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. Upon discovering a fire:
 - a. Call the control room or use the public address system (page). Give your name, location, and nature of the fire. Also alert those in the immediate area.
 - b. Control room operator upon receipt of notification of fire, will sound the fire siren for 10 seconds, (a series of blasts on the emergency siren), stop alarm and announce location of fire, then resume sounding fire alarm for one minute. All brigade members shall assemble at fire area immediately.

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FEB 16 1982
Q.C.O.S.R.

NOTE

In all cases, a person discovering a fire shall FIRST notify the control room of the fire, then attempt to extinguish it.

- c. Whenever outside fire fighting equipment has been requested, the Shift Engineer shall arrange for access into the plant and make provisions for directing the equipment to the fire.

F. PROCEDURE

1. Organization.

- a. Fire Marshall - Maintenance Assistant Superintendent.
- b. Fire Chief - Shift Foreman.
- c. Brigade Members:
 - (1) Shift Foreman (Fire Chief).
 - (2) Radwaste Foreman.
 - (3) Three Equipment Attendants.
 - (4) Duty Radiation Chemistry Technician. (The RCT responds with the fire brigade to consult with the Fire Chief on the radio-logical aspects of fighting the fire. The RCT does not participate in the extinguishing of the fire and is therefore exempted from the training given to the other fire brigade members.)

2. Duties of Key Personnel.

a. Fire Marshall.

- (1) Provide proper training in fighting fires.
- (2) Ascertain proper installation and maintenance of fire equipment.
- (3) Purchase fire equipment as suggested by fire inspectors and approved by the Station Superintendent.
- (4) Investigate each fire and make recommendations when necessary.
- (5) Make arrangements with Community Fire Department.
- (6) Prepare routine for fire drills.
- (7) Maintain fire protection equipment per Technical Specifications.

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b. Fire Chief.

- (1) Direct the fighting of fires, including entrance to radiation areas and request for Community Fire Department service. (Directing fire department entrance and route.)
- (2) Direct the replacement of "used" hand extinguishers after a fire.

c. Shift Engineer.

- (1) Notify Rock River Load Dispatcher in Rockford on major fires.
- (2) Assist Fire Marshall in preparation of "Report of Fire" report (Form 86-9963).
- (3) Direct various types of fire drills as outlined by the Fire Marshall, and submit written report.
- (4) Reports to the Control Room upon notification of fire.
- (5) Notify Chicago LD.
- (6) Classify fire emergency as an appropriate GSEP condition per QEP 200-T1.

d. Brigade Members.

- (1) Report to fire area immediately upon notification of fire.
- (2) Fire Chief and Radiation Chemistry Technician will regulate entrance to radiation areas.

e. Control Room Operators.

- (1) Maintain adequate pressures on the fire system.

f. SCRE.

- (1) Using the Fire Hazards Analysis, determine if fire affects any safe shutdown equipment and advise the Shift Engineer accordingly.

3. Impairment of Equipment.

- a. It shall be the responsibility of the Shift Engineer to authorize the removal of any fire protection equipment from service. Extreme care should be taken that impairment time is as short as possible. Consult Technical Specifications Sections 3.12 and 4.12 for fire protection equipment operability and surveillance, to assure compliance at all times.

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- (1) The Shift Engineer shall fill out a "Notice of Impaired Fire Protection" card and forward it to the Fire Marshall to be mailed to M&M Protection Consultants. Insure EPN and noun name are the same on all three cards.
- (2) When equipment is returned to service the Shift Engineer will fill out a "Notice of Restored Fire Protection" card and forward it to the Fire Marshall to be mailed to M&M Protection Consultants.

b. Impaired or Discharged Extinguisher.

- (1) If an extinguisher is found to have a broken seal, or thought to be defective, it should be returned to the Maintenance Shop and a spare obtained from the Storeroom and returned to location. That person shall then write a work request explaining which extinguisher and what the problem is.
- (2) Maintenance will repair the extinguisher, return it to the proper location and return the spare to the Storeroom.

c. Hose Reels:

- (1) A person finding a hose reel with the seal broken or hose unwound will notify the Shift Engineer and write a work request explaining which hose reel and what the problem is.
- (2) Only authorized maintenance people shall re-wind hoses that have been removed from their station. Hoses unwound and pressurized must be drained and dried prior to re-wind.

4. Training.

- a. Training sessions to cover individuals in the station will be held at least every two years. Sessions for the fire brigade shall be at least quarterly.

5. Fire Drills.

- a. Drills will be held periodically with no less than 3 drills per year. The Shift Engineer will return the drill worksheet to the Fire Marshall. If a fire occurs during the month it may be substituted for a scheduled drill.
- b. Part of each fire drill will be a discussion of the type of fire and equipment used. Other information deemed of value may be covered with fire brigade members.
- c. When a GSEP drill or fire drill, or other event requiring use of plant sirens takes place, the Cordova Police (Ref. QEP 700-T3) should be notified to avoid potential public reaction.

APPROVED

FEB 16 1982

Q.C.O.S. n

G. CHECKLISTS

1. QEP 340-S1, Fire Drill Work Sheet.

H. TECHNICAL SPECIFICATION REFERENCES

1. Section 3.12/4.12.
2. Section 6.1/6.2.

APPROVED
FEB 16 1982
Q.C.O.S.R.

CHLORINE DIOXIDE SPILL

QEP 340-6
Revision 1
September 1982

ID/5H

A. PURPOSE

The purpose of this procedure is to describe actions to be taken in the event of a chlorine dioxide spill.

B. REFERENCES

1. Occupational Health Guideline for Chlorine Dioxide, September 1978.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. Notify Radiation Protection if chlorine dioxide odor is detected.

F. PROCEDURE

1. Persons not wearing protective equipment and clothing should be restricted from areas of spills or leaks until clean-up has been completed.
2. When chlorine dioxide has spilled or is leaking the following steps should be taken:
 - a. Remove all ignition sources.
 - b. Maximize ventilation in area of spill or leak.
 - c. Stop the spill or leak.
 - d. Isolate the area until chlorine dioxide gas is not detectable.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

APPROVED
OCT 01 1982
Q.C.O.S.R.

CHEMICAL SPILL CLEAN-UP

QEP 340-7
Revision 1
October 1982

ID/5K

A. PURPOSE

The purpose of this procedure is to provide direction for the protection against and clean-up of chemical spills.

B. REFERENCES

1. "Safety Guidelines for Dow Solidification Process for Low-Level Radioactive Waste."

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. Always have good ventilation when dealing with chemicals. If ventilation is poor or nonexistent, contact Health Physics as to respirator requirements.
2. Be familiar with the locations of fire extinguishers, showers and eye wash stations in the immediate area.
3. Be familiar with the chemical and its properties. Contact Chemistry for guidance.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. Contact Chemistry for specific instructions prior to working on any chemical system.
2. Apparel.
 - a. In most cases, a face shield and elbow-length rubber gloves are required; however, neoprene slickers and gloves are required for chlorine dioxide and Waste Solidification Binder 101.
 - b. No skin should be exposed. Severe burns may result if skin contact occurs.
 - c. If floor level work is involved, boots and outer slacks should also be worn.
 - d. Contact Health Physics as to respiratory requirements.

3. Personnel clean-up.

- a. Contact Chemistry or Health Physics immediately.
- b. Acid and caustic.
 - (1) Remove all affected clothing.
 - (2) Shower for a minimum of 15 minutes.
 - (3) In case of eye contact, rinse eyes repeatedly with water.
 - (4) Seek medical attention if necessary.
- c. Waste Solidification Binder 101.
 - (1) Remove all affected clothing.
 - (2) Shower for a minimum of 15 minutes.
 - (3) Apply mineral oil generously to affected area.
 - (4) Alternate showering and oil application as long as necessary.
 - (5) In case of eye contact, rinse eyes repeatedly with water.
 - (6) Seek medical attention.
- d. Dow catalyst or promoter.
 - (1) Remove all affected clothing.
 - (2) Shower, with soap, for a minimum of 15 minutes.
 - (3) In case of eye contact, rinse eyes repeatedly with water.
 - (4) Seek medical attention, if necessary.

4. Area clean-up.

- a. Contact Chemistry immediately.
- b. Avoid drainage of chemicals to floor drains.
- c. Acid and caustic.
 - (1) Chemistry will direct clean-up as to appropriate chemicals and amounts necessary to neutralize spill.
 - (2) Contain spill as much as possible.

d. Binder 101.

- (1) Contact Health Physics as to respirator requirements.
- (2) Cover binder with oil. Let stand 5 minutes.
- (3) Cover with oil-dry.
- (4) Shovel into barrels.

e. Catalyst or promoter.

- (1) Dilute with water after plugging any floor drains present.
- (2) Mop up solution.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

FIRE DRILL WORKSHEET

QEP 340-S1
Revision 3
December 1982

ID/2A

DATE _____

LOCATION AND TYPE OF DRILL TO BE CONDUCTED: _____

TIME DRILL INITIATED: _____

RESPONDING FIRE BRIGADE:

FIRE CHIEF - _____

ASST. FIRE CHIEF - _____

FIREFIGHTER - _____

FIREFIGHTER - _____

OTHERS ACTIVE IN DRILL - _____

EQUIPMENT USED DURING DRILL: _____

STATUS OF FIRE COMPANY #1* (IF REQUIRED DURING THIS DRILL): _____

STATUS OF OFFSITE FIRE DEPT. (IF REQUIRED DURING THIS DRILL): _____

*Fire Company #1 - Onsite plant personnel other than brigade

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DEC 23 1982

Q.C.O.S.R.

DISCUSS (WITH BRIGADE MEMBERS) OTHER WAYS OF FIRE EXTINGUISHMENT IN THIS AREA:

LIST TYPE OF AUTOMATIC PROTECTION IN THIS AREA:

DISCUSS THE CONSEQUENCES IF THE AUTOMATIC PROTECTION SYSTEM FAILED IN THIS AREA:

DISCUSS HOW THIS FAILURE WOULD AFFECT FIREFIGHTING AND RESCUE OPERATIONS:

EVALUATION OF FIRE DRILL:

CORRECTIVE ACTION NECESSARY BASED ON DRILL RESULTS:

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DEC 23 1982

FIRE CHIEF :

cc: Corporate Fire

Protection Engineer

Q.C.O.S.R.

FIRE MARSHALL:

ID/2S,2T

RECOMMENDATIONS FOR
OFF-SITE PROTECTIVE ACTIONS

350-0

Recommendations for Off-Site
Protective Actions

Rev. 3 03-18-82

350-T1

Recommended Protective Actions for
Gaseous Release

Rev. 3 03-18-82

350-T2

GSEP Guidelines for Protection Against
Ingestion of Contamination for the
Offsite Public

Rev. 1 04-01-81

APPROVED
MAR 18 1982
Q.C.O.S.R.

ID/2W

RECOMMENDED PROTECTIVE ACTIONS FOR GASEOUS RELEASE

QEP 350-T1
Revision 3
March 1982

RECOMMENDED PROTECTIVE ACTIONS FOR UNDESIRABLE RELEASES														
Accident Classification/ Release Situation (NARS Form Section 6)	Actual Projected Doses (Rem)** in Zonal Areas X, Y, & Z.						Containment Radiation Level (R/Hr) When no Projected Doses are Available	Recommended Protective Actions (S - Shelter, E - Evacuation, P - Prepare for Possible Action I.O. - Info only)			NARS Form Section 8			
	Whole Body			Thyroid										
	X	Y	Z	X	Y	Z		X	Y	Z				
1. UNUSUAL EVENT														
6.A - No Release	(1)	0	0	0	0	0	0	0	NORMAL CONTAINMENT RAD.	I.O.	(1)	8.A		
6.B or E - Potential or Stopped	(2)	<0.5	M	M	<2.5	M	M	<200		I.O.	(2)	8.A		
6.C or D - Imminent or Occurring	(3)	<0.5	M	M	<2.5	M	M	<200		I.O.	(3)	8.A		
2. ALERT														
6.A - No Release	(1)	0	0	0	0	0	0	0	NORMAL CONTAINMENT RAD.	I.O.	(1)	8.A		
6.B or E - Potential or Stopped	(2)	<0.5	M	M	<2.5	M	M	<200		I.O.	(2)	8.A		
6.C or D - Imminent or Occurring	(3)	<1.0	<0.5	M	<5.0	<2.5	M	200 - 400		(P)	(P)	(P)	(3)	8.B
	(4)	Analysis Not Complete						<200		I.O.	(4)	8.A		
	(5)	Analysis Not Complete						200 - 400		(P)	(P)	(P)	(5)	8.B
	(6)	<1.0	<0.5	M	<5.0	<2.5	M			(P)	(P)	(P)	(6)	8.B
3. SITE EMERGENCY														
6.A - No Release	(1)	0	0	0	0	0	0	0	NORMAL CONTAINMENT RAD.	I.O.	(1)	8.B		
6.B or E - Potential or Stopped	(2)	All Dose Situations			All Dose Situations			<2000		(P)	(P)	(P)	(2)	8.B
6.C or D - Imminent or Occurring	(3)	Analysis Not Complete						<400		(P)	(P)	(P)	(3)	8.B
	(4)	Analysis Not Complete						400 - 2000		(S)	(P)	(P)	(4)	8.C & D
	(5)	<1.0	<0.5	M	<5.0	<2.5	M			(P)	(P)	(P)	(5)	8.B
	(6)	>1.0	<1.0	M	>5.0	<5.0	M			(E*)	(S*)	(P)	(6)	8.C,H & E
	(7)	>1.0	>1.0	<1.0	>5.0	>5.0	<5.0			(E*)	(E*)	(S)	(7)	8.C,H,I, & F
4. GENERAL EMERGENCY														
6.A - No Release	(1)	NOT APPLICABLE TO GENERAL EMERGENCY												
6.B or E - Potential or Stopped	(2)	All Dose Situations			All Dose Situations			>0		(S)	(S)	(P)	(2)	8.C,D & E
6.C or D - Imminent or Occurring	(3)	Analysis Not Complete						>0		(E*)	(S)	(P)	(3)	8.C,H & E
	(4)	<1.0	<0.5	M	<5.0	<2.5	M			(S)	(S)	(P)	(4)	8.C,D & E
	(5)	>1.0	<1.0	M	>5.0	<5.0	M			(E*)	(S)	(P)	(5)	8.C,H & E
	(6)	>1.0	>1.0	<1.0	>5.0	>5.0	<5.0			(E*)	(E*)	(S)	(6)	8.C,H,I, & F
	(7)	>1.0	>1.0	>1.0	>5.0	>5.0	>5.0			(E*)	(E*)	(E*)	(7)	8.C,H,I, & J

FOOT NOTES:

The symbol ()) represents the entire 0-2 mile area, and the 2-5 and 5-10 mile three downwind sectors.
R - Range (Miles); SB - Site Boundary; M - Minimal

* Evacuation, when noted, is the recommended protective action only when weather conditions permit and an evacuation time analysis confirms it as the preferred choice, otherwise sheltering is the protective action to recommend. If evacuation is recommended for Zonal areas Y and Z and if Zonal areas Y and Z are in Wisconsin or Iowa, then the recommendation for evacuation should extend only to the range at which the projected dose is 1 Rem WB or 5 Rem thyroid, whichever is the greater range. Sheltering is the protective action from this range out to 5 miles if the "range" is in Zone Y and out to 10 miles if it is in Zone Z.

** Projected actual doses are based on the actual or most likely release point and the existing site meteorological conditions. The Zones X, Y, and Z are:
X - SB ≤ R < 2 miles; Y - ≤ R < 5 miles; Z - 5 ≤ R < 10 miles.

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GSEP GUIDELINES FOR PROTECTION AGAINST INGESTION OF CONTAMINATION
FOR THE OFFSITE PUBLIC

QEP 350-T2
Revision 1
March 1981

ID/3U

FOOD AND WATER CONTAMINATION

A. Derived Response Levels

Nuclide**	Critical Organ	Milk/Water***	Preventive Action Levels*	
			Total Intake via All Food and Water Pathways	Pasture Grass (Fresh weight)
I-131	Thyroid	0.012 $\mu\text{Ci/l}$	0.09 μCi	0.27 $\mu\text{Ci/kg}$
Cs-137	Whole Body	0.34 $\mu\text{Ci/l}$	7 μCi	3.5 $\mu\text{Ci/kg}$
Sr-90	Bone	0.007 $\mu\text{Ci/l}$	0.2 μCi	0.7 $\mu\text{Ci/kg}$
Sr-89	Bone	0.13 $\mu\text{Ci/l}$	2.6 μCi	13 $\mu\text{Ci/kg}$

* The preventive derived response action level relate to a 1.5 rem projected dose commitment to the thyroid or to a 0.5 rem projected dose commitment to the whole body, bone, or any other organ. Emergency action levels are equal to ten (10) times the preventive levels and relate to either a 15 rem projected dose commitment to the thyroid or a 5 rem projected dose commitment to the whole body, bone, or any other organ.

** If other nuclides are present, use Regulatory Guide 1.109 to calculate the dose commitment to the critical organ(s). Infants are considered to be the critical segment of the population.

***The preventive action levels apply to water as well as milk; the protective action for water would be to use a suitable source of uncontaminated water.

B. Recommended Protective Actions

<u>Preventive Level Exceeded</u>	<u>Emergency Level Exceeded</u>
<ul style="list-style-type: none"> ° For pasture; remove lactating dairy cows from contaminated pasturage and substitute uncontaminated stored feed. Also, substitute a source of uncontaminated water. ° For milk; withhold milk from market to allow radioactive decay. Consider diversion of fluid milk for production of butter or evaporated milk. ° For fruits and vegetables; wash, brush, or scrub to remove contamination. Allow radioactive decay through canning, dehydration, or storage. ° For grains; mill and polish. 	<ul style="list-style-type: none"> ° Isolate food containing radioactive contamination to prevent its introduction into commerce and determine whether condemnation or another disposition is appropriate. Before taking this action, consider: <ul style="list-style-type: none"> --Availability of other possible actions; --Importance of particular foods in nutrition; and --Time and effort required to take action.

ID/1S,1T

PROTECTIVE MEASURE FOR
ON-SITE PERSONNEL

<u>360-0</u> Protective Measures for On-Site Personnel	Rev. 16	08-02-83
<u>360-1</u> Drywell Evacuation	Rev. 1	06-20-80
<u>360-2</u> Plant Evacuation and Assembly	Rev. 10	04-29-83
<u>360-3</u> Site Evacuation	Rev. 3	12-08-82
<u>360-4</u> Use of Potassium Iodide (KI) as a Thyroid Blocking Agent	Rev. 3	08-02-83
<u>360-5</u> Issuance of Emergency Film During GSEP Conditions	Rev. 1	05-18-81
<u>360-S1</u> Emergency Film Distribution Log	Rev. 1	05-18-81
<u>360-T1</u> Evacuation Assembly Areas for Visitors and Contractors	Rev. 2	03-02-82
<u>360-T2</u> Evacuation Routes by Wind Direction	Rev. 5	09-03-82
<u>360-T3</u> Site Evacuation Routes	Rev. 1	06-20-80
<u>360-T4</u> Evacuation Relocation Centers	Rev. 1	06-20-80
<u>360-T5</u> Iodine - 131 Dose Equivalent to Thyroid Reference Reg. Guide 1.109	Rev. 1	04-01-81
<u>360-T6</u> Iodine - 133 Dose Equivalent to Thyroid Reference Reg. Guide 1.109	Rev. 1	04-01-81
<u>360-T7</u> Iodine - 135 Dose Equivalent to Thyroid Reference Reg. Guide 1.109	Rev. 1	04-01-81
<u>360-T8</u> Potassium Iodide Distribution Record	Rev. 1	05-18-81

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DRYWELL EVACUATION

QEP 360-1
Revision 1
June 1980

ID/2B

A. PURPOSE

The purpose of this procedure is to describe the Evacuation Process of the Drywell during an emergency.

B. REFERENCES

1. None.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. Personnel evacuation of the primary containment will be initiated by the control room in the event of an emergency such as high radiation. Due to the high ambient noise levels present the following procedure will be used:

- a. Trip all Drywell Coolers from the control room.
- b. After about 5 seconds use the PA system to announce the emergency and order evacuation of the drywell. Repeat this announcement in a slow, clear voice three times.
- c. Account for all personnel known to have been in the drywell.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

PLANT EVACUATION AND ASSEMBLY

QEP 360-2
Revision 10
April 1983

ID/1L

A. PURPOSE

The purpose of this procedure is to describe Evacuation and Assembly practices.

B. REFERENCES

1. Refer to Quad Cities Security Procedures.
2. GSEP.
3. QEP 360-T1, Evacuation Assembly for Visitors and Contractors.
4. QEP 360-3, Site Evacuation.

C. PREREQUISITES

1. Radiation monitoring devices indicate that radiation from or within the station is such that permissible exposures will be exceeded; or
2. A Site or General Emergency is declared; or
3. Other dangers exist that present a threat to the safety of onsite personnel as determined by the Station Director.

D. PRECAUTIONS

1. If it becomes necessary to evacuate the gatehouse due to a high radiation evacuation, refer to Quad Cities security procedure.
2. The units will be shutdown and all personnel, not essential to perform the emergency shutdown, immediately assemble at a safe location.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. The assembly alarm is sounded when the Station Director has determined that an assembly is necessary.
2. During a station assembly, site personnel will assemble at the following locations:
 - a. Maintenance personnel (Mechanical, Electrical, and Instrument) will assemble in the machine shop area.

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- b. Operations and Rad/Chem personnel will assemble in the Operational Support Center (OSC).
- c. Contractors and off-site CECo personnel will assemble in the Turbine Building Trackway nearest their work area (either Unit 1 or 2) (see QEP 360-T1).
- d. The Station Director and Operations Director will report to the Control Room. All other GSEP Directors will report to the Technical Support Center (TSC).
- e. Visitors, stationmen, fuel-handlers, and all other CECo Station assigned personnel will assemble in the lunchroom on the ground floor of the Service Building. (See QEP 360-T1.)
- f. A security guard will contact a spokesman for the assembled group to determine if any personnel are unaccounted for. The security guard will contact the SAS operator who will compile a list of unaccounted personnel. This list will be turned over to the Security Director, or Shift Engineer in his absence, for disposition.

NOTE

Normal clothing removal procedures shall be waived. Personnel wearing one layer of protective clothing shall remove only gloves and protective footwear when exiting from the radiation zone. Personnel wearing two layers of protective clothing, as required in highly contaminated areas, shall remove gloves, protective footwear and the outer layer of protective clothing. Hand and shoe counts and required personnel surveys should be omitted. Personnel exiting from radiation zones wearing protective clothing during an assembly should make every reasonable effort to avoid contaminating equipment, walls, floors, and other personnel.

- g. If any of the assembly areas are not habitable, the security director will select an alternate site and notify the appropriate access control guard.
- 3. Personnel will remain in these areas until the condition is corrected or instructed to move elsewhere.
 - 4. If site evacuation is necessary, the Shift Engineer will designate the evacuation route and off-site assembly area, after consulting with the Technical Director, in accordance with QEP 360-3.
 - a. If a site evacuation is required, the names of non-essential personnel will be provided to the Security Director.

5. Upon assembly at the relocation center, preplanned program of increased environmental sampling and a radiation survey of the environs are simultaneously initiated as required in the Generating Station Emergency Plan (GSEP). An estimate of the situation based on existing meteorological conditions, the results of the radiation survey, and the condition of the station is made. If, based on this estimate, it is determined that it is necessary to evacuate residents from the Low Population Zone, the GSEP Command Center Director notifies the Illinois ESDA and Iowa Office of Disaster Services in accordance with GSEP. The Station Director will also immediately notify the Rock Island County Communications Center (in Illinois) and the Scott County Sheriff's Office (in Iowa) if prompt off-site evacuation is needed.
6. The Rad/Chem Director will make provisions for monitoring personnel at the off-site relocation center, if needed.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

SITE EVACUATION

QEP 360-3
Revision 3
December 1982

ID/2C

A. PURPOSE

The purpose of this procedure is to outline the method used to select the proper evacuation route from the site and the proper relocation center that will minimize personnel exposure based on meteorological conditions.

B. REFERENCES

1. QEP 360-2, Plant Evacuation and Assembly.
2. QEP 360-T2, Evacuation Routes and Wind Direction.
3. QEP 360-T3, Site Evacuation Routes.
4. QEP 360-T4, Evacuation Relocation Centers.
5. GSEP Section 6.4.1.

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Q.C.O.S.R.

C. PREREQUISITES

1. Radiation monitoring devices indicate that radiation from or within the station is such that permissible exposures will be exceeded.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. An assembly and evacuation of onsite non-essential personnel should be initiated for a site area emergency or general emergency unless one of the following conditions exist:
 - a. Severe weather conditions threaten safe transport.
 - b. A significant radiological hazard would be encountered.
 - c. There is a security threat occurring which would have an adverse impact on the personnel while leaving the site.
 - d. A condition similar to these in magnitude which in the opinion of the Station Director or Recovery Manager would adversely affect the site personnel.

F. PROCEDURE

1. Determine the wind direction from either the control room indicator or from the station meteorological tower. Remember that the wind blows from that direction.

2. Refer to QEP 360-T2. Determine the site evacuation route to be used and the relocation center to be designated.
3. Refer to QEP 360-T3 and QEP 360-T4. Assign station personnel to aid in directing traffic along the proper evacuation route and to the designated location center.
4. When a site evacuation is imminent, the Security Director notifies by phone or dispatches a security guard to notify those personnel in building outside the protected area (Visitor Center, Warehouses, Wastewater Plant, Sewage Treatment Plant and Training Building). These personnel should evacuate the site as soon as possible using the prescribed route to the designated relocation center.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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Q.C.O.S.R.

USE OF POTASSIUM IODIDE (KI)
AS A THYROID BLOCKING AGENT

QEP 360-4
Revision 3
July 1983

ID/2K

A. PURPOSE

The purpose of this procedure is to outline the method used for distribution and use of KI tablets to emergency workers employed by Commonwealth Edison.

B. REFERENCES

1. The Generating Stations Emergency Plan, Sections 6.4.2, 7.1.2, and 8.1.4.
2. NCRP Report No. 55, "Protection of the Thyroid Gland in the Event of Releases of Radioiodine," 1977.
3. U.S.N.R.C. Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFR50, Appendix I, "Revision 1, 1977.
4. W. Harrison Mehn, M.D. letter to Mr. Frank Palmer dated December 19, 1980.
5. QEP 360-T5.
6. QEP 360-T6.
7. QEP 360-T7.
8. QEP 360-T8.

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AUG 02 1983

Q.C.O.S.R.

C. PREREQUISITES

1. Quad-Cities Nuclear Station shall maintain an adequate supply of KI tablets. These tablets will be stored in the Operational Support Center and will be distributed from that point.
2. One bottle of a thousand potassium iodide tablets is stored in the emergency locker in the Operational Support Center. Upon activation of the Technical Support Center, the Emergency Operations Facility, and environmental teams, these tablets shall be transferred to smaller bottles which are also stored in the emergency locker in the Operational Support Center. The smaller bottles of KI tablets will be distributed to responsible individuals from each facility who will administer the tablets upon the recommendation of the Rad-Chem Director. A record of who has been administered KI shall be kept on QEP 360-T8.
3. Time and conditions allowing, an air sample should be collected and analyzed according to normal plant procedures.
4. If emergency conditions exist, a sample may be taken according to QEP 330-6 or QEP 330-7.

D. PRECAUTIONS

1. Potassium iodide should not be taken by persons who know they are allergic to iodide.
2. Taking more than the recommended doses of KI may cause undesirable side effects. Possible side effects include skin rashes, swelling of salivary glands, and "iodism" (metallic taste, burning mouth and throat, sore teeth and gums, symptoms of a head cold, and sometimes stomach upset and diarrhea).
3. Potassium iodide tablets have a shelf life and should be replaced after two years of storage.

E. LIMITATIONS AND ACTIONS

1. This procedure outlines the policy for administering KI to emergency workers (adults) only. Different limits and dose conversion factors exist for children.
2. A Health Physicist should be consulted prior to administering KI if possible.

F. PROCEDURE

1. Potassium iodide should be administered to emergency workers as follows:
 - a. A dose of 130 mg KI (1 tablet) should be administered prior to receiving a projected calculated dose equivalent to the thyroid of 25 Rem or greater, or one tablet should be taken as soon as possible upon an individual being subjected for 1 hour to an airborne concentration of I-131 of 1.25×10^{-5} $\mu\text{Ci/cc}$ or greater.

The committed dose equivalent to the thyroid gland can be calculated, or determined by using nomograms (QEP 360-T5, T6 and T7) as described in Step F.1.b.

During accident conditions the nomograms should be used to determine if conditions warrant issuing the KI tablets. This will save time, allowing the tablets to be issued sooner, thereby increasing the effectiveness of the blocking agent.

- b. QEP 360-T5, T6 and T7 are nomograms for I-131, I-133 and I-135. To use the nomogram the concentration of the radionuclide in $\mu\text{Ci-cc}$ and the duration time of the exposure in hours is needed. The dose equivalent to the thyroid is determined by connecting the radionuclide concentration in $\mu\text{Ci-cc}$ with the exposure time in hours. The point where the line intersects the thyroid dose equivalent line gives the dose equivalent in Rem.
 - c. The committed dose equivalent to the thyroid gland can be calculated as follows:

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$$H_{50}(\text{rem}) = \sum_i X_i^a B_i D_{iT} t$$

where H_{50} = the total committed dose equivalent in Rem averages throughout the thyroid tissue in the 50 years after intake of radioiodine into the body.

X_i^a = average concentration of a radionuclide i in air in $\mu\text{Ci-cc}$ over the duration of exposure t . The primary nuclides of interest are I-131, I-132, I-133, I-134, and I-135.

B = breathing rate in cc-hr over the duration of exposure 1.2×10^6 cc-hr (assumed).

D_{iT} = dose conversion factor in rem- μCi inhaled of radionuclide i for the thyroid gland.

t = duration of exposure in hours.

The following values of D_{iT} may be used (from Reference 3):

$$D_{\text{I-131}} = 1.5 \text{ rem} - \mu\text{Ci}$$

$$D_{\text{I-132}} = 1.4 \times 10^{-2} \text{ rem-}\mu\text{Ci}$$

$$D_{\text{I-133}} = 2.7 \times 10^{-1} \text{ rem-}\mu\text{Ci}$$

$$D_{\text{I-134}} = 3.7 \times 10^{-3} \text{ rem-}\mu\text{Ci}$$

$$D_{\text{I-135}} = 5.6 \times 10^{-2} \text{ rem-}\mu\text{Ci}$$

Example

If I-131 is the only nuclide of concern, then

$$H_{50} = X_i^a (1.2 \times 10^6 \text{ cc-hr}) (1.5 \text{ rem-}\mu\text{Ci}) t$$

$$H_{50} = X_i^a (1.8 \times 10^6) t$$

Assume the I-131 concentration is $1.0 \times 10^{-5} \mu\text{Ci-cc}$

Then, use of KI is warranted if the exposure time is greater than one half hour.

$$t \geq \frac{25 \text{ Rem}}{1.8 \times 10^6 \frac{\text{cc rem}}{\text{hr } \mu\text{Ci}} \cdot 1.0 \times 10^{-5} \frac{\mu\text{Ci}}{\text{cc}}}$$

$$t \geq 1/2 \text{ hour}$$

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AUG 02 1988
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For continuing exposure conditions, one potassium iodide tablet should be taken each day. KI should not be taken for more than 10 days unless otherwise specified by the Company Medical Director.

2. The Company Medical Director is to be notified immediately for all suspected exposures described in step F.1. Upon being notified of such an incident, offer any additional advice as necessary. Time is an important factor in any suspected radioiodine exposure situation. The effectiveness of KI as a thyroid blocking agent drops quickly as a function of time. KI taken:
 - a. Before or concurrently with exposure - - 90% effective.
 - b. 3-4 hours after exposure - - - - - 50% effective.
 - c. 12 hours after exposure - - - - - some limited effect.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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AUG 02 1966
Q.C.O.S.H.

ISSUANCE OF EMERGENCY FILM DURING
GSEP CONDITIONS

QEP 360-5
Revision 1
May 1981

ID/4P

A. PURPOSE

The purpose of this procedure is to describe the issuance of emergency film during a GSEP condition.

B. REFERENCES

1. QEP 550-2.
2. QEP 550-T3.
3. QEP 360-S1.

C. PREREQUISITES

1. The Rad-Chem Director shall determine when emergency film distribution to personnel is appropriate. The environs director shall determine when emergency film should be used for environmental monitoring.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. Personnel Dosimetry - When GSEP conditions exist in which abnormal exposure rates are detected in film storage areas (i.e. the station guardhouse), the result may be film readings that are not representative of the occupational exposure. In such cases, personnel entering the station from off-site will be issued emergency film stored in shielded or unaffected areas designated in QEP 550-T3. When the Rad-Chem Director determines that such emergency issuance is necessary, the following steps should be followed:
 - a. A person should be assigned by the Rad-Chem Director or his designated alternate to be responsible for film issuance.
 - b. All personnel entering the station shall be issued emergency dosimetry, designated by a green holder.
 - c. Form QEP 360-S1 shall be completed as a record of film issuance. If the person being issued film does not have a Form 4 on file with the Rad-Chem Department, he shall be limited to 1250 mRem for the quarter until a Form 4 is completed. A Form 4 shall be completed as soon as time permits.

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MAY 18 1981

Q. O.S.P

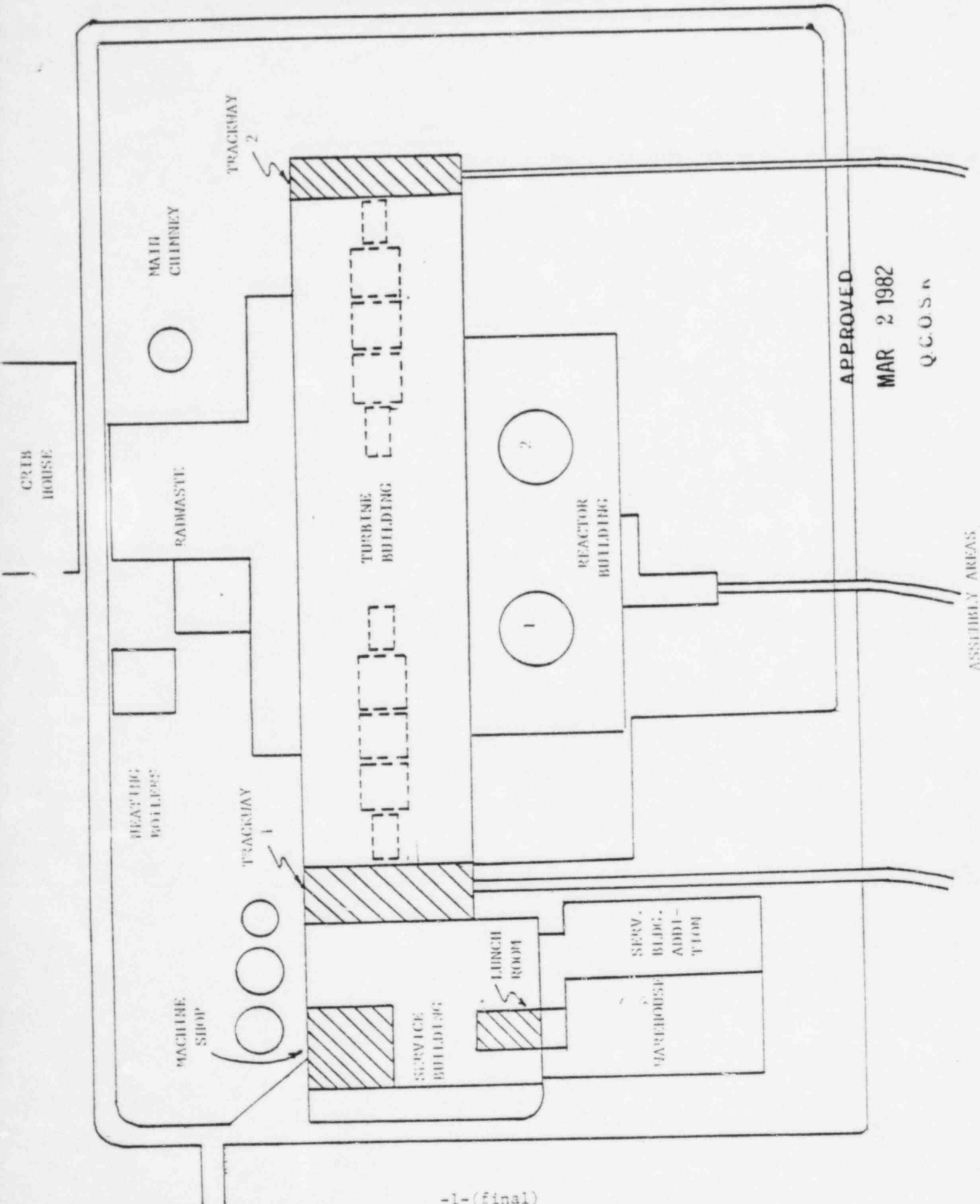
2. Environs Dosimetry - In cases when environs field teams are dispatched it may be desirable to replace TLDs in the field with film so that an accurate record of time and exposure can be accumulated for environmental monitoring purposes. When the station environs director determines that such film placement is necessary, the following steps should be followed:
 - a. The TLDs to be replaced will be designated by the environs director.
 - b. Environs teams will use emergency film from the field team lockers to replace the TLDs.
 - c. Form QEP 360-S1 shall be completed to log film position and time of positioning.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.



EVACUATION ROUTES BY WIND DIRECTION

QEP 360-T2
Revision 5
August 1982

ID/1N	WIND DIRECTION (Determined from Control Room or Metro Tower)	SITE EVACUATION ROUTE (See QEP 360-T3)	RELOCATION CENTER (See QEP 360-T4)
	N (0°)	A	PARK ¹
	NNE	A	PARK
	NE (45°)	A	PARK
	ENE	A	PARK
	E (90°)	A	PARK
	ESE	A	RHS ²
	SE (135°)	A	RHS
	SSE	A ₃	RHS
	S (180°)	A ₃	RHS
	SSW	A ₃	RHS
	SW (225°)	A ₃	RHS
	WSW	A ₃	RHS
	W (270°)	A ₃	RHS
	WNW	B	PARK
	NW (315°)	B	PARK
	NNW	A	PARK

¹PARK: Proceed north on Route 84 to Albany Road. Turn right on Albany Road. Park is on left hand side of the road.

²RHS: (Riverdale High School/COE Elementary School). Proceed south on Route 84 to Hillsdale Road. Turn left on Hillsdale Road. Proceed to 256th Street North. Turn left on 256th Street North. The Riverdale High School and COE Elementary School are on the left hand side of the road.

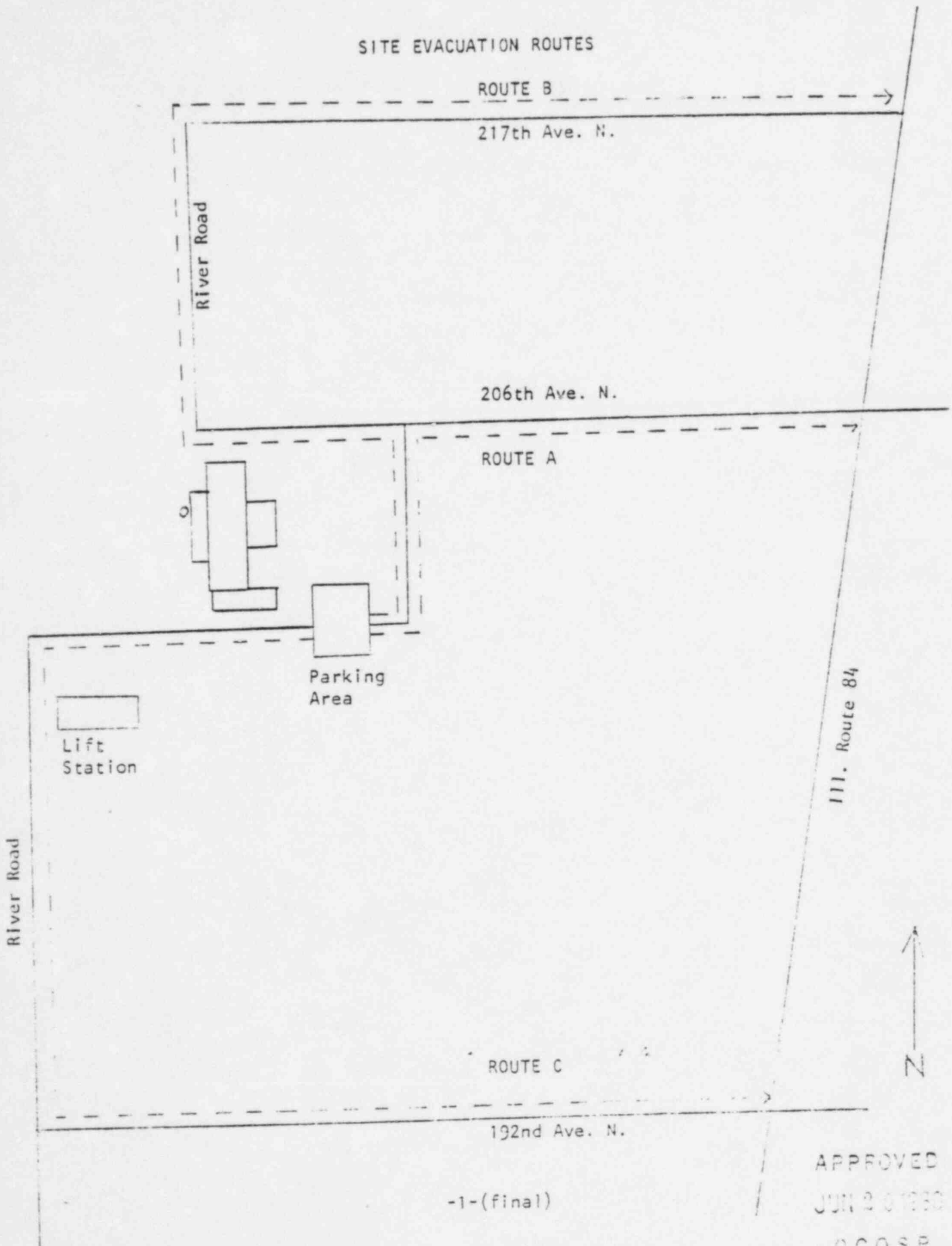
³EVACUATION ROUTE C: This route may be used at the discretion of the Technical Director or Shift Engineer.

Approved

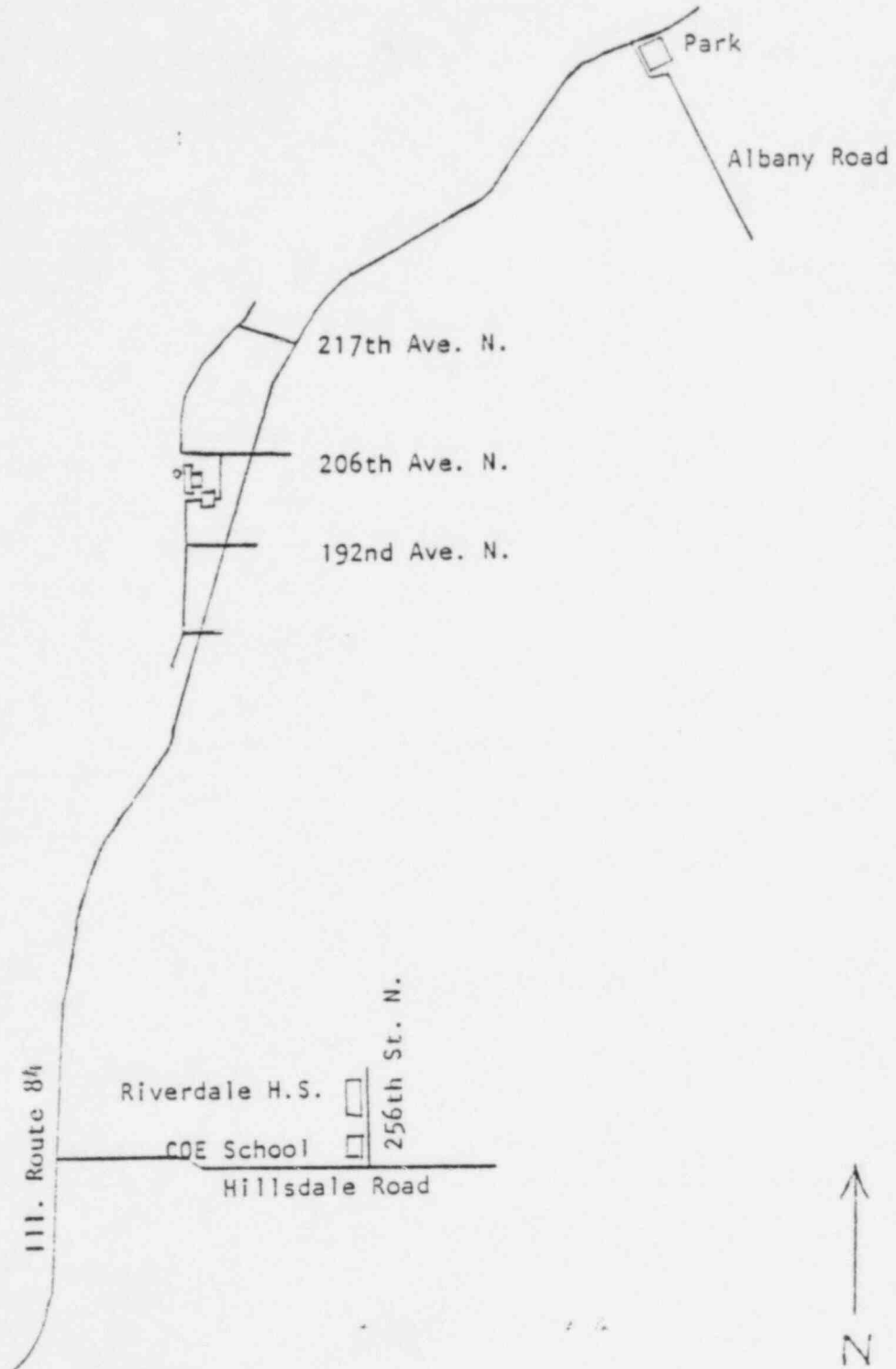
SEP 03 1992

Q.C.C. SM

SITE EVACUATION ROUTES

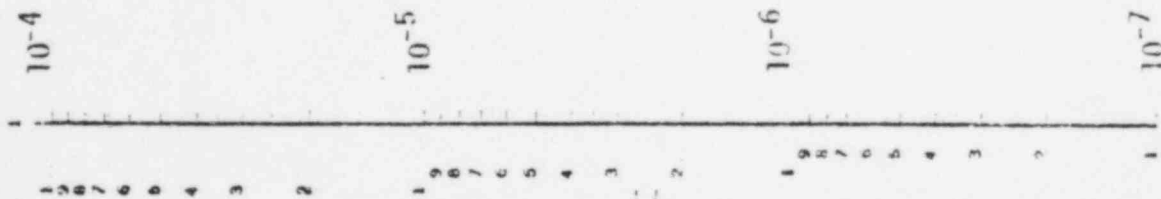


EVACUATION RELOCATION CENTERS



QEP 360-T5
Revision 1
March 1981

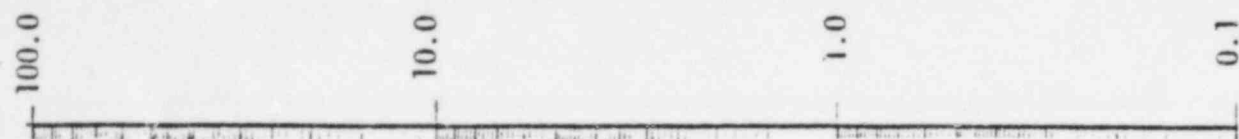
IODINE - 131 DOSE EQUIVALENT TO THYROID REFERENCE REG. GUIDE 1.109



I-131 Activity
in µCi-CC

Thyroid
Dose Equivalent
in REM

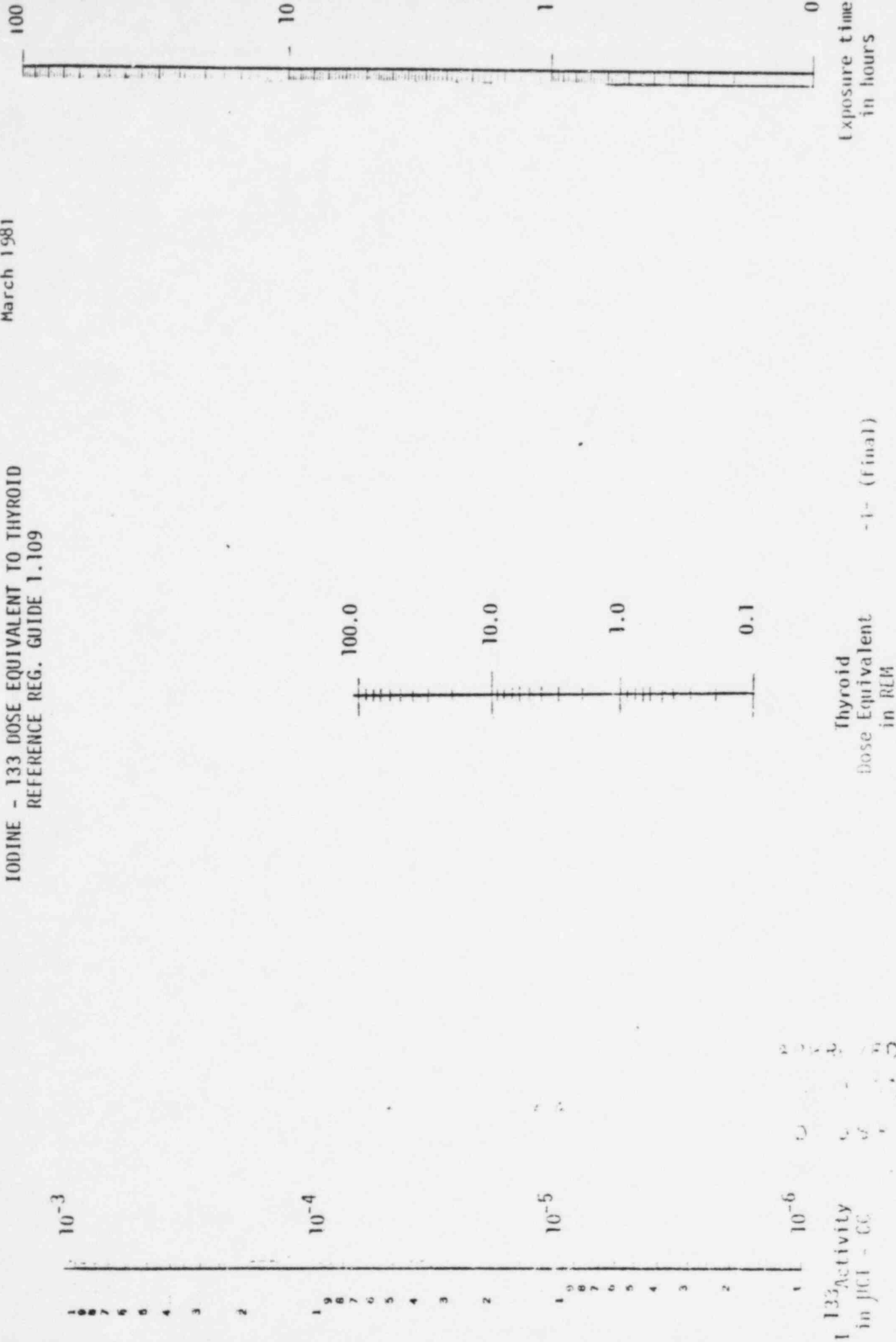
-1- (final)



Exposure time
in hours

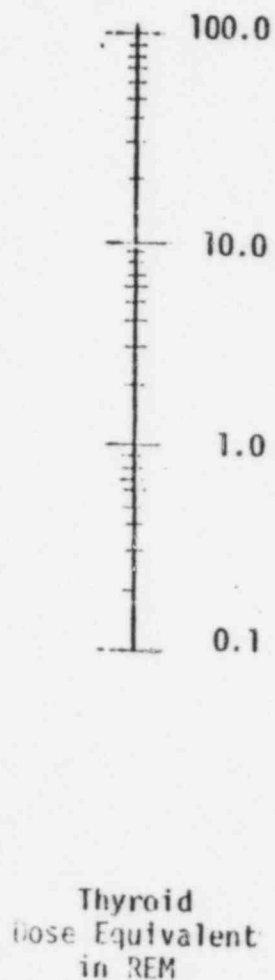
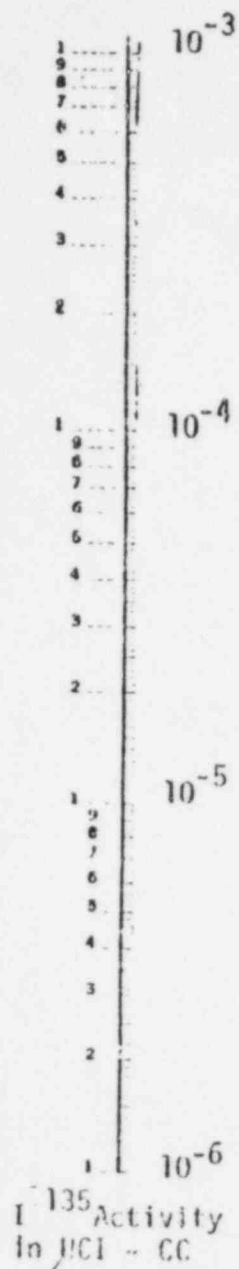
QEP 360-16
Revision 1
March 1981

IODINE - 133 DOSE EQUIVALENT TO THYROID REFERENCE REG. GUIDE 1.109

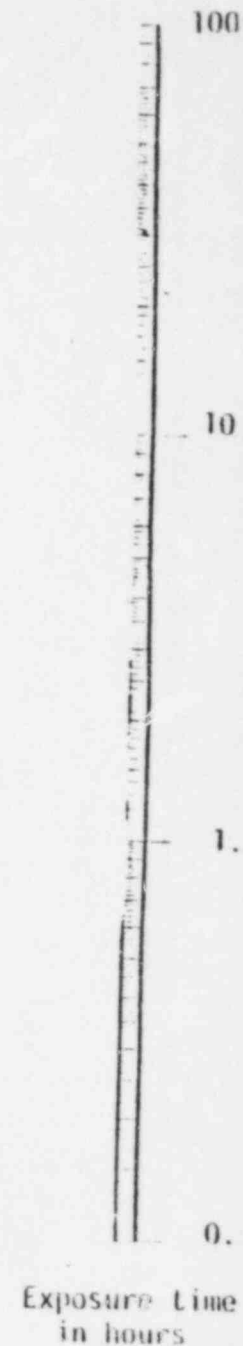


IODINE - 135 DOSE EQUIVALENT TO THYROID
REFERENCE REG. GUIDE 1.109

QEP 360-17
Revision 1
March 1981



-1- (final)



QEP 360-T8
Revision 1
May 1981

LOCATION OF DISTRIBUTION

NUMBER OF CONSECUTIVE
DAYS INDIVIDUAL HAS
TAKEN KI (INCLUDING
TODAY)

ADMINISTERED BY

NAME

4 p p p

APPROVED

MAY 18 1981

Q. O. S. F.

ID/1U,1V

PROVISION OF AID TO
AFFECTED ONSITE PERSONNEL

370-0

Provision of Aid to Affected
Onsite Personnel

Rev. 2 02-16-82

370-1

First Aid Procedure

Rev. 2 02-16-82

370-2

Decontamination of Personnel

Rev. 1 06-20-80

APPROVED
FEB 16 1982
Q.C.O.S.R.

FIRST AID PROCEDURE

QEP 370-1
Revision 2
February 1982

ID/2D

A. PURPOSE

The purpose of this procedure is to the first aid treatment of injured personnel.

B. REFERENCES

1. Radiation Management Corporation Manual.

C. PREREQUISITES

1. Notify Radiation Protection and Shift Engineer/Shift Foreman.

D. PRECAUTIONS

1. Do Not Move the Injured - Do not move the injured unless absolutely necessary to remove from danger. Keep him lying down in a comfortable position, the head level with the body until you know whether the injury is serious.
2. Check for Hemorrhage - Look for hemorrhage, cessation or difficulty in breathing, wounds, burns, fractures, and dislocations.

REMEMBER: The order of First Aid Treatment is:

1. Stop serious bleeding-hemorrhage.
2. Restore breathing.
3. Keep Warm - Keep the injured warm. Maintain normal body temperature to prevent shock. (Do not overheat)
4. Get Medical Help - Send for medical aid as soon as possible.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. Serious bleeding or hemorrhaging must be controlled before any other treatment is given. This is best done by the pressure of a dressing on the wound. Rarely are tourniquets needed, and they are to be used only if a firm pressure over the wound fails to control bleeding.
2. Serious Wounds.
 - a. Every serious wound should be treated by covering it with a sterile dressing without washing, and further treatment left to a doctor or nurse. Do not use antiseptics or salves.

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FEB 16 1982

Q.C.O.S.R.

- b. Motion of a seriously injured part may be prevented by use of a splint, even though no fracture is suspected. (An improvised splint of a pillow, magazine or newspaper will do if a regular splint is not available.)

3. Minor Wounds.

- a. Minor wounds (such as cuts, abrasions or scratches) may be taken care of on the job.
- b. Wash the wound thoroughly, using the liquid soap swabs provided in the first aid kits.
- c. Cover with a dry sterile dressing.

4. Restoration of Breathing.

- a. Start immediately, seconds count.
 - (1) Do not wait or look for help, or stop to loosen clothing, warm the victim or apply stimulants. The main purpose is to GET AIR INTO THE VICTIM'S LUNGS.
- b. Check for Obstructions.
 - (1) Remove any foreign objects. Listen for return rush of air. The time to do any checking is AFTER resuscitation is started.
- c. Preferred Method.
 - (1) The mouth-to-mouth method is the preferred method in all cases where practical, including on a pole. If you do not feel competent to perform this method, use the method you know best.
- d. Loosen Clothing - Keep Warm.
 - (1) Take care of these items after the victim is breathing by himself or when help is available.
- e. Don't Give Up.
 - (1) Continue without interruption until victim is breathing without help or until hope of saving him is gone.
- f. Remain in Position.
 - (1) After the victim revives, be ready to resume artificial respiration if necessary. In all instances have the injured lie down after resuscitation until seen by a doctor.

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5. Artificial Respiration Mouth-to-Mouth Method.

a. Position the victim.

- (1) Place the victim on his back with his chin pointing upward (head back), unless he is on a pole or trapped in a position where he cannot be moved. If there is a slope, his head should be placed slightly downhill. A folded coat, pillow or similar object placed under his shoulders may be helpful in maintaining proper position.

b. Establish an Air Passage.

- (1) Tilt the injured's head back by lifting his neck with one hand and pushing down on his forehead with the other hand. Close the victim's nose by pinching it with the forehead hand.

c. Provide Air.

- (1) After taking a deep breath, place your mouth completely over the victim's mouth, making an airtight contact. On infants or small children the mouth should be placed over the child's mouth and nose, without blocking the nostrils.
- (2) Blow into the victim's mouth, vigorously for an adult; gently for a child. Watch the victim's chest and as soon as it rises, remove your mouth, allowing the victim to exhale passively. Repeat the blowing cycle 12 times a minute for adults, 20 times a minute for children.

d. Clear Obstructions.

- (1) If there is no air exchange (the victim's chest does not rise and there is no indication of exhaled air) recheck the head and jaw position. If you still do not get air exchange, check for obstructions in the mouth. If there are none, quickly turn the victim on his side, pull his tongue forward and give him several sharp slaps between the shoulder blades to help dislodge the foreign matter.

6. Animal Bite Cases.

a. General.

- (1) Animal bite cases should receive the same first aid care as described above under WOUNDS.

b. Get Medical Aid.

- (1) Victims should report to a doctor or Company nurse without delay, in order that the proper precautions may be taken for the prevention of rabies.

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Q.C.O.S.R.

c. Obtain Information.

- (1) The name and address of the animal's owner should be obtained if possible, otherwise, careful notice should be taken of the animal's description and where it is likely to be located. This information should be given to the doctor or nurse who treats the employee.

7. Burns.

a. Minor Burns.

- (1) Minor burns should be handled in the same manner as minor wounds. Cover burned area with a dry sterile dressing.

b. Major Burns.

- (1) In case of extensive burns, the employee should not be moved; he should be kept warm, and the burned surface covered with sterile dressings only--no antiseptics, grease or paste--until medical help arrives.

8. Eye Injuries.

a. General Condition.

- (1) The eye should be protected and kept motionless by the application of a dry sterile dressing.

b. Get Medical Help.

- (1) Send for medical aid as soon as possible.

9. Fractures (real or suspected).

a. Forearm, Wrist, Leg, Foot, and Ankle.

- (1) Before the injured is transported to a doctor or hospital, the men on the job should apply a regular or improvised splint.

b. Thigh or Hip.

- (1) A doctor should be summoned immediately. Until he arrives, the injured should be kept warm and made comfortable. He should not be moved except in instances of extreme weather conditions or danger from other sources. In no case should he be allowed to bear weight on the injured bone.

c. Nervous System Injuries.

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FEB 16 1982

Q.C.O.S.R.

- (1) Head Injuries, Skull Fractures, Fractures of Spine, Severe Back Injuries, or Unconsciousness - A doctor should be summoned immediately. Do not move injured without permission of doctor. Until he arrives, keep injured warm and protected from dampness and extreme weather conditions.
10. Shock is a condition in which the normal physiology of an individual is markedly altered in response to varying types of injury. It is usually manifest by a lowered blood pressure, a rapid and weak pulse, cold and moist skin. It can be produced by hemorrhage, burns, severe injuries and pain. Evaluation of the degree of shock and specific treatment can be determined only by a physician, but the following first aid measures may be taken:
- a. Summon a Doctor or Nurse.
 - b. Keep Warm.
 - (1) Keep the injured person quiet and covered with blankets, coats, or whatever is available. Keep injured comfortably warm. Excessive heat or too much covering will increase condition of shock.
 - c. Keep Injured Still.
 - (1) Keep the patient lying down, preferably flat or with the legs slightly elevated.
 - d. Use Common Medical Practice.
 - (1) Apply principles of care for wounds, burns, and fractures as previously described.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

APPROVED
FEB 16 1982
Q.C.O.S.R.

DECONTAMINATION OF PERSONNEL

QEP 370-2
Revision 1
June 1980

ID/2E

A. PURPOSE

The purpose of this procedure is to describe the method of personnel decontamination.

B. REFERENCES

1. Radiation Management Corp. Plant and Hospital Procedure Manual. Copies are maintained by the Station Superintendent, Rad-Chem Supervisor and located at Station Decontamination Areas.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. Major efforts should be made to prevent body absorption of radioactive materials. The prime barrier minimizing body absorption of radioactive material is the skin.
2. Do not injure the skin.
3. Skin breaks, abrasions, lacerations, etc. should be kept free of radioactive materials. If already contaminated, skin breaks should receive priority in decontamination.
4. Evaluation of the extent and degree of contamination must be done initially and recurrently in order to guide personnel in decontamination procedures. This is even more important where there is a possibility of internal deposition of radionuclides within the body of the patient.

E. LIMITATIONS AND ACTIONS

1. Definition: Decontamination of patients refers to those techniques used to remove radioactive materials from on or in the body of a patient.
2. The level of radioactive contamination that is acceptable on patients is ideally zero and "no radioactivity above background". However, in emergency situations it may be necessary to postpone any or complete decontamination in order to execute operations that are life saving.
3. It may happen that decontamination of skin surfaces will become ineffective at radiation levels two or three times background. In these cases, rather than risk skin injury by continuing active decontamination, wait 24 hours and resurvey. Usually the radiation level will have dropped to background levels.

APPROVED

JUN 1980

000122

4. Adequate records of contamination and decontamination must be kept. All patients who are contaminated should have their urines collected for a number of successive 24 hour periods for determination of internally deposited radioactive nuclides.
5. In decontamination, with the exception of contaminated skin breaks, start to decontaminate the areas where higher levels of contamination are present.
6. Localization of contaminated areas with drapes and tape should be done to prevent spread of radioactive nuclides to "clear" areas or areas of lesser contamination. Cover and protect areas not being immediately decontaminated.
7. Repeatedly check degree of contamination of those reagents and equipment used in decontamination. "Low level" areas cannot be cleaned with contaminated brushes or detergents.

F. PROCEDURE

1. Decontamination Technique: Skin-For Localized Areas of Contamination.

a. Step I Evaluation.

- (1) Obtain contamination levels from Radiation Protection.
- (2) Determine which areas will be decontaminated and in what order giving priority to skin breaks and highest levels of contamination.
- (3) Record survey results.

b. Step II Decontamination: Intact Surface.

- (1) Localize area of contamination with plastic sheet and tape to prevent further contamination of patient.
- (2) Gently wipe off loose contamination with gauze moistened with Phisohex.
- (3) Discard contaminated gauze into waste disposal bag.
- (4) Repeat cleansing using cotton balls or cotton tipped applicators moistened with Phisohex. Rub skin gently to produce good detergent action. Do not produce skin redness.
- (5) Resurvey area and survey Phisohex.
- (6) Repeat cleansing until contamination is removed or until level of contamination does not decrease appreciably.
- (7) In cases where contamination is still present skip to step III.

- (8) Where contamination has been removed apply Nivea cream, cover area, and proceed to next area for decontamination.

NOTE

Surveys between clearings should be done every 2 or 3 minutes and recorded. Never dip cleansing instrument into PhisoHex. Pour the PhisoHex into the gauze or brush.

c. Step III.

- (1) Repeat Step II using another detergent such as Tide, Dreft, Oxydol, etc., and soft skin brush. Do not use soap. Do not use lava soap.
- (2) If contamination is still present, obtain radiation protection supervisory approval and then proceed to Step IV.

d. Step IV.

- (1) Prepare 4% Potassium Permanganate solution.
- (2) Prepare 4% Sodium Bisulfite solution.
- (3) Paint contaminated area with Potassium Permanganate.
- (4) Allow solution to dry on skin.
- (5) Repeat painting procedure until skin is almost black using new applicators each time.
- (6) Rub the darkened skin area with Sodium solution discarding applicators after each use.
- (7) Repeat (6) until skin has just a light brown coloration.
- (8) Remove Sodium Bisulfite with water moistened gauze or cotton.
- (9) Cleanse area with PhisoHex.
- (10) Survey and record contamination level.
- (11) If contamination remains, repeat steps (3) to (10) once more.
- (12) If contamination persists, repeat steps (3) to (10) but substituting Hydrogen Peroxide for PhisoHex in step (9).
- (13) After removal of contamination, apply Nivea-type cream and cover area.

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JUN 19 1960

Q.C.U.S.R.

2. Decontamination Technique: Skin Breaks.

a. Step I.

- (1) Survey skin break using a moistened cotton applicator and record contamination levels.
- (2) Irrigate wound with copious amounts of water making sure no contamination is washed into the wound.
- (3) Carefully decontaminate intact skin surface around wound. (Refer to step F.1, Decontamination Technique: Skin).
- (4) Resurvey wound and record contamination levels.
- (5) Continue irrigation with water and surveys until no radio-activity is detectable.
- (6) Treat wound in usual medical fashion.
- (7) Cover wound and seal with plastic and tape-make sure covering is water proof. Do not flush wound with antiseptics unless this is part of your usual medical treatment. Do not flush wound with chelating agents.
- (8) If wound contamination persists, continue to step II.

b. Step II.

- (1) Be certain irrigation is no longer effective in decontaminating the wound.
- (2) Have the Radiation Chemical Supervisor evaluate the internal body burden from the residual contamination.
- (3) The Radiation Chemical Supervisor in conjunction with a surgeon determines the feasibility and necessity of removing contaminated tissue.
- (4) If surgery is decided upon, the area around the wound is decontaminated completely.
- (5) If possible, a "block dissection" of the wound is done.
- (6) All tissue removed is surveyed.
- (7) The wound is closed and covered.

NOTE

At times it has been necessary to close the contaminated wound and return at a later date for excision.

3. Decontamination Technique: General Body.

a. Step I.

- (1) Survey entire body and record contamination levels.
- (2) Delineate higher contamination levels.
 - (a) Mark with lipstick or tape all high level areas to receive decontamination priority.
 - (b) Attempt to reduce higher levels before showering.
- (3) Contaminated persons should shower using PhisoHex.
 - (a) Make every reasonable effort not to contaminate hairy areas if free of radioactivity initially.
 - (b) Use precautions to prevent contamination from entering body openings.
- (4) Survey entire body again marking highest levels found.
- (5) Repeat (1), (2), (3), and (4).
- (6) Repeat (5) until contamination is removed or continue to step II.

b. Step II.

- (1) When showering becomes ineffective and localized areas of contamination remain, shift to localized skin decontamination technique.
- (2) Repeat surveys and record results frequently.

4. Decontamination Technique: Eyes.

a. Step I.

- (1) Irrigate with copious amounts of water. Shift to normal saline as soon as possible.
- (2) Survey irrigation fluid at frequent intervals and record results.
- (3) After decontamination treat irrigation induced conjunctivitis as usual.

5. Decontamination Technique: Body entrance cavities.

a. Step I.

APPROVED
JUN 10 1960
Q.C.O.S.R.

- (1) Survey and record results.
- (2) Make sure that cavity is really contaminated and not the surrounding area.
- (3) Evaluate and decontaminate the surrounding area.
- (4) Irrigate with copious amounts of water or normal saline.
- (5) Gently swab with moistened cotton tipped applicator.
- (6) Resurvey and record contamination levels.
- (7) Repeat steps (4) through (6).
- (8) If necessary and not irritating, use cotton tipped applicator moistened with Phisohex.
- (9) Do not injure or break mucosa.

6. Decontamination Technique: Hair Areas.

a. Step I.

- (1) Survey and record contamination levels.
- (2) Wrap or position patient to avoid spread of contamination.
- (3) Wash with Phisohex.
- (4) Dry with clean uncontaminated towel. DO NOT SHAVE HAIR. If necessary, hair may be cut, but do not injure skin.
- (5) Resurvey and record results.
- (6) Repeat steps (2) to (5) until decontaminated.

b. Step II.

- (1) Repeat Step I using another detergent such as Tide, Dreft, etc.

c. Step III.

- (1) Obtain Radiation Protection supervisory approval and repeat step I using dilute Hydrochloric Acid.

7. Waste Disposal.

- a. Contaminated water will be flushed into a hold-up tank.
- b. Contaminated disposable supplies will be put into plastic bags for disposition.

- c. Contaminated equipment will remain in the controlled area until decontaminated.

3. Personnel Disposition.

- a. All persons entering the controlled area will be dressed and equipped as required by Radiation Protection.

G. CHECKLISTS

- 1. None.

H. TECHNICAL SPECIFICATION REFERENCES

- 1. None.

ID/3E,3F

CONTROL ROOM

410-0
Control Room

Rev. 1 02-19-81

410-1
Control Room

Rev. 1 02-19-81

QEP 410-0
FEB 19 1981

CONTROL ROOM

QEP 410-1
Revision 1
February 1981

ID/3S

A. PURPOSE

The purpose of this procedure is to outline the method to govern operation of the control room during emergencies.

B. REFERENCES

1. GSEP Section 7.1.1.
2. GSEP-QCA Section 7.1.1.
3. QAP 1900-3, Control Room Access section.
4. QAP 1300-2, Standing Orders 30, 31, and 32.
5. QOA 5750-13, Toxic Air or Smoke in the Control Room.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. The Control Room is the initial center for emergency control. The initial aspects of an emergency are evaluated and controlled. Activities are initiated that are necessary to handle the initial phases of the emergency until the TSC and OSC are activated. These activities include:
 - a. Evaluation of the magnitude and consequences of an accident.
 - b. Initial corrective action.
 - c. Initial notification of offsite agencies in the event of a General Emergency.
2. Procedure QAP 1900-3 outlines the access to the control room.
3. QAP 1300-2, Standing Orders 30, 31, and 32 give information regarding command and control functions from the Control Room.

APPROVED
FEB 1 1981
QEP 410-1

4. Procedure QOA 5750-13 outlines the actions to be taken in the event of toxic air or smoke in the Control Room.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

QEP 420-0
Revision 5
March 1983

ID/1W, 1X

ONSITE TECHNICAL
SUPPORT CENTER

420-0

Onsite Technical Support Center

Rev. 5

03-31-83

420-1

Onsite Technical Support Center

Rev. 5

03-31-83

APPROVED

MAR 31 1983

Q.C.O.S.R.

ON-SITE TECHNICAL SUPPORT CENTER

QEP 420-1
Revision 5
March 1983

ID/1K

A. PURPOSE

The purpose of this procedure is to outline the method to activate and utilize the On-Site Technical Support Center during emergencies.

B. REFERENCES

1. GSEP Section 7.1.2. and GSEP-QCA Section 7.1.
2. NUREG 0578.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. The Control Room is the primary on-site location from which initial actions are taken to identify, assess, and cope with an emergency. Once an emergency has been declared, the On-Site Technical Support Center may be activated as necessary to support the Control Room.
2. The TSC may be activated for any emergency as necessary, but must be activated for a GSEP Alert, site emergency, and general emergency.
3. The TSC is maintained for use by plant administration, technical staff, and engineering support personnel during emergencies.
4. The TSC is utilized for assessment of plant status and potential off-site impact in support of the Control Room command and control function, and for implementation of on-site and off-site emergency actions.
5. The TSC is located in the Southeast corner of the protected area (old guardhouse).

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6. Plant drawings, design information, procedures, etc. are readily available in the TSC.
 - a. In accordance with NUREG-0696, the following documents are located in the TSC:
 - (1) Technical Specifications
 - (2) Complete set of Station Procedures
 - (3) Original and Updated FSAR
 - (4) Iowa and Illinois Emergency Plans
 - (5) Current year NRC Monthly Operations Reports (plant operating records)
 - (6) Current year On-Site Review Reports
 - (7) As built M, B, and 4E drawings (a drawing index microfiche is located in the clerk's desk)
 - b. A SYFA terminal is located in the TSC that may be utilized to retrieve exposure records and environs data.
7. Adequate staffing and access control of the TSC will be as directed by the Station Director. The Station Director will direct those necessary technical and management personnel to man the TSC depending on the nature and extent of the emergency. He will assure adequate technical expertise is available in the TSC to provide the necessary technical support. The Technical Director would normally report to the TSC, and would assist the Station Director in directing the manning and access control of the TSC. The Thermal Engineer and Lead Nuclear Engineer would also report to the TSC, if available. Off-Site and NRC personnel may be directed to report to the TSC as required.
8. Dedicated communications exist to the Control Room, the NRC, the EOF, the OSC, and the CEC Co GSEP Command Center in Chicago, and to state and local authorities (via the NARS phone).
9. Portable direct and airborne radiation monitors are available in the TSC. If the TSC becomes airborne, or if the radiation level in the TSC becomes excessive in the judgement of the Station Director or Environs Director, the accident assessment function of the TSC will be performed from the Control Room. Air packs or masks from the respiratory equipment issue room should be utilized as conditions dictate.
10. If the TSC is relocated to the Control Room, only a limited number of persons should relocate, due to the need to control access to the Control Room. Including the Station Director and Technical Director, this number should not exceed ten.
11. Upon activation of the TSC, turn on the Eberline PING-2 monitor located in the HVAC room.

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12. Activate emergency mode of HVAC.
 - a. Activate handswitch HS-2 on control panel.
 - b. Activate handswitch HS-3 to stop outside air to AHU.
13. If it is determined that the TSC must be isolated from the environment, activate the recirculation mode of operation.
 - a. Activate handswitches HS-2 and HS-4.
14. The charcoal adsorber is protected by a local alarm heat sensor and a manually activated deluge system.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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Q.C.O.S.R.

QEP 430-0
Revision 4
March 1983

ID/2Y,2Z

ON-SITE OPERATIONAL
SUPPORT CENTER

430-0

On-Site Operational Support Center

Rev. 4

03-31-83

430-1

On-Site Operational Support Center

Rev. 4

03-31-83

APPROVED
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Q.C.O.S.R.

ON-SITE OPERATIONAL SUPPORT CENTER

QEP 430-1
Revision 4
March 1983

ID/3Q

A. PURPOSE

The purpose of this procedure is to outline the method to activate and utilize the On-Site Operational Support Center during emergencies.

B. REFERENCES

1. GSEP Section 7.1.3 and GSEP-QCA Section 7.1.
2. NUREG 0578.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. The Control Room is the primary on-site location from which initial actions are taken to identify, assess, and cope with an emergency. Once an emergency has been declared, the On-Site Operational Support Center may be activated as necessary to support the Control Room.
2. The OSC may be activated for any emergency as necessary, but must be activated for a GSEP alert, site emergency, and general emergency.
3. The OSC at Quad-Cities Station is the meeting room adjacent to the TSC.
4. Operations support personnel report to the OSC during an emergency, from where they are dispatched for assignments or duties in support of emergency operations.
5. Dedicated communications exist between the OSC, the Control Room and to the TSC.
6. The Operations Director or his designee (Operating Engineer) will assume command of the OSC when activated. Operations personnel will man the OSC to the extent necessary, depending on the nature and scope of the emergency. Rad-Chem technicians will also report to the OSC.

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7. The OSC should remain in close communication with the Control Room, such that actions taken are coordinated and carried out properly.
8. The OSC supervisor should coordinate the dispatching of operators and should serve as the primary communicator in the OSC as his prime functions. It is his function to assure that the necessary manpower is assembled at the OSC and accounted for. He should also make use of the status board to inform all OSC personnel of the status of the emergency.
9. If the OSC becomes uninhabitable, the Operations Director or his designee will designate and activate an alternate OSC. The choice will be based on habitability and space consideration. Areas to be considered, but not limited to, are the shop area, service building meeting room, lunch room, lift station, crib house, boiler house, and filter building.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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ID/2U,2V

COMMUNICATIONS SYSTEMS

440-0

Communications Systems

Rev. 9

01-19-83

440-1

Emergency Communication Facilities

Rev. 9

01-19-83

APPROVED
JAN 19 1983
C.G.C.B.

EMERGENCY COMMUNICATION FACILITIES

QEP 440-1
Revision 9
January 1983

ID/2N

A. PURPOSE

The purpose of this procedure is to describe the use of the emergency communication systems.

B. REFERENCES

1. 10 CFR 50.72.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. Nuclear Regulatory Commission Emergency Notification System - red phone.
 - a. Provides a dedicated telephone circuit between the station and NRC Operations Center, Bethesda, Maryland.
 - b. Telephones are located in the Control Room, Shift Engineer's Office, the Technical Support Center, the Emergency Operations Facility, and the onsite NRC office.
 - c. The phone is activated by lifting the handset from the cradle.
 - d. This phone will be used to provide notification of significant events per 10 CFR 50.72.
 - e. If the ENS phone is not operational, contact the NRC Operations Center by alternate means using the following:

TELEPHONE SYSTEM

TELEPHONE NUMBER

- | | |
|---|--------------------------------------|
| (1) Commercial Telephone System
to NRC Operations Center
(via Bethesda Central Office) | 202/951-0530 |
| (2) Commercial Telephone System
to NRC Operations Center
(via Silver Spring Central Office) | 301/427-4056 |
| (3) Health Physics Network to
NRC Operations Center | *22 (Touch-Tone)
22 (Rotary Dial) |
| (4) Commercial Telephone System
to NRC Operator
(via Bethesda Central Office) | 301/492-7000 |

2. Nuclear Regulatory Commission Health Physics Network - beige phone.

- a. Provides a dedicated telephone network with dialing capabilities for the transmission of primarily health physics information.
- b. Telephones are located in the Rad/Chem Supervisor's office, the Emergency Operations Facility, the Technical Support Center, and the onsite NRC office.
- c. The phone is activated by lifting the handset and dialing either 22 to reach NRC headquarters in Bethesda, Maryland, or 23 to reach Region III headquarters in Glen Ellyn, Illinois.
- d. This phone will normally be activated by NRC personnel.

3. State of Illinois Nuclear Accident Reporting System (NARS) - green phone.

- a. Provides a dedicated telephone network with dialing capabilities for communication to local and state agencies.
- b. Telephones are located in the Control Room, Technical Support Center and the Emergency Operations Facility.
- c. This phone is activated by lifting the handset and dialing the appropriate code.

- (1) Dial 23
State Emergency Services and Disaster Agency (SESDA).
Illinois Department of Nuclear Safety (DNS)
Rock Island Communications
Rock Island County ESDA
Commonwealth Edison Command Center.
System Power Supply Office (SPSO).
Scott County Sheriff.
Technical Support Center (TSC).
Emergency Operation Facility (EOF).
Clinton County Emergency Operations Center (EOC)
Iowa Emergency Operations Center - Des Moines
Whiteside County EOC
Whiteside County Sheriff
- (2) Dial 20
State Emergency Services and Disaster Agency (SESDA).
Illinois Department of Nuclear Safety (DNS)
- (3) Dial 27
Technical Support Center (TSC).
Control Room.
Emergency Operations Facility (EOF).
- (4) Dial 32
State Emergency Services and Disaster Agency (SESDA).

4. Commonwealth Edison Company Command Center - yellow phone.

- a. Provides a dedicated telephone circuit between the station and the Corporate Command Center, 1230 Edison Bldg.
- b. Telephones are located in the Technical Support Center and the Emergency Operation Facility.
- c. The phone is activated by lifting the handset from the cradle.
- d. This phone will be used to maintain open communications between the station and the Corporate Command Center.

5. Control Room to Technical Support Center - brown phone.

- a. Provides a dedicated telephone circuit between the control room and the Technical Support Center. The Technical Support Center is to provide a location for plant management, technical and engineering support personnel to support the control room command and control function of assessing plant status and potential offsite impact.
- b. Telephones are located in the Control Room and the Technical Support Center.
- c. The phone is activated by lifting the handset from the cradle.
- d. This phone will be used to maintain open communications between the control room and the Technical Support Center.

6. Control Room to Onsite Operational Support Center - brown phone.
 - a. Provides a dedicated telephone circuit between the Control Room and the Onsite Operational Support Center. The Onsite Operational Support Center is the location to which all in-plant personnel will report during an emergency and from which they will be dispatched for assignments.
 - b. Telephones are located in the Control Room and the Onsite Operational Support Center (meeting room adjacent to TSC).
 - c. The phone is activated by lifting the handset from the cradle.
 - d. This phone will be used to maintain open communications between the Control Room and the Onsite Operational Support Center.
7. Radio Communications Microwave Link (GSEP radio).
 - a. Provides a dedicated microwave radio link between the Commonwealth Edison Company Command Center and the Technical Support Center, the Control Room and the Emergency Operations Facility.
 - b. Provides a private line or scrambled mode radio frequency link to various mobile units from any of the locations listed in paragraph F.7.a.
 - c. The three onsite remote stations can communicate by lifting the handset from the cradle and depressing the INTERCOM BUTTON. In the intercom mode, no transmission occurs on the radio frequency. Two way communications can also occur between the Edison Command Center using the intercom mode without radio transmission occurring.
 - d. Communication to mobile units is by radio transmission. Radio transmission has three modes.
 - (1) Private Line (PL), Disabled, Scramble Off.
 - (a) Initiate private line disable by momentarily depressing the "PL MONITOR" button. This allows any receiver or transmitter on a frequency of 153.59 MHz to have two-way communications with the GSEP radio system.
 - (2) Private Line Enabled, Scramble Off.
 - (a) Initiate private line by momentarily depressing the "PL RESET" button. This allows only radios with the same private line code to communicate with the GSEP base radio.
 - (3) Scramble Mode.

- (a) Initiate the scramble mode by depressing the SCRAMBLE button and verify the SCRAMBLE ON indicator lights. This allows only mobile units with the same scramble mode code to communicate with the GSEP base. This mode eliminates the possibility of being intercepted.
 - (b) To release the SCRAMBLE MODE, depress the SCRAMBLE button and verify the SCRAMBLE OFF indicator lights.
 - (4) The radio transmission modes are activated by lifting the handset from the cradle and by using the push to talk button in the handset.
 - (5) When the handset is in the cradle, the remote station is automatically placed in the monitor mode.
8. Party line - blue phone.
- a. Provides an additional conference phone for Health Physics, Environmental, and Tech Staff usage.
 - b. Consists of three separate independent circuits on the MW system:
 - (1) Health Physics
 - (2) Environmental
 - (3) Tech Staff
 - c. Each circuit has phones located at the Technical Support Center, the Emergency Offsite Facility, and the respective service building offices.
 - d. Each circuit listed in step 8.b.(1), (2), and (3) is linked to the same circuit at the other Nuclear Stations, Emergency Offsite Facilities, Technical Support Centers, and the Corporate Command Center.
 - e. The individual circuits cannot be cross-linked.
 - (1) I.E., Health Physics cannot set up a conference call with the Environmental Group.
- Party line codes are listed in EOF-15, Attachment A for ringing individual phones.
9. GSEP Voice-Direct Dispatch - grey phone.
- a. Provides for a conference phone between control room, Shift Engineer, Technical Support Center, Emergency Offsite Facility, and the Corporate Command Center.

- b. Consists of one separate circuit for each station on MW system.
 - c. The phone is actuated by lifting the handset.
 - (1) When a phone activates the circuit, it will ring at the Corporate Command Center only.
 - (2) The Corporate Command Center has the capability of ringing individual phones on the circuit.
10. In addition to the system described above, QCNPS has other reliable intraplant and plant-to-offsite communications, including a public address system, a commercial phone system, security/operations radio consoles and handi-talkies, system power dispatcher microwave communications, sound-powered phones, a paging system, and vehicle radios.
- a. Public address system.

The public address system integrates a system of speakers, handset paging units, and telephones located throughout the plant. Paging can be initiated from any single handset unit, any telephone, or from microphones within the control room.
 - b. Commercial phone system.

The commercial telephone system consists of local telephone company PBX equipment and telephone stations located throughout the plant and the main control room.
 - c. Security/operations radio consoles and handi-talkies.

The intraplant radio system provides radio communications from a control point (base station) to various "Handie-Talkie" units through the plant, and it also provides direct radio communications from "Handie-Talkie" to "Handie-Talkie" via a repeater system. It is an independent subsystem of the plant communications system. The intraplant radio system includes the security network also. The station is also equipped with several page units that are set up to be activated through the operations radio frequency.
 - d. System power dispatcher microwave communications.

The microwave system consists of solid-state, battery-powered equipment designed and engineered primarily for the protective relaying of the transmission system. However, a voice channel is provided which serves as an additional offsite communication medium. The tones received via this channel have volume, fidelity, and freedom from extraneous noises comparable with the quality normally obtained on a commercial telephone.

e. Sound powered phone.

Sound-powered telephones are used in special areas where instrumentation racks and controls are installed. Jacks for sound-powered telephones are installed at local instrument racks and panels, and in the station control rooms. This type of communication is an aid to the instrument mechanics when testing and adjusting instrumentation and controls, and it can also be used for emergency communications.

f. Paging system.

The system is described under security/operations radio consoles and handi-talkies, section F.10.c.

g. Vehicle radios.

The station has a vehicle equipped with a radio for two-way communications with the control room on either the GSEP or operations radio frequencies.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

ASSESSMENT FACILITIES

ID/1Y,1Z

450-0

Assessment Facilities

Rev. 1

06-20-80

450-1

Environmental Surveillance Stations

Rev. 1

06-20-80

450-T1

Quad-Cities Station Environs
Monitoring Routes

Rev. 1

06-20-80

ENVIRONMENTAL SURVEILLANCE STATIONS

QEP 450-1
Revision 1
June 1980

ID/10

A. PURPOSE

The purpose of this procedure is to outline the directions to the environmental stations.

B. REFERENCES

1. QEP 450-T1, Quad-Cities Station Environs Monitoring Routes.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. These directions are explicit in making a complete survey of all air sampling stations in a continuous near counterclockwise circuit covering a total distance of 147 miles.
2. In case of an emergency, more than one monitoring team may be used, in which case assigned stations will be given to each team.
3. It may be found unnecessary to cover all stations on a survey as wind direction may be steady and spreading contamination over a restricted area only.

F. PROCEDURE

1. Nitrin (NI) from Quad-Cities. 2.1 miles
 - a. Leave Quad-Cities traveling east until Illinois 84, turn left (north) and continue until intersection of 222 Avenue North. The monitoring station is located on the northwest corner of the intersection.
2. Sikkema Farm (SF) from Nitrin 8.3 miles
 - a. Continue northeast on Illinois 84 to Albany, Illinois, turn right at sign "To Erie" (Park Ave., 4.6 miles from NI), go one block, turn left, go approx. 50' and turn right (State St.). Continue on the road 4.0 miles to Willis Sikkema farm which is on the left side of the road. The monitoring station is near the driveway.

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3. Clinton (CL) from Sikkema Farm 13.2 miles
 - a. Go back to same road to Illinois 34 and turn right and continue north to U.S. 30 and turn left. Take U. S. 30 west across the Mississippi River and turn left on to U. S. 67, 12.0 miles from SF, in Clinton, Iowa. Continue southwest on U. S. 67 (Camanche Ave.) about 1.2 miles to 18th Place (a substation will be on the left side of U. S. 67). To get into the Northwestern Railroad Car Shop Yard and to the substation, go one block down 18th Place and turn into the yard to get to the monitoring station.
4. Hanson's Landing (HL) from Clinton 11.0 miles
 - a. Continue southwest on U. S. 67 (U. S. 30 continues west and U. S. 67 turns south just outside of Clinton) and turn left at Hanson's Boat Docks sign (there is a gravel company at the same intersection) 9.9 miles from CL and take the winding road down to the boat docks.
5. Low Moor (LM) from Hanson's Landing 5.6 miles
 - a. Continue southwest on U. S. 67 until the Low Moor cutoff 2.9 miles from HL where U. S. 67 curves to the left and the cutoff goes straight then right (north). Continue north into Low Moor and turn left in town towards the water tower. The monitoring station is on the west side of the water tower.
6. DeWitt (DW) from Low Moor 12.2 miles
 - a. Go north from Low Moor on Iowa 291 (it starts in Low Moor) to U.S. 30 and turn left (west). Take the U.S. 61 exit to Davenport. At the off ramp stop sign bear to the right, head north on U.S. 61. Just before the railroad tracks turn left on Lake Street and then turn into the DeWitt Diesel Generating Station. The monitoring station is near the substation.
7. Utica Ridge (UR) from DeWitt 6.9 miles
 - a. From the DeWitt Station turn right to U. S. 61 and continue south for 6.5 miles and turn left (it's about 1 mile after the McCausland cutoff). From U. S. 61 it is 0.4 miles to the Ben Strohhenn residence (on the right) where the monitoring station is on the east side of the old blacksmith shop.
8. Bettendorf (BE) from Utica Ridge 17.6 miles
 - a. Return to U. S. 61 from the Strohhenn residence and turn left (south) on U. S. 61 and continue to U. S. 26 intersection (12.3 miles) and turn left on U. S. 6, Kimberly Road. After 3.3 miles on U. S. 6, turn left at Lincoln Road just before the highway goes down a long hill, and take Lincoln Road to 14th Street (stop sign), where you turn right. Continue south on 14th Street until Central Avenue (a stop sign) and turn left and go three blocks to the substation at 17th Street and Central Avenue.

9. Princeton (PR) from Bettendorf 19.2 miles
- a. From the substation at 17th and Central, go one block to 18th Street and turn right (south) and go down to U. S. 67 (State Street) and turn left. Follow U. S. 67 northeast and north to Princeton and turn left at Lost Grove Road (there is a Standard Oil Station on the corner and it is 17.4 miles from Bettendorf monitoring station). Continue on this road for 1.8 miles to the substation on the left side of the road.
10. Port Byron (PB) from Princeton 17.3 miles
- a. Return on the same road to U. S. 67 and turn right (south) and go to the Interstate 80 Bridge and cross the Mississippi River into Illinois. At the end of the bridge, circle to the right and take Illinois 84 to the right (north). In Port Byron turn right on the road to Hillsdale (Agnes St.) and go 2.2 miles to the Clyde Unger farm, which is just past the Byron Hills subdivision. The monitoring station is on the right, and is under the transmission line along the fence row.
11. Hillsdale (HI) from Port Byron 6.4 miles
- a. Continue east on the same road from Port Byron, cross Illinois 2 and continue on Main Street in Hillsdale to the substation on the right side of the road, across from the school.
12. Erie (ER) from Hillsdale 7.1 miles
- a. Continue east on Main Street in Hillsdale and turn left on Butzer Street and then right (northeast) after one block onto Ill. 2. In Erie turn left on the Albany Road (6.4 miles from the Hillsdale Station) and continue northwest for 0.7 miles to the Melvin Meyer farm. Monitoring station is on the left side of the road a block before the driveway.
13. Saddle Club (SC) from Erie 15.3 miles
- a. From the Melvin Meyer farm return to Illinois 2, turn right and go three blocks then turn right on the road to Cordova. At Illinois 34 (Phillips 66 station across highway) 14.2 miles from M. Meyer farm, turn right (north) and continue for 1.6 miles on Illinois 34 to the Saddle Club sign on the right side of the road. The monitoring station is next to the sign.
14. Quad-Cities from Saddle Club 3.1 miles
- a. Continue north on Illinois 84 to the plant road and turn left (west) and continue to the station.

G. CHECKLISTS

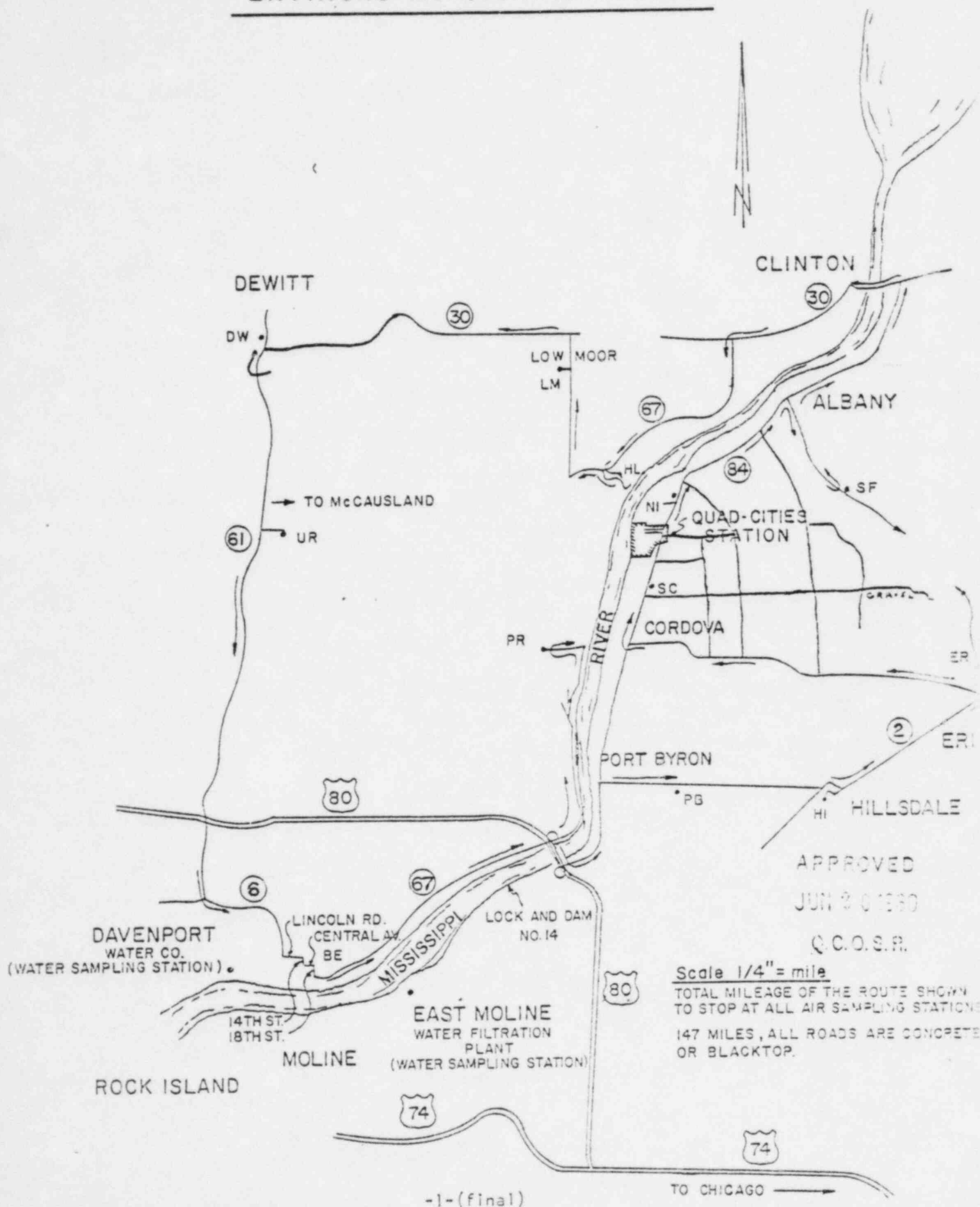
1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

QUAD-CITIES STATION ENVIRONS MONITORING ROUTES

QEP 450 -T1
Revision 1
June 1980



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JUN 20 1980

Q.C.O.S.R.

Scale 1/4" = 1 mile

TOTAL MILEAGE OF THE ROUTE SHOWN
TO STOP AT ALL AIR SAMPLING STATIONS
147 MILES, ALL ROADS ARE CONCRETE
OR BLACKTOP.

ID/3G,3H

EMERGENCY OPERATIONS FACILITY

460-0

Emergency Operations Facility

Rev. 4

03-31-83

460-1

Emergency Operations Facility Set-Up

Rev. 4

03-31-83

460-T1

Procedure Deleted

Rev. 2

12-15-82

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MAR 31 1983
Q.C.O.S.H.

EMERGENCY OPERATIONS
FACILITY SET-UP

QEP 460-1
Revision 4
March 1983

ID/4X

A. PURPOSE

The purpose of this procedure is to aid the environs staff personnel in setting up the Emergency Operations Facility for initial use during an emergency.

B. REFERENCES

1. QEP 550-T4, Emergency Operations Facility Supplies.
2. QEP 440-1, Emergency Communications Facilities.

C. PREREQUISITES

1. The Emergency Operations Facility will be initiated when deemed necessary by the Station Director.
2. Upon the decision to initiate the EOF, the Environs Director will instruct the Environs Staff to set up the EOF to accomodate the Environs Staff's needs. The Environs Staff will immediately relocate to the EOF.
3. The Environs Director will instruct the Environs Field Teams to gather the appropriate supplies for Field Team duties, relocate as directed, and await further instructions.

D. PRECAUTIONS

1. This procedure is meant as a guide to the Environs Staff and may be deviated from upon approval of the Environs Director or the Rad-Chem Director.
2. A key for the EOF may be obtained from the Shift Engineer.

E. LIMITATIONS AND ACTIONS

1. None.

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Q.C.O.S.R.

F. PROCEDURE

1. Upon relocation to the EOF, communications with the TSC should be verified using the yellow phone. A regular telephone may be used, if the yellow phone is not functioning.
2. After verifying communications with the TSC, set up the GSEP radio by connecting it with the appropriate phone jack and plugging it into an outlet. Verify that the radio is in the "SCRAMBLE" mode, and test communications by contacting the TSC. At this time, the Environs Director may relocate to the EOF.
3. Upon arrival of the Environs Teams at the EOF, test communications with their portable radios in the "SCRAMBLE" mode. Notify the TSC that the Environs Teams are ready to be dispatched.
4. Instruct one of the field teams to travel toward Iowa on a route dictated by the wind direction.
5. Tape one film dosimeter and one zeroed pencil dosimeter outside the EOF, above the main doors. Verify presence of sampling supplies and dosimetry as described in QEP 550-T4.
6. Conduct periodic dose rate and contamination surveys in the EOF and immediately surrounding area as deemed necessary by the Environs Director.
7. Assist the Environs Director as necessary.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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Q.C.O.S.R.

ID/2A,2B

ADMINISTRATIVE

510-0

Administrative

Rev. 5 03-07-83

510-1

Document Control and Review

Rev. 2 01-26-81

510-2

Off-Site Agency Support

Rev. 1 12-17-80

510-T1

Agencies to be Sent Agreement Letters

Rev. 3 03-07-83

510-T2

Suggested Text for Off-Site
Agency Agreement Letters

Rev. 1 12-17-80

APPROVED

MAR 07 1983

Q.C.O.S.R.

DOCUMENT CONTROL AND REVIEW

QEP 510-1
Revision 2
January 1981

ID/2F

A. PURPOSE

The purpose of this procedure is to ensure that the emergency plan implementing procedures are kept updated and the updated copies are maintained by required personnel.

B. REFERENCES

1. GSEP, Section 8.5.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. Implementing procedures are reviewed annually in accordance with GSEP. Procedure changes are reviewed and approved in accordance with GSEP Section 8.5.
2. Review reports are forwarded to the Division Vice-President Nuclear Stations.
3. QEP procedures are distributed in accordance with the following:
 - a. Procedures concerning a particular director function are distributed to that director with complete copies of station QEP procedures.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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JAN 28 1981

OFF-SITE AGENCY SUPPORT

QEP 510-2
Revision 1
December 1980

ID/3M

A. PURPOSE

The purpose of this procedure is to verify that the assistance of off-site agencies is available in the event of an emergency.

B. REFERENCES

1. GSEP, Section 8.1.3.(3).
2. 10CFR50.
3. Quad-Cities Annex, Section 4.2.
4. QEP 510-T1.
5. QEP 510-T2.

C. PREREQUISITES

1. Prior to sending letters to the agencies listed herein, the correct name of the representative from each group to whom the letter will be sent should be checked. This is especially important in cases when terms of office are involved.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. Letters requesting written confirmation of the availability of assistance from each supporting organization listed below shall be sent to each organization at least every two years. Two copies of the letter shall be sent to each organization; one for its files and one to be sent back to the Quad-Cities Station for its records.
2. Those organizations which shall be sent agreement letters are listed in QEP 510-T1.
3. A suggested text for the letter is given in QEP 510-T2.
4. Letters returned by the agencies shall be filed in the GSEP file at the Quad-Cities Station.

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DEC 17 1980

D. O. S. R.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

APPROVED

DEC 17 1980

D. O. S. R.

QEP 510-T1
Revision 3
February 1983

AGENCIES TO BE SENT
AGREEMENT LETTERS

ID/3I

Dr. Phillip Gustafson
Illinois Department of Nuclear Safety
1035 Outer Park Drive
Springfield, IL 62706
217-546-8100

Mr. Robert H. Bauer
United States Department of Energy
Chicago Operations Office
9800 South Cass Avenue
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312-972-2000

Captain Jack Keleher
District #7 - Commander
Illinois State Police
1510 - 46th Avenue
Rock Island, IL 61201
309-755-0428

Mr. Terry Steiger
Emergency Operations Manager
U.S. Army Corps of Engineers
Rock Island District
Clock Tower Building
Rock Island, IL 61201
309-788-6361

Mr. E. Erie Jones
Director
State of Illinois Emergency Services
and Disaster Agency
110 East Adams Street
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217-782-4268

Chief Leroy Schipper
Albany Fire Department
Albany, IL 61230
309-887-4451

Mr. John C. Stiegel
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City of East Moline
915 Sixteenth Street
East Moline, IL 61244
309-755-5051

Mr. Mark E. Barnes, Director
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Defense and Disaster Services
Clinton County City Law Enforcement
Center
Clinton, IA 52732
319-242-5712

Mr. H. L. Whitfield, Director
Scott County - Municipal Civil
Defense and Disaster Services
Agency
Scott County Court House
Davenport, IA 52801
319-326-8663

Mr. L. L. Kimmel
Whiteside County Sheriff
Law Enforcement Center
Morrison, IL 61270
815-772-4044

Lieutenant Harry Weiss
Iowa State Patrol Post #12
3112 East Kimberly Road
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319-359-0388

Mr. Gordy Powell
Rock Island County Sheriff
P.O. Box 306
Rock Island, IL 61201
309-794-1230

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MAR 07 1983
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Mr. Tyler Schoenhern
Moline Public Hospital
635 Tenth Avenue
Moline, IL 61265

Mr. Harlan Poel
Fire Chief
P.O. Box 6
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309-654-2194

Mr. Leon Gibson
Dailey/Gibson Funeral Home
202 North Main Street
Port Byron, IL 61275
309-523-3151

Mr. Karl H. Schafer
Iowa-Illinois Gas and Electric
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Mr. John D. Crandall, Director
Iowa Office of Disaster Services
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515-281-3231

Mr. Thomas Linneman
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3508 Market Street
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215-243-2948

Mr. John Murray
Murray and Trettal
414 West Frontage Road
Northfield, IL 60093
312-273-5600

Mr. Leo Huebner
Hazelton Environmental Sciences
1500 Frontage Road
Northbrook, IL 60062
312-564-0700

Ms. Jeanine Mac Donald
R.S. Landauer, Jr. and Company
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Mr. Gary E. Larson
Illini Hospital Ambulance Service
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Silvis, IL 61282
309-792-9363

Commanding Officer
U.S. Coast Guard Marine Safety Office
Minneapolis / St. Paul
P.O. Box 3574
St. Paul, Minnesota 55165
612-725-7452

APPROVED
MAR 07 1993
D.C.O.S.R.

SUGGESTED TEXT FOR OFFSITE
AGENCY AGREEMENT LETTERS

QEP 510-T2
Revision 1
December 1980

ID/3N

Dear (REPRESENTATIVE):

In order to comply with Appendix E of 10CFR20, Part 50, concerning Emergency Plans for production and utilization facilities, a written agreement of arrangements is required with those outside agencies with responsibility for coping with emergencies.

This letter is to request the assistance of your organization in the event of an emergency as set forth in the Commonwealth Edison Generating Station Emergency Plan. Please sign and return the extra copy of this letter for our files.

Sincerely,

N.J. Kalivianakis
Station Superintendent

Agreed to by: _____

Date: _____

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DEC 17 1980
JOSR

ID/2C,2D

TRAINING

<u>520-0</u> Training	Rev. 7	03-07-83
<u>520-1</u> Training Procedure	Rev. 3	08-19-82
<u>520-2</u> Training for Off-Site Support Agencies	Rev. 2	08-10-81
<u>520-S1</u> Procedure Deleted	Rev. 2	08-19-82
<u>520-T1</u> Agencies to be Sent Training Invitations	Rev. 3	03-07-83
<u>520-T2</u> Suggested Text for Off-Site Agency Meeting and Training Invitation Letter	Rev. 1	12-17-80
<u>520-T3</u> Suggested Text for Off-Site Agency Meeting Invitation Letter	Rev. 1	12-17-80
<u>520-T4</u> Suggested Text for Off-Site Agency Training Invitation Letter	Rev. 1	12-17-80
<u>520-T5</u> QEP Training Requirements for GSEP Directors and Alternates	Rev. 1	08-19-82

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TRAINING PROCEDURE

QEP 520-1
Revision 3
August 1982

ID/2G

A. PURPOSE

The purpose of this procedure is to ensure plant personnel, especially station directors, are familiar with the emergency plan and procedures.

B. REFERENCES

1. GSEP, Section 8.2.
2. QAP 700-1, Station Training Program.
3. QEP 520-T5, QEP Training Requirements for GSEP Directors and Alternates.

C. PREREQUISITES:

1. None.

D. PRECAUTIONS:

1. None.

E. LIMITATIONS AND ACTIONS:

1. None.

F. PROCEDURE

1. Station directors and alternates will receive retraining by participation in drills and exercises and through annual retraining. In addition, directors review applicable implementing procedures annually. This is accomplished by the directors as On-Site Review participants.
2. Station personnel not assigned GSEP position receive a review of GSEP during annual retraining.
3. Initial and annual retraining of GSEP Directors and their Alternates will consist of the following:
 - a. A training session on the generic and site specific portions of the GSEP manual.
 - b. QEP training as assigned by QEP 520-T5.
4. All training must be properly documented using standard company forms 86-2102 and 86-2104.

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G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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AUG 19 1982
Q.C.O.S.R.

TRAINING FOR OFF-SITE
SUPPORT AGENCIES

QEP 520-2
Revision 2
July 1981

ID/3G

A. PURPOSE

The purpose of this procedure is to provide each off-site support agency with an opportunity to be trained in the Quad-Cities Emergency Plan and provide radiological training or retraining to members of these organizations, therefore better preparing these organizations to assist in the event of an emergency.

B. REFERENCES

1. GSEP, Section 8.1.3.
2. GSEP, Section 8.2.
3. QEP 520-T1.
4. QEP 520-T2.
5. QEP 520-T3.
6. QEP 520-T4.

C. PREREQUISITES

1. Prior to sending letters to the agencies listed herein, the correct name of the representative from each group to whom the letter will be sent should be checked. This is especially important in cases when terms of office are involved.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. An annual written invitation for members of the organizations in QEP 510-T1 and QEP 520-T1 to visit the station, discuss the emergency plan and familiarize themselves with the plant facilities shall be sent by the Station Superintendent.
2. In addition, the Station Superintendent shall send a written offer to these organizations to provide radiological training or re-training to members of these organizations with respect to their role in the emergency plan.

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3. The letters in F.1. and F.2 may be incorporated in a single written invitation as in QEP 520-T2, or in two separate letters as in QEP 520-T3 and QEP 520-T4, depending on the Station Superintendent's preference. The letters may also be sent in conjunction with the agreement letter described in QEP 510-2.
4. The first section of the retraining program will consist of basic Health Physics concepts.
 - a. Atomic Structure: Brief description of the structure of the atom; nucleus and electron shells.
 - b. General description of alpha, beta and gamma particle and electromagnetic emissions. A description of these emissions' interactions with concrete, lead, steel, plastic and human tissue.
 - c. Training in external radiation dose. Description of Radiation Units, and U.S. N.R.C. Occupational exposure limits.
 - d. A discussion of the biological effects of external radiation exposure (somatic, genetic, chronic and acute radiation damage).
 - e. A discussion of biological effects of internal deposition of radionuclides. MPCa, MPCw and MPBB limits should be discussed. A discussion of conversion of uCi to internal whole body dose.
 - f. A discussion of radiological definitions; radiation symbols, colors and signs.
 - g. Definitions of controlled and uncontrolled areas.
 - h. Description of personnel monitoring and protective equipment.
 - i. Description of types of survey instruments; dose rate instruments, air monitors, and contamination survey instruments.
5. The second section of the retraining program will consist of practical emergency Health Physics training.
 - a. Use and demonstration of use of protective respiratory equipment and clothing.
 - b. Use of time, distance, and shielding for personal radiation protection.
 - c. Discussion of external skin decontamination.
 - d. Discussion of internal tissue decontamination.
 - e. Set-up of radioactive contamination control area.
 - f. Decontamination of materials.

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- g. Discussions of treatment of personnel exposed to large quantities of radiation and treatment of internally contaminated personnel.
- h. Review of Generating Stations Emergency Plan.

G. CHECKLISTS

- 1. None.

H. TECHNICAL SPECIFICATION REFERENCES

- 1. None.

AGENCIES TO BE SENT
TRAINING INVITATIONS

QEP 520-T1
Revision 3
February 1983

ID/3H

Dr. Phillip Gustafson
Illinois Department of Nuclear Safety
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Springfield, IL 62706
217-546-8100

Mr. Robert H. Bauer
United States Department of Energy
Chicago Operations Office
9800 South Cass Avenue
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312-972-2000

Captain Jack Keleher
District #7 - Commander
Illinois State Police
1510 - 46th Avenue
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Mr. Terry Stieger
Emergency Operations Planner
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Mr. E. Erie Jones
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Services and Disaster Agency
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Mr. Stewart Richter
Whiteside County Emergency
Services and Disaster Agency
Court House
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Mr. John C. Stiegel
Civil Defense
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915 Sixteenth Street
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309-887-4451

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MAR 07 1983
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635 Tenth Avenue
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Mr. Leon Gibson
Dailey/Gibson Funeral Home
202 North Main Street
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Ms. Jeanine Mac Donald
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Glenwood Science Park
Glenwood, IL 60425
312-755-7000

Mr. Karl H. Schafer
Iowa-Illinois Gas and Electric
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Davenport, IA 52808
319-326-7065

Mr. Paul Sereg
Regional Coordinator ESDA
Region 2
421 West First Street
Dixon, IL 61021
815-288-1455

Commanding Officer
U.S. Coast Guard Marine Safety Office
Minneapolis / St. Paul
P.O. Box 3574
St. Paul, Minnesota 55165
612-725-7452

Mayor William Kouski
P.O. Box 6
Cordova, IL 61242
309-654-2376

Mr. Gary E. Larson
Illini Hospital Ambulance Service
801 - 13th Avenue
Silvis, IL 61282
309-792-9363

Mr. Harlan Poel
Fire Chief
P. O. Box 6
Cordova, IL 61242
309-654-2194

Mr. Thomas Linneman
Radiation Management Corporation
3508 Market Street
Philadelphia, PA 19104
215-243-2948

Mr. Leo Huebner
Hazelton Environmental Sciences
1500 Frontage Road
Northbrook, IL 60062
312-564-0700

Mr. James G. Keppler
Regional Administrator
U. S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137
312-932-2500

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MAR 07 1963

O.C.O.S.H

SUGGESTED TEXT FOR OFF SITE
AGENCY MEETING AND TRAINING
INVITATION LETTER

QEP 520-T2
Revision 1
December 1980

ID/3J

Dear (REPRESENTATIVE):

You are invited to attend a meeting of all Emergency Plan off-site support agencies on (DATE) at (TIME) to discuss your role in our plan. The meeting will be held in our (LOCATION). If you have any questions or will be unable to attend this meeting, please contact (STATION CONTACT) of our (DEPARTMENT) at (PHONE NUMBER).

In addition, we will be offering a radiation protection and safety training class to interested individuals (DATE OR TIME FRAME). Please indicate below if you would be interested in attending such a class so we may have some idea as to how many people to expect. Responses should be sent to:

(STATION CONTACT)
C/O Quad-Cities Nuclear Power Station
22710 - 206 Ave. N.
Cordova, IL 61242

Sincerely,

N.J. Kalivianakis
Station Superintendent

I am interested in attending the radiation protection training class:
 YES NO

APPROVED

DEC 17 1980

DECLOS

SUGGESTED TEXT FOR OFF SITE
AGENCY MEETING
INVITATION LETTER

QEP 520-T3
Revision 1
December 1980

ID/3K

Dear (REPRESENTATIVE):

You are invited to attend a meeting of all Emergency Plan off-site support agencies on (DATE) at (TIME) to discuss your role in our plan. The meeting will be held in our (LOCATION). If you have any questions or will be unable to attend this meeting, please contact (STATION CONTACT) of our (DEPARTMENT) at (PHONE NUMBER).

Sincerely,

N.J. Kalivianakis
Station Superintendent

APPROVED
DEC 17 1980
N.J. S.F.

SUGGESTED TEXT FOR OFF SITE
AGENCY TRAINING
INVITATION LETTER

QEP 520-T4
Revision 1
December 1980

ID/3L

Dear (REPRESENTATIVE):

The Quad-Cities Nuclear Power Station will be offering a radiation protection and safety training class to interested individuals (DATE OR TIME FRAME). Please indicate below if you would be interested in attending such a class so we may have some idea as to how many people to expect. Responses should be sent to:

(STATION CONTACT)

C/O Quad-Cities Nuclear Power Station
22710 - 206 Ave. N.
Cordova, IL 61242

Sincerely,

N.J. Kalivianakis
Station Superintendent

I am interested in attending the radiation protection training class:

 YES NO

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DEC 17 1980

100 S.R.

ID/5E,5F

QEP TRAINING REQUIREMENTS FOR
GSEP DIRECTORS AND ALTERNATESQEP 520-T5
Revision 1
August 1982

QEP's	Rad-Chem Director	Security Director	Administrative Director	Stores Director	Maintenance Director	Technical Director	Operations Director	Acting Station Director	Station Director
110-1									X
110-2									X
120 Block							X		X
130 Block									
140 Block									
150 Block					X				
160 Block			X						
170 Block		X							
180 Block									
200 Block	X	X	X	X	X	X	X	X	X
310 Block						X	X	X	X
320 Block	X	X	X	X	X	X	X	X	X
330 Block	X				X	X	X		
340 Block	X				X		X		
350 Block	X								
360-1, 2, 3	X		X	X	X	X	X	X	X
360-4, 5	X	X							
370 Block	X							X	
410 Block	X	X	X	X	X	X	X	X	X
420 Block	X	X	X	X	X	X	X	X	X
430 Block	X	X	X	X	X	X	X	X	X
440 Block	X	X	X	X	X	X	X	X	X
450 Block	X		X	X	X	X	X	X	X
460 Block	X							X	X
510 Block	X		X			X		X	X
520-1	X	X	X	X	X	X	X	X	X
520-2	X	X	X	X	X	X	X	X	X
530 Block	X	X	X	X	X	X	X	X	X
540 Block	X		X					X	
550-1	X								
550-2	X				X				
610 Block	X						X		X
620 Block	X				X	X	X		X

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AUG 19 1982

Q.C.U.S.R.

ID/2W,2X

EXERCISES AND DRILLS

<u>530-0</u> Exercises and Drills	Rev. 15	03-31-83
<u>530-1</u> Emergency Exercise	Rev. 1	12-16-80
<u>530-2</u> Emergency Drills	Rev. 8	12-23-82
<u>530-3</u> Off-Shift Augmentation Drill	Rev. 2	06-21-82
<u>530-S1</u> Monthly NARC (ESDA) Drill Quad-Cities Station	Rev. 5	02-07-83
<u>530-S2</u> Monthly Test of the NRC Health Physics Network	Rev. 1	01-05-82
<u>530-S3</u> Monthly Test of the NRC Emergency Notification System	Rev. 3	03-31-83

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EXERCISES AND DRILLS

<u>530-0</u> Exercises and Drills	Rev. 14	02-07-83
<u>530-1</u> Emergency Exercise	Rev. 1	12-16-80
<u>530-2</u> Emergency Drills	Rev. 8	12-23-82
<u>530-3</u> Off-Shift Augmentation Drill	Rev. 2	06-21-82
<u>530-S1</u> Monthly NARS (ESDA) Drill Quad-Cities Station	Rev. 5	02-07-83
<u>530-S2</u> Monthly Test of the NRC Health Physics Network	Rev. 1	01-05-82
<u>530-S3</u> Monthly Test of the NRC Emergency Notification System	Rev. 2	10-14-82

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FEB 07 1983
Q.C.O.S.R.

EMERGENCY EXERCISE

QEP 530-1
Revision 1
December 1980

ID/2X

A. PURPOSE

The purpose of this procedure is to outline the annual emergency exercise to be conducted at the Quad-Cities Nuclear Power Station.

B. REFERENCES

1. GSEP, Section 8.3.1.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. On an annual basis, the Quad-Cities Nuclear Power Station shall conduct an emergency exercise in order to test the implementation of the emergency plans and acquaint personnel involved with their duties during such an emergency.
2. The conditions of the emergency shall be described in a scenario written by Commonwealth Edison's Radio-Ecology and Emergency Planning Group. This scenario should incorporate multiple facets of the emergency plan.
3. Federal, state, and local participation in the emergency exercise should be invited. Invitation to participate shall depend upon the preference of the Station Superintendent and upon the type of emergency described in the scenario.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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DEC 16 1980
J. O. S. R.

EMERGENCY DRILLS

QEP 530-2
Revision 8
December 1982

ID/30

A. PURPOSE

The purpose of this procedure is to list the required drills and their frequencies and to test specific facets of the Generating Station Emergency Plans.

B. REFERENCES

1. GSEP, Section 8.3.2.
2. GSEP, Section 7.2.
3. QEP 440-1, Emergency Communication Facilities.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. The communications drill is rated satisfactory if the initiating party is able to transmit and receive acknowledgement for a brief exercise message to each of the agencies, designated in the site specific annex within 15 minutes of the simulated declaration. (Simulated declaration will be established immediately prior to picking up the NARS phone to initiate the drill.) The drill can be rated satisfactory even if NARS fails and backup systems are used to complete notification; however, corrective actions are required in event of NARS failure. The drill is rated unsatisfactory if the required transmission and acknowledgement is not completed within 15 minutes.
2. If communications equipment fails to operate properly, contact Illinois ESDA; phone (217) 782-7860 and the Corporate Command Center immediately following the drill. If the drill is rated unsatisfactory, immediately notify the Production Nuclear Duty Person during normal business hours, or the Production Nuclear Duty Person through the System Power Dispatcher during other hours in addition to initiating action to have the system repaired. An additional drill will be conducted immediately upon completion of equipment repairs any time a drill is rated unsatisfactory.
3. If the NRC health physics network fails, notify the NRC Region III office at (312)-932-2500.

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4. If the NRC Emergency Notification System phone fails, notify the NRC Operations Center at (202) 951-0550.

F. PROCEDURE

1. Emergency drills, as described in GSEP, Section 8.3.2, GSEP, Section 7.2., and this procedure shall be conducted at a frequency as listed in the below table:

DRILL	DESCRIPTION	FREQUENCY
1. Communications Systems	QEP 530-2 step F.2	ANNUAL
a. Microwave/radio communications	GSEP 7.2.2	ANNUAL
b. NRC communications	GSEP 7.2.4	ANNUAL
c. Station communications	GSEP 7.2.2	ANNUAL
d. N.A.R.S.	QEP 530-2 step F.3 GSEP 7.2.1	MONTHLY
e. NRC health physics network	GSEP 7.2.4 QEP 530-2 step F.7	MONTHLY
f. NRC Emergency Notification System	GSEP 7.2.4 QEP 530-2 step F.8	MONTHLY
2. Environmental Monitoring Drill	QEP 530-2 step F.4 GSEP 8.3.2.3	ANNUAL
3. Medical Emergency Drill	QEP 530-2, step F.5 GSEP 8.3.2.5	ANNUAL
4. Health Physics Drill	QEP 530-2, step F.6 GSEP 8.3.2.4	SEMI-ANNUAL

- a. Corrective actions taken as a result of written drill critiques are to be documented either as separate correspondence, or on the drill report itself.

2. Communications drill.

- a. To verify communications procedures and communications equipment that would be required in the event of a major accident, the capability to communicate on the microwave/radio communications, NRC communications, station communications and the N.A.R.S communications systems will be tested during the annual communications drill.

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b. Conduct of test.

Standard messages will be transmitted from key locations to verify that information transmitted in the nuclear accident report and environmental assessment formats can be accurately transmitted and readily understood. Each message will be independent and will not relate to other messages. The communicators who ultimately receive the messages will be requested to return the completed message forms so that a comparative evaluation can be made.

c. Critique.

The communications drill checklist will be used as a guide while the drill is in progress. A verbal critique of communications procedures will be conducted immediately following the drill. A written critique will be provided for records.

d. Standard.

The drill is rated satisfactory if:

- (1) The Exercise Nuclear Accident Report message is accurately received by the CCC, State EOC's and REAC, and local EOC's within 15 minutes from the simulated declaration of an emergency.
- (2) The environmental assessment messages are accurately received by Illinois REAC.
- (3) Federal Emergency Response agencies are contacted by any facility.
- (4) Communications by either primary or backup means is established from:
 - (a) the control room to CCC, SPS, TSC, EOF, EOC and REAC;
 - (b) TSC to EOF and CCC;
 - (c) EOF to TSC, EOC, CCC, SPS and REAC;
 - (d) CCC to TSC, EOF, EOC and REAC;
 - (e) Field assessment teams to EOF, TSC or CCC.

The drill is rated unsatisfactory if any of the above standards are not achieved. Corrective action is required if any primary or backup system fails to operate properly.

3. N.A.R.S. Communications System.

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DEC 23 1992
Q.C.O.S.M

- a. The dedicated Nuclear Accident Reporting System (NARS) communications is the primary communication system to be tested. If NARS does not enable understandable communication, available backup system, to include dial phone, will be employed to contact designated agencies to demonstrate communications procedures to be used in the event of NARS failure. Each station will initiate a monthly communications drill to verify the capability to notify designated company, state and local agencies if a general emergency was declared. Initiation capabilities from the EOF, TSC and Control Room will be demonstrated periodically.
- b. Conduct of test.

The drill will be conducted in the following manner using QEP 530-S1.

- (1) Establish and record declaration time.
- (2) Activate NARS:
 - (a) Remove handset.
 - (b) Dial required code (23).
 - (c) Confirm stations on line.

NOTE

The hand set button must be pressed when transmitting.

- (3) Transmit message test: "THIS IS A TEST. THIS IS (NAME OF FACILITY). STAND BY FOR NOTIFICATION DRILL. THE SIMULATED DECLARATION TIME IS (DECLARATION TIME). THE CURRENT TIME IS (CURRENT TIME). STAND BY TO ACKNOWLEDGE RECEIPT OF THIS EXERCISE MESSAGE BY STATING YOUR AGENCY AND INITIALS."
- (4) Call roll of activities (site specific annex) and record initials of acknowledging individual.
- (5) Upon completion of acknowledgements, inquire if anyone has not been called and close the conference call.
- (6) Contact agencies not acknowledging the drill by backup communications means.
- (7) Record times of all acknowledgements.
- (8) Initiate corrective actions if required.

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Q.C.O.S.R.

c. Agencies to be notified:

Illinois Emergency Services & Disaster Agency
Illinois Department of Nuclear Safety*
Rock Island Communications
Rock Island E.S.D.A.*
Scott County Sheriff, Davenport, Iowa
Corporate Command Center*
System Power Supply
Clinton County EOC
Iowa Office of Disaster Services
Whiteside County EOC*
Whiteside County Sheriff

NOTE

Extensions with an asterisk are not manned 24 hours a day. Successful communications with all other agencies constitutes a successful test, if during other than normal working hours.

4. Environmental Monitoring Drill.

- a. Field monitoring teams will be selected to operate under the direction of a Rad/Chem Director or an Environs Director from the station. Two teams will be utilized unless otherwise specified. A situation will be portrayed to indicate a simulated release based on actual meteorological conditions at the time of the drill. The teams will conduct sampling of water, grass or other vegetation, soil, and air and conduct actual field monitoring of samples. The controller accompanying each team will provide simulated readings to indicate the level of radiation expected from the plume at that location. Teams will record and report findings to the Environs Director in the EOF using radio or backup communications. Samples will be transported to and analyzed in the station laboratory facilities. Procedures used in analysis will be evaluated.

The corporate Environmental Center will be activated and its personnel will be required to process and analyze the simulated field readings and laboratory findings. Communications between field personnel, the Environs Director, and the environmental center will be tested. A controller will judge the performance of corporate personnel to support field activities and reach the appropriate recommendation for protective action.

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b. Responsibilities.

The CECo. General Office will schedule, direct, and evaluate the drill. Environmental Center participants will be selected by the General Office from a list of qualified personnel. The Generating Station will:

- (1) Provide two qualified individuals to act as controllers and to assist in preparing the drill.
- (2) Provide a list of personnel designated as qualified to perform duties of Rad/Chem Director, Environs Director, and Environs Group field team member. Provide selected personnel that are reasonably available to participate in the drill.
- (3) Provide communication, protective, sample gathering and transportation equipment to conduct the drill.
- (4) Provide EOF and laboratory facilities to conduct the drill.

c. Critique.

A verbal critique will be conducted at the conclusion of the drill by the control team from the General Office and the station.

Following the verbal critique, the control team will meet to provide comments for the written critique to the General Office representative. The written critique will be provided to the station after review at the General Office.

5. Medical Emergency Drill.

- a. Commonwealth Edison employs the Radiation Management Corporation (RMC) to provide procedures, training and drills for onsite and off-site organizations dealing with emergency medical treatment. RMC will conduct the training and supervise medical and decontamination aspects of the drill. CECo will supervise GSEP related notification aspects of the drill. The drill will normally be conducted on the day following the training sessions. Victims simulated to be contaminated and injured will be used as controllers. The drill will include treatment and decontamination of the victims from the time the accident is reported until the hospital has decontaminated and treated the simulated patients. The drill will be followed by a critique.

b. Responsibilities.

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The CECo General Office will:

- (1) Prepare a general schedule for the drill.
- (2) Provide backup assistance in concluding local scheduling when needed.
- (3) Provide an observer to control and evaluate portions of the exercise outside of RMC's area of expertise.
- (4) Provide written and oral critique comments.

The Generating Station will:

- (1) Arrange exact dates of drill with RMC, CECo. General Office and off-site support agencies.
- (2) Assign personnel to participate in on-site training.
- (3) Assign personnel to participate as victims under RMC direction.
- (4) Participate in the drill.

Radiation Management Corporation will:

- (1) Conduct a training program.
- (2) Control the medical portion of the drill.
- (3) Evaluate the drill with qualified medical and health physics controllers.
- (5) Conduct an oral and written critique.

c. Corrective actions.

Deficiencies in team or individual actions during the drill will be corrected by instruction during the critique. Deficiencies in equipment or physical arrangements discovered during the exercise will be evaluated by RMC, CECo., and off-site support agencies and resolved following the written report.

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6. Health Physics Drill.

- a. One team of Rad/Chem Technicians will be selected to perform direct monitoring and sample collecting functions. Controllers will provide the initial situation and meter readings to simulate elevated radiation levels. The team will report elevated measurements in accordance with station procedures. Airborne and liquid samples collected will be analyzed in accordance with station procedures. Results of the analysis will be recorded. At least once each year the drill will include obtaining and analyzing an actual liquid sample from the plant. The controller will specify collection of a sample that is required to be analyzed for normal plant operations whenever possible. Results of the analysis will be processed in accordance with normal procedures.

b. Responsibilities.

The CECO General Office will:

- (1) Schedule, direct and evaluate the drill.

The Generating Station will:

- (1) Provide a technically qualified individual to act as a controller and to assist in planning the drill.
- (2) Provide a list of qualified technicians. Provide selected personnel to participate in the drill.
- (3) Provide equipment and facilities to conduct the drill.

c. Critique.

A verbal critique will be conducted at the conclusion of the drill by the controllers from the General Office and the station. Following the verbal critique, the control team will discuss comments for the written critique. The written critique will be provided to the station after review at the General Office.

7. NRC health physics network.

- a. The NRC health physics network provides dedicated communications between the Station and NRC headquarters in Bethesda, Maryland, and Glen Ellyn, Illinois.
- b. Phones are located in the Rad-Chem Supervisor's office, the on-site NRC office, and the emergency operations facility.
- c. Conduct of test. The drill will be conducted in the following manner using QEP 530-S2:
- (1) Choose one of the three phones available. Each phone must be tested once every three months, on a rotating basis, testing one phone per month.

- (2) Pick up the receiver and dial 22. This number should reach NRC headquarters in Bethesda, Maryland. Pick up the receiver and dial 23. This number should reach Region III headquarters in Glen Ellyn, Illinois.

NOTE

No dial tone or ringing will be heard.

- (3) The test message should be:

This is a test. This is the Quad-Cities Nuclear Power Station. Please verify that communications have been established by stating your initials.

- (4) Should a test be unsuccessful, the NRC shall be notified and one of the other HP network phones shall be tested to verify that communication is possible. NRC Region III should be notified so that appropriate corrective actions may be taken.

8. NRC Emergency Notification System (red phone).

- a. The NRC Emergency Notification System provides dedicated communications between the station and the NRC Operations Center in Bethesda, Maryland.
- b. Phones are located in the on-site NRC office, the Emergency Operations Facility, the Technical Support Center, and the station Control Room.
- c. Conduct of test. The drill will be conducted in the following manner using QEP 530-S3:

- (1) All phones must be tested each month.
- (2) Pick up the receiver and wait. The phone should automatically reach NRC headquarters in Bethesda, Maryland.
- (3) The test message should consist of:

This is (NAME) from the Quad-Cities Nuclear Power Station. I'm calling from our (FACILITY NAME) to test the Emergency Notification System. Please acknowledge the receipt of this message by stating your initials.

- (4) Record the initials of the call receiver on QEP 530-S3.
- (5) Should a test be unsuccessful, the NRC Operations Center shall be notified so that appropriate corrective actions may be taken. The Operations Center number is (202) 951-0550.

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G. CHECKLISTS

1. QEP 530-S1, Monthly NARS Drill Quad-Cities Station.
2. QEP 530-S2, Monthly Test of the NRC Health Physics Network.
3. QEP 530-S3, Monthly Test of NRC Emergency Notification System.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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DEC 23 1982
Q.C.O.S.R.

OFF-SHIFT AUGMENTATION DRILL

QEP 530-3
Revision 2
June 1982

ID/5C

A. PURPOSE

The purpose of this procedure is to outline the method used to conduct the semi-annual off-shift augmentation drill.

B. REFERENCES

1. GSEP Table 6.1-1, Simplified Emergency Notification Scheme.
2. QEP 320-1, Activation of the Emergency Organization.
3. QEP 310-1, Initial Notification.
4. QEP 310-T1, Guidance for Augmentation of the On-Site Emergency Organization Within 30 Minutes.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. Off-shift shall be any time other than regular working hours (0800-1630, Monday thru Friday).
2. If no Director for a given responsibility can be contacted, an appropriate Caller or a Station Director may be deputized to act as an interim Director.

F. PROCEDURE

1. On a semi-annual basis, the Quad-Cities Nuclear Power Station should conduct an off-shift augmentation drill in order to test the ability to staff the Station's emergency organization within the time frame necessary to adequately respond to an emergency.

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2. The drill should be initiated by handing the on-shift Shift Engineer a pre-written message. Beginning with the Shift Engineer, personnel are to relay the message in the sequence specified by QEP 310-T1. The message should be:

"This is a drill. A GSEP condition of General Emergency is being simulated. Please contact those individuals you are designated to contact as specified by your copy of the Prioritized Notification List. Indicate on the listing the times at which you contact the required personnel. Return your copy of the Prioritization Notification List to the GSEP Coordinator as soon as practical. Relay this message in the sequence specified by QEP 310-T1, until adequate staff augmentation is achieved."

3. The GSEP Coordinator will tabulate the data to determine if the drill was successful.
4. The drill is considered successful if the general emergency requirements of QEP 310-T1 are met. This is to be interpreted that the appropriate personnel would be able to be on-site within 30 minutes of being notified, and the appropriate notifications are all completed within 30 minutes from the start of the drill. If the drill is not successful, another drill should be conducted within a month.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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MONTHLY NARS (ESDA) DRILL
QUAD-CITIES STATION

QEP 530-S1
Revision 5
January 1983

ID/3P

DATE: _____

DECLARATION TIME: _____

LOCATION: _____

DIAL 23

MESSAGE: This is a communications test. This is Quad-Cities Nuclear Power Station. Standby for communications drill. The simulated declaration time is _____. The current time is _____. Standby to acknowledge receipt of this communications message by stating your agency and initials.

CALL ROLL:

AGENCY

INITIALS

Illinois Emergency Services and Disaster Agency

Illinois Department of Nuclear Safety

Rock Island Communications

Rock Island E.S.D.A.

Scott County Sheriff

Corporate Command Center

System Power Dispatch

Clinton County EOC

Iowa Office of Disaster Services

Whiteside County EOC

Whiteside County Sheriff

INQUIRE: Has anyone not been called?

COMMENTS:

DIAL 32:

AGENCY

ESDA

COMMENTS:

NAME: _____

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FEB 07 1983

Q.C.U.S.R.

MONTHLY TEST OF THE NRC
HEALTH PHYSICS NETWORK

QEP 530-S2
Revision 1
December 1981

ID/4V

Date: _____

Time: _____

Phone Location: _____

NRC Health Physics Network Telephones are located in the Rad/Chem Supervisor's Office, the Emergency Operations Facility, and the On-Site NRC Office. Each of these phones is to be tested every three months, on a rotating basis, testing one phone per month.

NOTE

No dial tone or ringing will be heard.

The test shall consist of the following:

Dial 22: to verify communications capability with NRC Headquarters in Bethesda, Maryland.

Dial 23: to verify communications capability with NRC Region III Headquarters in Glen Ellyn, Illinois.

The test message shall consist of:

"This is a test. This is the Quad-Cities Nuclear Power Station. Please verify that communications have been established by stating your initials."

Dial 22 - Initials _____

Dial 23 - Initials _____

Should a test be unsuccessful, the NRC shall be notified and one of the other Health Physics network phones shall be tested to verify that communication is possible. NRC Region III should be notified so that the appropriate actions may be taken.

Signature

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JAN 05 1982
Q.C.O.S.R.

MONTHLY TEST OF THE NRC
EMERGENCY NOTIFICATION SYSTEM

QEP 530-S3
Revision 3
March 1983

ID/42

Date: _____

Time: _____

Phone Location: _____

NRC Emergency Notification System Telephones to be tested are located in the Technical Support Center, the Emergency Operations Facility, the Control Room, and the on-site NRC office. Each of these phones is to be tested every month.

The test shall consist of the following:

Pick up the receiver and wait. The phone should automatically reach the NRC Operations Center in Bethesda, Maryland.

The test message should consist of:

This is (NAME) from the Quad-Cities Nuclear Power Station. I'm calling from our (FACILITY NAME) to test the Emergency Notification System. Please acknowledge the receipt of this message by stating your initials.

INITIALS _____

Should a test be unsuccessful, the NRC Operations Center shall be notified so that the appropriate actions may be taken.

SUCCESSFUL COMMUNICATIONS _____ YES _____ NO

Signature

COMMENTS

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MAR 31 1983

Q.C.O.S.R.

ID/3C,3D

PUBLIC INFORMATION

540-0
Public Information

Rev. 3 04-19-82

540-1
Public Information

Rev. 2 04-19-82

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APR 19 1982
Q.C.O.S.R.

PUBLIC INFORMATION

QEP 540-1
Revision 2
April 1982

ID/4N

A. PURPOSE

The purpose of this procedure is to outline the method of providing information to the general public.

B. REFERENCES

1. GSEP Section 8.4.
2. GSEP QCA Section 8.1.
3. GSEP Section 6.3.2.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. The pamphlet "What to Do in Case of a Nuclear Station Emergency" is provided to all households and businesses within a 10-mile radius of the Station. (EPZ)
2. This pamphlet describes emergency instructions, warning, evacuation, and preparedness.
3. This brochure should be distributed on an annual basis, and updated accordingly.
4. Notification capability exists for members of the public within the Plume Exposure Emergency Planning Zone surrounding operating nuclear stations. This capability consists of public alerting sirens and local emergency vehicles equipped with public address (PA) systems.
5. The emergency vehicles (such as fire department or police vehicles) will travel within portions of the EPZ and broadcast a message over the PA systems. This message will inform citizens of an accident at the nuclear station, and will advise the citizens to either take shelter or evacuate. Also, the message will instruct the residents to tune in to a local radio station. The sirens will alert the citizens to tune in to the radio station for specific instructions and information related to the emergency.

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APR 19 1982

Q.C.O.S.R.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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APR 19 1982
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ID/2E,2F

EMERGENCY EQUIPMENT
AND SUPPLIES

<u>550-0</u> Emergency Equipment and Supplies	Rev. 11	05-04-83
<u>550-1</u> First Aid and Decontamination Facilities	Rev. 2	08-01-80
<u>550-2</u> Inventory of Emergency Equipment	Rev. 2	01-07-82
<u>550-T1</u> Environs Sampling Supplies	Rev. 5	05-04-83
<u>550-T2</u> Operational Support Center Emergency Supplies Cabinet	Rev. 4	01-07-82
<u>550-T3</u> Emergency Situation Film Dosimeters	Rev. 2	02-24-83
<u>550-T4</u> Emergency Operation Facility Supplies	Rev. 2	12-15-82
<u>550-T5</u> Technical Support Center Supplies	Rev. 1	01-07-82
<u>550-T6</u> Moline Public Hospital Radiation Emergency Area Supplies and Equipment	Rev. 2	03-04-83

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MAY 04 1983
O.C.D.S.R.

FIRST AID AND
DECONTAMINATION FACILITIES

QEP 550-1
Revision 2
July 1980

ID/2H

A. PURPOSE

The purpose of this procedure is to describe the first aid and decontamination facilities and their locations.

B. REFERENCES

1. None.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. The Shift Engineer who is on duty is responsible for the care of injured personnel. His duties include first aid, arranging for medical assistance, and transportation to the hospital as required. First aid practices are those approved by the company.

F. PROCEDURE

1. Location of On-Site First Aid Equipment.

- a. Stretchers and Blankets.

Maintenance Shop.
Lift Station - near east door.
Cribhouse - near south door.
Off Gas Filter Building.
Reactor Building One Elevator.
Reactor Building Two Elevator.
Turbine Building Elevator.
Radwaste Control Room.
Turbine Building One Trackway.
Turbine Building Two Trackway.
Shift Engineer's Office.

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b. First Aid Kits.

Maintenance Shop - wall.
Storeroom - locker.
Fuelhandlers office - wall
Rad Protection Foreman's Office - desk.
Instrument Maintenance Shop - wall.
Shift Engineer's Office - desk.
Reactor Building One Elevator - wall.
Reactor Building Two Elevator - wall.
Training Building - wall.
Main Office.
Personnel Decontamination area.
Turbine Building Elevator.

c. Respiratory Equipment.

(1) Unit #1.

South Entrance LP Heaters and Condenser	595'0"
Entrance to Turbine Bldg by Diesel Generator	595'0"
Entrance to Turbine Bldg from Control Room	622'4"
Entrance to Drywell, Personnel Access	595'0"
Exit from Reactor Bldg Access Control	
Entrance South	595'0"
Exit from Reactor Bldg Access Control	
Entrance East	595'0"
Radwaste Control Room	

(2) Unit #2.

Entrance to Turbine Bldg by Diesel Generator	595'0"
Entrance to Drywell Personnel Access	595'0"
Exit from Reactor Bldg Access Control	
Entrance North	595'0"

2. Personnel Decontamination Area.

- a. The Personnel Decontamination Area is located on the ground floor of the Service Building. This area is easily accessible from the west hall leading from Unit 1 trackway and is adjacent to the employees locker room west entrance and is convenient to this location. The area is also convenient to the laboratory counting room and the radiation protection office. All contaminated personnel, including injured personnel, are to be decontaminated in this area. The following equipment is presently located in the decontamination facility:

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- (1) Decontamination shower (shower drain discharges to the retention tank).
- (2) Sink and counter (drains to retention tank).
- (3) Ready supply of personnel monitoring instruments in Radiation Protection Instrument Storeroom.
- (4) Station monitor for decontamination check.
- (5) Washing machine and dryer for low-level personal clothing contamination in the Laundry Room across the hall.
- (6) Telephone.
- (7) Soaps and detergents.
- (8) Waste containers for contaminated materials.
- (9) First aid kit.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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AUG 1 1977
Q.C.O.S.R.

INVENTORY OF EMERGENCY EQUIPMENT

QEP 550-2
Revision 2
December 1981

ID/2Y

A. PURPOSE

The purpose of this procedure is to assure the availability and up-to-date calibration of equipment and supplies dedicated for use during emergency situations.

B. REFERENCES

1. QEP 550-T1.
2. QEP 550-T2.
3. QEP 550-T4.
4. QEP 550-T5.
5. GSEP, Section 8.6.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. The equipment and supplies listed represent a minimum quantity for effective emergency use. Additional supplies may be present without being included on the inventory lists.
2. The Radiation-Chemistry Foreman shall be responsible for assigning the task of inventory to the Radiation-Chemistry Technicians.

F. PROCEDURE

1. Inventory of environs sampling supplies:

A quarterly inventory for the items listed in QEP 550-T1 shall be performed by the Radiation-Chemistry Department. Along with the inventory of contents, the instruments shall be removed and be recalibrated or replaced with like calibrated equipment. Should any contents be missing a Radiation-Chemistry Foreman or Health Physicist should be notified. Upon completion of the inventory the boxes shall be sealed to prevent unnoticed depletion of their contents.

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2. Inventory of the OSC emergency equipment cabinet:

A quarterly inventory assuring the presence of all the items listed in QEP 550-T2 shall be performed by the Radiation-Chemistry Department. Keys for the cabinet are available from all Radiation Protection management and the key cabinet located in the Radiation-Chemistry Technicians' meeting room. Should any contents be missing a Radiation-Chemistry Foreman or Health Physicist should be notified.

3. Inventory of the control room:

A quarterly inventory of the station control room shall be performed by the Radiation-Chemistry Department to assure the presence and calibration of a "Cutie Pie" type dose rate instrument. This instrument should be located within a plastic box on the south wall of the control room. Should this instrument be missing or out of calibration, a Radiation-Chemistry Foreman or Health Physicist should be notified.

4. Inventory of the EOF emergency supplies:

A quarterly inventory verifying the presence of all items listed in QEP 550-T4, as being stored in the EOF, shall be performed by the Radiation-Chemistry Department. A key for the EOF may be obtained from the Shift Engineer. If any of the contents are missing, a Radiation-Chemistry Foreman or Health Physicist should be notified.

5. Inventory of the TSC emergency supplies:

A quarterly inventory verifying the presence of all items listed in QEP 550-T5 shall be performed by the Radiation-Chemistry Department. A key for the TSC may be obtained from the Shift Engineer. A key to the emergency equipment cabinet is located in the Rad-Chem Department's key cabinet. If any of the contents are missing, a Radiation-Chemistry Foreman or Health Physicist should be notified.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

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JAN 07 1982
Q.C.O.S.R

ID/1G

ENVIRONS SAMPLING SUPPLIES

QEP 550-T1
Revision 5
April 1983

Inventory completed*

signature/date

*Circle items missing from inventory

DESCRIPTION	LOCKER #1	LOCKER #2	DECON LOCKER #3
SURVEY INSTRUMENTATION			
High range cutie-pie ionization chamber (at least up to 50 R/hr)	1	1	
GM survey meter (β, γ) capable of measuring < .02 mR/hr	1	1	1
Beta-gamma probe HP-210	1	1	1
SH-4 sample holder w/H.P. 210 probe	1	1	
Spare tube for H.P. 210 probe	2	2	
Check sources for cutie pie	1	1	
Check sources for GM survey meter	1	1	1
Spare batteries for C.P. instruments	4	4	
Spare "D" cells for GM survey meter	5	5	5
SAMPLE TAKING EQUIPMENT			
Air sampler (operated either with battery or portable generator)	1	1	
Particulate filter paper for air sampler	100	100	
Silver zeolite cartridges	25	25	
Air sample data tags	50	50	
Air sample plastic bags, approx. 3" x 8"	50	50	
50' extension cord	1	1	
Battery booster cables	1	1	
Tripod for air sampler	1	1	
Swipes - bag terri towels	1	1	2

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O.C.O.S. 6

DESCRIPTION	LOCKER #1	LOCKER #2	DECON LOCKER #3
Nu-con type smears w/folder	50	50	50
Plastic bottles	10	10	
Shovel - folding camp type	1	1	
Plastic bags - approx. 12" x 18"	25	25	
Plastic Sample Containers - approx. 1 qt.	10	10	
PROTECTIVE CLOTHING			
Masking tape - 2" roll	2	2	2
Box of plastic gloves	1	1	1
Rubbers and shoe covers	3 pair	3 pair	
Disposable SWP coveralls	3	3	6
Rain gear (plastic disposable suits)	3	3	
Head covers (surgeons caps)	3	3	
Full face respirators w/combination filter/charcoal cartridges	3	3	
Non-disposable SWP coveralls	3	3	
SAFETY EQUIPMENT			
Lantern	1	1	
Spare 6 volt batteries for lantern	1	1	
Spare bulbs for lanterns	2	2	
Safety flares	2	2	
10C' radiation rope	1	1	1

DESCRIPTION	LOCKER #1	LOCKER #2	DECON LOCKER #3
<u>Signs</u>			
HIGH RADIATION AREA	4	4	
HIGH RAD AREA (CONTAMINATED)	4	4	
RADIATION AREA	4	4	
AIRBORNE RADIOACTIVITY AREA	4	4	
RADIOACTIVE MATERIALS AREA	4	4	4
RADIATION AREA (CONTAMINATED)	4	4	4
Radioactive materials stickers	30	30	30
First aid kit	1	1	1
DOSIMETRY SUPPLIES			
Film or TLD badges (for personnel dosimetry and/or area exposure acquisition)	12	12	
0-200 mR self-reading dosimeters	3	3	
High range self-reading dosimeters \geq 50R	3	3	
Dosimeter charger	1	1	
Timekeeping log sheets	3	3	
INFORMATION MATERIALS			
GSEP Book	1	1	1
Environmental Emergency Procedures	1	1	
Manual for GM survey instrument and CP's	1	1	1
Operating instructions for portable generators	1	1	
Area maps	1	1	
Site maps	1	1	

DESCRIPTION	LOCKER #1	LOCKER #2	DECON LOCKER #3
MISCELLANEOUS SUPPLIES			
Pocketknife	1	1	
Scissors	1	1	
Stop watch	1	1	
Emergency log book	1	1	1
Clipboards and paper pads	2 ea	2 ea	1
Felt tip markers	2	2	2
Pencils	6	6	6
American and Phillips screwdrivers and Allen wrench set	1 ea	1 ea	1 ea
Set of keys for environs stations and metro tower	1 ea	1 ea	
Plastic garbage bags	4	4	10
Bolt Cutters	1	1	
2 Portable Generators (Storage Cage)			
Ladder (Storage Cage)			
2 Walki-Talkies (Located in Rad-Chem Office)			
DECON MATERIALS			
Package handifold towels			1
Scrub brush			2
Styrofoam cups			10
Plastic pails			2
Laundry soap			2 boxes
4% potassium permanganate			1
4% sodium bisulfate			1

OPERATIONAL SUPPORT CENTER
EMERGENCY SUPPLIES CABINET

QEP 550-T2
Revision 4
December 1981

ID/22

The cabinet labeled "EMERGENCY EQUIPMENT STORAGE ONLY" located in the Operational Support Center (meeting room adjacent to TSC) shall be stocked with the listed protective equipment for use in the event of an emergency when other such equipment is not available.

Requirements for cabinet:

Inventory completed * _____
signature/date

DESCRIPTION	QUANTITY
SWP Coveralls	6 Pair
Rubbers	6 Pair
Shoe Covers	6 Pair
Gloves	6 Pair
Surgeon Caps	6
Hoods	6
Half Masks w/Canisters	6
Full Face Masks w/Canisters	6
Masking Tape 2"	1 Roll
Teri Towels	1 Pack
Flashlights w/Batteries	6
Rain Gear	6 Sets
Surgeon Gloves	1 Box
Pencil Dosimeters 500 MR	6
Pencil Dosimeters 5R	6
GM Survey Instrument	1
Cutie Pie Survey Instrument	1
Potassium Iodide Tablets	1000
GSEP Manual	1
Environmental Emergency Procedures	1
Illinois Plan for Radiological Accidents	1
Pens	2

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JAN 07 1982

Q.C.O.S.R.

EMERGENCY SITUATION
FILM DOSIMETERS

QEP 550-T3
Revision 2
January 1983

ID/4R

Emergency film dosimeters shall be stored in green* holders in the stations's guardhouse and the two environs team lockers in the guardhouse. This film will be distributed to personnel according to recommendations of the Rad-Chem Director. Film used for environs monitoring will be distributed to locations according to recommendations of the environs director. Quantities of film are as follows:

LOCATION	# OF FILM
Guardhouse**	70
Environs Locker #1	12
Environs Locker #2	12

* Green holders for emergency film in the environs lockers will not be available as of the revision date of this procedure.

** In case of an evacuation of station personnel, the emergency film will be transferred to the applicable access control point for the station.

NAME _____

DATE _____

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FEB 24 1983
Q.C.O.S.R

ID/4U

EMERGENCY OPERATIONS
FACILITY SUPPLIESQEP 550-T4
Revision 2
December 1982

The emergency operations facility is near Morrison, Illinois. The inventory of supplies shall be completed quarterly.

Inventory Completed _____

Signature/Date _____

A - Stored at EOF.

B - Either stored at EOF or supplied to EOF upon activation as necessary.

C - Provided to EOF upon short notice (pre-positioned for exercises).

DESCRIPTION	QUANTITY	CATEGORY
SURVEY EQUIPMENT		
Dose Rate Monitor (such as RM-16)	1	A
Dose Rate Meter (CP)	1	A
Contamination Survey Meter (GM)	1	A
HP-210 Probe w/Sample Holder	2	A
Spare HP-210 Probe	1	B
Spare Batteries for CP and GM	1 set	A
Nu-Con Smears	1 box	A
Survey Sheets	10	A
SAMPLE TAKING EQUIPMENT		
Air Sampler Powered by Electrical Outlet	1	A
Particulate Filter Paper for Air Sampler	100	A
Silver Zeolite Cartridges	20	B

DESCRIPTION	QUANTITY	CATEGORY
PROTECTIVE CLOTHING		
ANTI-C Clothing Sets* (various sizes)	90	B
Surgeons Gloves	1 box	A
Cotton Glove Liners	90 pair	A
Rain Gear	10	B
Latex Gloves	90 pair	A
Masking Tape (2" rolls)	5	A
Full Face Respirator w/Combination Filter/Charcoal Cartridges	50	B
Half Masks w/Combination Cartridges	15	B
*ANTI-C Clothing Set Includes: 1. Coveralls 2. Booties 3. Rubbers 4. Gloves 5. Surgeons Cap		
SAFETY EQUIPMENT		
Flashlights w/Batteries	12	A
First Aid Kits	2	A
Spare Bulbs for Flashlights	10	A
Spare Batteries for Flashlights	10	A
Radioactive Materials Stickers	50	A
Potassium Iodide Tablets	250	C
DOSIMETRY SUPPLIES		
Pencil Dosimeters 0-200 MR	50	B
Pencil Dosimeters 0-1 R	10	B
Dosimeter Charger	1	B
Spare Batteries for Dosimeter Charger	2	A
Film Dosimeters in Green Holders (six month time limit on film)	50	A
Timekeeping Log Sheets	50	A

APPROVED
DEC 15 1982

C.C.O.S.R.

DESCRIPTION	QUANTITY	CATEGORY
CLERICAL SUPPLIES		
Transparent Tape	2 rolls	A
Bulletin Board	1	B
Bulletin Board Pins (various colors)	3 boxes	A
Easel and Pads (EOF)	3	A
Easel and Pads (Press Room)	1	A
White Boards	2	A
Pads of Paper	20	A
Clip Boards	5	A
Three Part Note Paper	100	A
Pens (various colors)	10 boxes	A
Pencils	5 boxes	A
Pencil Sharpener	1	A
White Board Markers (various colors)	10	A
Paper Clips	2 boxes	A
Staplers	2	A
Staples	2 boxes	A
Scissors	1 pair	A
Window Cleaner	1 can	A
Paper Towels	1 package	A
Xerox Machine	1	B
Xerox Paper (reams)	10	B
Telecopier	1	B
Telecopy Paper	250	B
Typewriter	1	B
Typing Paper (packages)	2	B
Grease Pencils	1 box	A
Spare Easel Pads	2	A

APPROVED
DEC 1 1962
C.O.S.R.

DESCRIPTION	QUANTITY	CATEGORY
INFORMATIONAL MATERIALS		
Procedure Set	1	A
FSAR's	1	B
ODCM	1	A
Environmental Emergency Procedures	1	A
GSEP Manual	1	A
Technical Specifications	1	B
C.C.C. EPIP's	1	A
Illinois Plan for Radiological Accidents	1	A
P & ID's	1	B
NARF Forms	50	A
Edison Phone Directory	1	A
State Maps	2 sets	A
Area Map	1	A
Overhead Projector (Press Room)	1	A
Area Telephone Directories	2	B
GSEP Phone List	4	A
Iowa Plan for Radiological Accidents	1	A
COMMUNICATIONS EQUIPMENT		
NARS Phone (green)	1	A
CCC Dedicated Phone (yellow)	1	A
Microwave Radio Base	1	A
Outside Line Telephones	8	A
Company Internal Network Telephones	5	A

APPROVED
 DEC 10 1962
 C.C.C.S.R.

DESCRIPTION	QUANTITY	CATEGORY
MISCELLANEOUS SUPPLIES		
Laundry Bags	4	A
Respirator Sanitizer	2 boxes	A
Teri Towels	4 packages	A
Duct Tape (2" rolls)	2 rolls	A
Lead Cave (small)	1	A
Ping Air Sampler	1	A
Ping Sample Supplies	N/A	A
Extension Cord	1	B
Plastic Bags (assorted sizes)	100	A

APPROVED
DEC 15 1992
C.C.O.S.R.

TECHNICAL SUPPORT CENTER SUPPLIES

QEP 550-T5
Revision 1
December 1981

ID/4T The Technical Support Center shall be inventoried quarterly.

Inventory completed _____

Signature/Date _____

CATEGORIES

- A - Stored at TSC
- B - Provided to TSC upon short notice

DESCRIPTION	QUANTITY	CATEGORY
SURVEY EQUIPMENT		
Dose Rate Monitor (such as RM-16)	1	A
Dose Rate Meter (CP)	1	A
Contamination Survey Meter (GM)	2	A
HP-210 Probe	2	A
Spare HP-210 Probe	1	A
Spare Batteries for CP and GM	1 set	A
Nu-Con Smears	1 box	A
Survey Sheets	10	A
Ping Air Monitor	1	A
Alpha Probe for GM	2	A
PROTECTIVE CLOTHING		
ANTI-C Clothing Sets* (various sizes)	25	A
Surgeons Gloves	2 boxes	A
Rain Gear	10	A
Masking Tape (2" rolls)	5	A
Full Face Respirator w/Combination Filter/Charcoal Cartridges	25	A

APPROVED
JAN 07 1982
Q.C.Q.S.R

DESCRIPTION	QUANTITY	CATEGORY
SAFETY EQUIPMENT		
Flashlights w/Batteries	12	A
First Aid Kit	1	B
Spare Bulbs for Flashlights	10	A
Spare Batteries for Flashlights	10	A
Radioactive Materials Stickers	50	A
Potassium Iodide Tablets	200	B
DOSIMETRY SUPPLIES		
Dosimeter Charger	1	A
Pencil Dosimeters 0-500 MR	10	A
Pencil Dosimeters 0-5 R	10	A
Spare Batteries for Dosimeter Charger	2	A
Timekeeping Log Sheets	50	A
MISCELLANEOUS SUPPLIES		
Teri Towels	4 packages	A
Duct Tape	2 rolls	A
Extension Cord	1	B

*ANTI-C Clothing Set Includes: 1. Coveralls 2. Booties 3. Rubbers
4. Gloves 5. Surgeons Cap

APPROVED
JAN 07 1982
Q.C.O.S.R

ID/4H

MOLINE PUBLIC HOSPITAL
RADIATION EMERGENCY AREA
SUPPLIES AND EQUIPMENT

QEP 550-T6
Revision 2
February 1983

The following equipment and supplies will be stored at the Moline Public Hospital in the Radiation Emergency Area. This equipment and supplies are to be used in conjunction with the decontamination and treatment of radioactively contaminated patients at Moline Public Hospital. If discrepancies are found, a Health Physicist should be notified. A quarterly inventory shall be performed.

Requirements for Radiation Emergency Area:

DESCRIPTION	QUANTITY
Count Rate Meter (PRM-4A or equivalent) with HP-210 probe.	1
"Cutie Pie" Ion Chamber	1
Spare Probe for HP-210	1
Self-reading Dosimeters, 0-200 mR	10
0-1R	4
Film Badges	10
Finger Ring Badges	6
Dosimeter Charger	1
Batteries, 9 V Transistor	4
1.5 V D-cell	5
15 V Photo/Electronic	1
1.5 V "AA"	2
Protective Clothing:	
Gowns, disposable	20
Gloves, surgical sterile	50
non-sterile	2 boxes
Plastic Aprons	10
Shoe Covers, disposable	1 box
Face Masks	1 box
Head Covers	10
Sheets, barrier, disposable	3
Basic Pack II	1
Towels, disposable	3 packages

~~APPROVED~~

MAR 04 1983

DESCRIPTION	QUANTITY
Pre-cut Labels	500
Shield, mobile, lead glass	1
Decontamination kit	1
Sample Taking Kit	1
Step-Off Pads	7
Radioactive Truck Placards	4
Signs:	
"Caution Radioactive Material"	2
"High Radioactivity Area Signs"	2
"High Radiation Area"	2
"Radioactive Material"	3
"Airborne Radioactivity Area"	2
"Radiation Area - Radioactive Material"	2
Deccontamination Table Top	1
Water Receptacle, 30 gallon	1
Lead Container	1
Trash Can (for contaminated articles)	1
Radiation Accident Posters	1
Showerhead and Retractable Hose	1
Kraft Paper or Pyrokare	1 roll
Respirator, 1/2 mask	9
Radiation Warning Rope	50 ft.
Herculite, (sized as per REA procedures)	1 each
Radiation Tags:	
"Caution Radioactive Material"	20
"Unconditional Release"	20

APPROVED
MAR 04 1963
Q.C.O.S.R.

DESCRIPTION	QUANTITY
Radiation Stickers:	
"Caution Radioactive Material"	20
"Contaminated Clothing"	20
"Caution Radiation Area"	20
Plastic Bags:	
small	20
medium	20
large	20
Cotton Balls	1 box
Manual: "Decontamination of an Injured and Contaminated Patient"	1

APPROVED

MAR 04 1963

O.C.O.S.H.

ID/2G,1H

REENTRY

610-0
Reentry

Rev. 4 05-08-81

610-1
Reentry Following GSEP Emergencies

Rev. 4 05-08-81

610-2
Procedure Deleted

Rev. 2 02-13-81

610-T1
Summary of Relationship Between Dose
and Injury

Rev. 1 12-16-80

APPROVED

MAY 8 1981

Q.C.O.S.R.

RE-ENTRY FOLLOWING
GSEP EMERGENCIES

QEP 610-1
Revision 4
May 1981

ID/2I

A. PURPOSE

The purpose of this procedure is to outline the steps to be taken when re-entering affected areas following GSEP emergencies.

B. REFERENCES

1. 10CFR20.101.
2. 10CFR50, Appendix E.
3. QRP 100-1, Radiation Control Standards.
4. QEP 620-1 and QEP 620-2.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. Evaluation Prior to Re-Entry.
 - a. Use available instrumentation to determine operational status of equipment in affected areas.
 - b. Use available instrumentation to determine radiation levels and airborne radiation concentration in the affected areas. This should be done in accordance with routine Radiation Protection Procedures.
 - c. Use available information from evacuees of affected areas to determine status of affected areas.
 - d. Document all information obtained.
2. Preparation for Re-Entry.
 - a. Protective clothing shall be worn as required in accordance with Radiation Control Standards and Radiation Protection Procedures.

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MAY 8 1981

Q.C.O.S.F

- b. Respiratory equipment shall be worn as required in accordance with Radiation Control Standards, Radiation Protection Procedures.
 - c. Dosimeters shall be worn as required in accordance with Radiation Control Standards. Consideration should be given to wearing additional dosimeters to more accurately document dose if re-entry personnel may receive more than one Rem.
 - d. Communications between members of the re-entry team and between the re-entry team and other personnel shall be considered.
3. Re-Entry.
- a. Permission for re-entry shall be obtained:
 - (1) From the GSEP Station Director for an alert condition, concurrence should be obtained from the GSEP Command Center Director if practicable.
 - (2) From the GSEP Command Center Director for a site emergency or general emergency condition.
 - b. Caution shall be taken to minimize personnel doses.
 - (1) In no cases shall doses exceed those specified for emergencies in QRP 100-1 and QEP 620-2.
 - (2) An attempt shall be made to maintain doses within limits specified in 10 CFR 20.101.
 - c. The re-entry team shall consist of at least the following:
 - (1) One person highly trained in Radiation Protection (such as a Radiation Protectionman or a Health Physicist).
 - (2) For re-entry of plant areas - one person highly trained in plant operations (such as a person holding a Reactor Operator or Senior Reactor Operator License).
 - d. The re-entry team shall proceed according to plans developed during preparation for re-entry. If major changes in plans are required, the team shall leave the affected area and determine a new course of action.
 - e. Exact plans for re-entry shall be made and shall be discussed with all members of the re-entry team to insure an understanding of what is to be done.
 - f. Radiological instrumentation shall be obtained for use in accordance with Radiation Protection Procedures.
4. Evaluation after Re-Entry.

APPROVED
MAY 8 1981
Q.C.O.S.

- a. Document all information obtained from re-entry.
- b. Evaluate re-entry information.
 - (1) Obtain engineering assistance if necessary.
 - (2) Obtain other assistance if necessary.
- c. Prepare and document plans for recovery operations. .

G. CHECKLISTS

- 1. None.

H. TECHNICAL SPECIFICATION REFERENCES

- 1. None.

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MAY 8 1981

Q.C.O.S.R

SUMMARY OF RELATIONSHIP BETWEEN DOSE AND INJURY

QEP 610-T1
Revision 1
December 1980

Probable Condition of Majority During Emergency

<u>Type of Exposure</u>	<u>Type of Injury</u>	<u>Medical Care Required</u>	<u>Able to Work</u>	<u>Probable Mortality Rate During Emergency*</u>	<u>Comment</u>
Brief, whole body, x-rays; 12 - 50 r	Asymptomatic	No	Yes	0	Similar effect from ERD*** of 12 - 50 r
50 - 200 r	Acute radiation sickness, Group I	No	Yes	Less than 5%	Similar effect from ERD of 50 - 200 r
200 - 450 r	Acute radiation sickness, Group II	Yes	No	Less than 50%	Probable similar effect from ERD of 200 - 450 r
450 - 600 r	Acute radiation sickness, Group III	Yes	No	More than 50%	Uncertain effect of ERD in excess of 450 r
More than 600 r	Acute radiation sickness, Groups IV & V	Yes	No	100%	Uncertain effect of ERD in excess of 450 r
Internal deposit	Acute radiation sickness, with severity proportional to internal dose	Varies	Varies	Varies	No reliable data on relation between internal dose and whole-body brief external dose
Beta-irradiation of skin less than 1000 r**	Radiation dermatitis, Type I	No	Yes	0	Associated with whole-body radiation dose of variable size
1000 - 5000 r	Radiation dermatitis, Types II & III	Yes	No	Less than 50%	Mortality related to area of burn
More than 5000 r	Radiation dermatitis Type IV	Yes	No	More than 50%	Mortality related to area of burn

* This refers to acute mortality; death during first 6 months after onset of exposure.

** Beta-ray dose is usually stated in rads.

*** Emergency Radiation Dose (ERD).

APPROVED

DEC 16 1980

1050

ID/3A,3B

RECOVERY

<u>620-0</u> Recovery	Rev. 4	10-14-82
<u>620-1</u> Recovery Following GSEP Emergencies	Rev. 4	10-14-82
<u>620-2</u> Emergency Personnel Dose Limits and Radiological Controls for Rescue and Recovery Operations	Rev. 2	08-10-81
<u>620-T1</u> Corrective Action Items for Plant Recovery	Rev. 1	10-14-82

APPROVED
COT 14 1982
Q.C.O.S.H.

RECOVERY FOLLOWING
GSEP EMERGENCIES

QEP 620-1
Revision 4
October 1982

ID/3R

A. PURPOSE

The purpose of this procedure is to outline the steps to be taken for recovery following GSEP emergencies.

B. REFERENCES

1. 10CFR20.101.
2. 10CFR50, Appendix E.
3. QRP 10C0-1, Radiation Control Standards.
4. QEP 620-2.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. Plant recovery to operational status is an event-oriented concept. Any considerable degradation of the plant as a result of fire, explosion, etc. may require many unforeseen procedural steps or procedures.

E. LIMITATIONS AND ACTIONS

1. Recovery procedures must address the specific degradations of plant and environs that are present as a result of the event. Therefore, recovery procedures shall be written and processed as special Operating or Maintenance procedures. They shall receive the On-Site Review in accordance with normal station procedures.
2. The need for specific recovery procedures will be determined by the Operations Director, the Technical Director, the Maintenance Director, the Command Center Director and other advisory agencies (i.e. NRC or ESDA).
3. The Technical Director shall coordinate the writing and processing of the special procedures identified as necessary to accomplish recovery.
4. During an emergency situation, a repeat exposure to any overexposed individual (greater than 3 Rem/qtr.) should be prevented.

APPROVED
OCT 14 1982
J. J. J.

F. PROCEDURE

1. Recovery operation shall be done in accordance with predetermined plans.
2. All recovery operations shall be carefully documented.
3. Caution shall be taken to minimize personnel doses.
 - a. In no cases shall doses exceed those specified for emergencies in QRP 1000-1 and QEP 620-2.
 - b. An attempt shall be made to maintain doses within limits specified in 10 CFR 20.101.
4. A list of plant problems as a result of the event should be compiled so that priorities can be developed for corrective actions.

G. CHECKLISTS

1. QEP 620-T1, Corrective Action Items for Plant Recovery.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

EMERGENCY PERSONNEL DOSE LIMITS
AND RADIOLOGICAL CONTROLS FOR RESCUE
AND RECOVERY OPERATIONS

QEP 620-2
Revision 2
August 1981

ID/3A

A. PURPOSE

The purpose of this procedure is to provide guidelines for the control of radiation exposures received by personnel involved in rescue and recovery operations.

B. REFERENCES

1. Commonwealth Edison Radiation Control Standards.
2. Title 10 Parts 19 & 20 of the Code of Federal Regulations.
3. EPA "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", 1975 (and updated 1979).
4. NCRP Report Number 39, "Basic Radiation Protection Criteria".
5. NCRP Report Number 55, "Protection of the Thyroid Gland in the Event of Release of Radioiodines".
6. QEP 610-T1.

C. PREREQUISITES

1. Plan emergency operations prior to entry whenever practicable, obtaining radiation levels, contamination levels and airborne radioactivity levels.
2. Obtain and wear dosimetry capable of measuring the anticipated range of exposures as required by Radiation Protection.
3. Obtain protective clothing as required by Radiation Protection.

D. PRECAUTIONS

1. In certain on-site emergency situations, such as a spent fuel cask drop accident, loss of coolant accident or accidental criticality, extremely high dose rates may be encountered (more than several hundred rem/hr). Before a rescue team is committed to such a hazardous area, the probability of success must be balanced against the probable cost of commitment. Specifically, there must be reasonable assurance that the victim is in the area to be searched and that he is alive. When the probability that the victim is alive is negligible, it is a factor that should be weighed.
2. Whenever possible, approval of the Corporate Command Center, Station and Rad./Chem Directors shall be obtained prior to allowing personnel to incur exposures in excess of the 10 CFR 20 occupational limits.

APPROVED

AUG 10 1981

Q.C.O.S.R.

3. Women should not participate in efforts involving emergency radiological exposures without approval from the Medical Director.

E. LIMITATIONS AND ACTIONS

1. The emergency exposure limits described below apply under the following conditions:
 - a. When it is deemed necessary to implement life saving actions, including search for and removal of injured personnel or when entry to an emergency area is necessary to prevent conditions which would be injurious to others.
 - b. Where it is desirable to enter an emergency area for the protection of facilities or to eliminate or otherwise control serious unplanned radioactive effluent releases.

NOTE

This procedure is intended only as a guideline for recovery and reentry following a GSEP incident. Detailed procedures will be written for specific operations as the need arises during an incident.

2. Personnel subjected to emergency exposure conditions shall be volunteers and shall have prior knowledge of the existing exposure conditions or shall have with them equipment capable of measuring the suspected dose rates. These personnel should preferably be older individuals physically capable of effecting the designated emergency function and should be cognizant of the possible effects of their anticipated exposures. Refer to QEP 610-T1.
3. During an emergency situation, a repeat exposure to any overexposed individual (greater than 3 Rem/quarter.) should be prevented.
4. Every reasonable effort shall be made to keep personnel exposures within the occupational exposure limits as specified in 10 CFR 20.
5. Internal or external doses in excess of the occupational regulatory limits shall be reported to the Medical Director, the NRC and individuals exposed as required by 10 CFR 19 and 20.
6. Emergency personnel exposures shall be limited by the recommendations of the U.S. EPA and the NCRP (References 3 through 5).
7. Records of all personnel external doses, internal and external contamination and medical evaluations shall be compiled and maintained.

APPROVED

AUG 10 1981

Q.C.O.S.R.

F. PROCEDURE

1. When performing emergency operations under abnormally high radiation exposure conditions, personnel shall conduct themselves as follows:
 - a. Within the limits allowed by the urgency of the circumstances, every reasonable effort must be made to provide the rescue team with all the pertinent information and protection that can be brought to bear.
 - b. Wear dosimeters and protective equipment as prescribed by Radiation Protection.
 - c. Plan rescue operations prior to entry.
 - d. Work as quickly as is consistent with safety.
 - e. Avoid high dose rate areas as is practicable.
 - f. Perform rescue operations consistent with first aid practices as dictated by dose rates encountered.
 - g. When a projected dose to the worker's thyroid is in excess of 10 rem, the use of thyroid blocking agents should be considered.
2. If occupational exposure limits as specified in the Radiation Control Standards or 10 CFR 20 must be exceeded, personnel doses shall be restricted as follows:
 - a. Emergency workers - This applies to conditions where it is desirable to enter an emergency area to protect facilities, eliminate serious unplanned release of effluents or to control fires.
 - (1) Planned whole-body dose equivalent shall not exceed 25 rem, (Reference 3);
 - (2) Planned dose equivalent to the thyroid shall not exceed 125 rem, (Reference 3);
 - (3) Planned dose equivalent to the extremities shall not exceed 100 rem, (the whole-body dose equivalent is to be included in this total), (Reference 4).
 - b. Life saving actions - This applies to search for and removal of injured persons or entry to the emergency area to prevent conditions that would injure other people.
 - (1) Dose equivalent to the whole body shall not exceed 75 rem, (Reference 3);
 - (2) No limit for the thyroid since total loss of thyroid function could be allowable, (Reference 3);
 - (3) Additional dose equivalent to the extremities shall not exceed 200 rem, (Reference 4).

APPROVED

AUG 10 1961

O. O. S. R.

3. Following control and stabilization of the emergency conditions, recovery and reentry efforts are to begin. Guidelines for general radiological control and assessment are provided below.
 - a. Recovery personnel will use station instrumentation and appropriate Radiation Protection procedures to determine the extent of radioactive contamination and radiation exposure in the affected areas.
 - b. Routine procedures have been established for operating survey equipment necessary to define radiation and contamination areas and equipment. Radiation Protection personnel are qualified to interpret survey instrument responses to alpha, beta, gamma and neutron contamination levels and personnel dose rates. Whenever possible, areas and equipment should be posted or marked consistent with normal operating procedures.
 - c. Resumption of routine operations and reentry shall occur only when radiation levels and contamination levels are such that the criteria in 10 CFR 20 are met.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

ID/5J

CORRECTIVE ACTION ITEMS
FOR PLANT RECOVERY

QEP 620-T1
Revision 1
October 1982

*1 = need ASAP
2 = needed for reactor shutdown/cooldown
3 = prior to unit start-up

[illegible]

APPROVED

OCT 14 1962

U S O N

ID/2I,2J

TELEPHONE DIRECTORIES

700-0
Telephone Directories

Rev. 7 07-20-83

700-T2
Employee List

Rev. 4 02-10-83

700-T3
Supplemental Phone Listing

Rev. 4 07-20-83

APPROVED
JUL 20 1983
C.O.C.S.R.

ID/IQ,1R

EMPLOYEE LIST

<u>EMPLOYEE NAME</u>	<u>ADDRESS</u>	<u>PHONE NUMBER</u>
----------------------	----------------	---------------------

ABBOTT, Roy A.

ANDERSON, Kevin D.

APPEL, Alice A.

BAILEY, Mark R.

BAJEMA, Randall L.

BAKER, Ellyne K.

BALK, Jonathan E.

BARBER, Terry L.

BARRY, Clifford L.

BAX, Richard L.

BEA, Marty D.

BECKSTROM, Dianne M.

BEHRENS, Paul A.

BELLICH, Joseph J.

BELTZ, Sharon L.

BERG, Henry T.

APPROVED
FEB 10 1983
Q.C.O.S.K

<u>EMPLOYEE NAME</u>	<u>ADDRESS</u>	<u>PHONE NUMBER</u>
BEVEROTH, Keith M.		
BIELASCO, William A.		
BIELEMA, Danny E.		
BIELEMA, James B.		
BIGGS, Melissa A.		
BINZEN, Laverne J.		
BITLER, Brian E.		
BLACK, Russell A.		
BLANN, Melvin R.		
BLAUFUSS, Duane F.		
BOYD, Annie P.		
BOYETTE, Luther B.		
BOYLES, James D.		
BRADDY, Roger L.		
BRADLEY, Cathy L.		
BRADY, John R.		

APPROVED
FEB 10 1988
Q.C.O.S.R.

DESCRIPTION	QUANTITY	CATEGORY
INFORMATIONAL MATERIALS		
Procedure Set	1	A
FSAR's	1	B
ODCM	1	A
Environmental Emergency Procedures	1	A
GSEP Manual	1	A
Technical Specifications	1	B
C.C.C. EPIP's	1	A
Illinois Plan for Radiological Accidents	1	A
P & ID's	1	B
NARF Forms	50	A
Edison Phone Directory	1	A
State Maps	2 sets	A
Area Map	1	A
Overhead Projector (Press Room)	1	A
Area Telephone Directories	2	B
GSEP Phone List	4	A
Iowa Plan for Radiological Accidents	1	A
COMMUNICATIONS EQUIPMENT		
NARS Phone (green)	1	A
CCC Dedicated Phone (yellow)	1	A
Microwave Radio Base	1	A
Outside Line Telephones	8	A
Company Internal Network Telephones	5	A

APPROVED
DEC 10 1982
C.C.C.R.

DESCRIPTION	QUANTITY	CATEGORY
MISCELLANEOUS SUPPLIES		
Laundry Bags	4	A
Respirator Sanitizer	2 boxes	A
Teri Towels	4 packages	A
Duct Tape (2" rolls)	2 rolls	A
Lead Cave (small)	1	A
Ping Air Sampler	1	A
Ping Sample Supplies	N/A	A
Extension Cord	1	B
Plastic Bags (assorted sizes)	100	A

APPROVED
05/10/11
C.C.O.S.R.

TECHNICAL SUPPORT CENTER SUPPLIES

QEP 550-T5
Revision 1
December 1981

ID/4T The Technical Support Center shall be inventoried quarterly.

Inventory completed _____

Signature/Date _____

CATEGORIES

- A - Stored at TSC
- B - Provided to TSC upon short notice

DESCRIPTION	QUANTITY	CATEGORY
<u>SURVEY EQUIPMENT</u>		
Dose Rate Monitor (such as RM-16)	1	A
Dose Rate Meter (CP)	1	A
Contamination Survey Meter (GM)	2	A
HP-210 Probe	2	A
Spare HP-210 Probe	1	A
Spare Batteries for CP and GM	1 set	A
Nu-Con Smears	1 box	A
Survey Sheets	10	A
Ping Air Monitor	1	A
Alpha Probe for GM	2	A
<u>PROTECTIVE CLOTHING</u>		
ANTI-C Clothing Sets* (various sizes)	25	A
Surgeons Gloves	2 boxes	A
Rain Gear	10	A
Masking Tape (2" rolls)	5	A
Full Face Respirator w/Combination Filter/Charcoal Cartridges	25	A

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DESCRIPTION	QUANTITY	CATEGORY
SAFETY EQUIPMENT		
Flashlights w/Batteries	12	A
First Aid Kit	1	B
Spare Bulbs for Flashlights	10	A
Spare Batteries for Flashlights	10	A
Radioactive Materials Stickers	50	A
Potassium Iodide Tablets	200	B
DOSIMETRY SUPPLIES		
Dosimeter Charger	1	A
Pencil Dosimeters 0-500 MR	10	A
Pencil Dosimeters 0-5 R	10	A
Spare Batteries for Dosimeter Charger	2	A
Timekeeping Log Sheets	50	A
MISCELLANEOUS SUPPLIES		
Teri Towels	4 packages	A
Duct Tape	2 rolls	A
Extension Cord	1	B

*ANTI-C Clothing Set Includes: 1. Coveralls 2. Booties 3. Rubbers
4. Gloves 5. Surgeons Cap

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ID/4H

MOLINE PUBLIC HOSPITAL
RADIATION EMERGENCY AREA
SUPPLIES AND EQUIPMENT

QEP 550-T6
Revision 2
February 1983

The following equipment and supplies will be stored at the Moline Public Hospital in the Radiation Emergency Area. This equipment and supplies are to be used in conjunction with the decontamination and treatment of radioactively contaminated patients at Moline Public Hospital. If discrepancies are found, a Health Physicist should be notified. A quarterly inventory shall be performed.

Requirements for Radiation Emergency Area:

DESCRIPTION	QUANTITY
Count Rate Meter (PRM-4A or equivalent) with HP-210 probe.	1
"Cutie Pie" Ion Chamber	1
Spare Probe for HP-210	1
Self-reading Dosimeters, 0-200 mR	10
0-1R	4
Film Badges	10
Finger Ring Badges	6
Dosimeter Charger	1
Batteries, 9 V Transistor	4
1.5 V D-cell	3
15 V Photo/Electronic	1
1.5 V "AA"	2
Protective Clothing:	
Gowns, disposable	20
Gloves, surgical sterile	50
non-sterile	2 boxes
Plastic Aprons	10
Shoe Covers, disposable	1 box
Face Masks	1 box
Head Covers	10
Sheets, barrier, disposable	3
Basic Pack II	1
Towels, disposable	3 packages

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MAR 04 1983

DESCRIPTION	QUANTITY
Pre-cut Labels	500
Shield, mobile, lead glass	1
Decontamination kit	1
Sample Taking Kit	1
Step-Off Pads	7
Radioactive Truck Placards	4
Signs:	
"Caution Radioactive Material"	2
"High Radioactivity Area Signs"	2
"High Radiation Area"	2
"Radioactive Material"	3
"Airborne Radioactivity Area"	2
"Radiation Area - Radioactive Material"	2
Decontamination Table Top	1
Water Receptacle, 30 gallon	1
Lead Container	1
Trash Can (for contaminated articles)	1
Radiation Accident Posters	1
Showerhead and Retractable Hose	1
Kraft Paper or Pyrokare	1 roll
Respirator, 1/2 mask	9
Radiation Warning Rope	50 ft.
Herculite, (sized as per REA procedures)	1 each
Radiation Tags:	
"Caution Radioactive Material"	20
"Unconditional Release"	20

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MAR 04 1963
O.C.O.S.R.

DESCRIPTION	QUANTITY
Radiation Stickers:	
"Caution Radioactive Material"	20
"Contaminated Clothing"	20
"Caution Radiation Area"	20
Plastic Bags:	
small	20
medium	20
large	20
Cotton Balls	1 box
Manual: "Decontamination of an Injured and Contaminated Patient"	1

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MAR 04 1963

O.C.O.S.H.

ID/2C,1H

REENTRY

610-0
Reentry

Rev. 4 05-08-81

610-1
Reentry Following GSEP Emergencies

Rev. 4 05-08-81

610-2
Procedure Deleted

Rev. 2 02-13-81

610-T1
Summary of Relationship Between Dose
and Injury

Rev. 1 12-16-80

APPROVED

MAY 8 1981

Q.C.O.S.R

RE-ENTRY FOLLOWING
GSEP EMERGENCIES

QEP 610-1
Revision 4
May 1981

ID/2I

A. PURPOSE

The purpose of this procedure is to outline the steps to be taken when re-entering affected areas following GSEP emergencies.

B. REFERENCES

1. 10CFR20.101.
2. 10CFR50, Appendix E.
3. QRP 100-1, Radiation Control Standards.
4. QEP 620-1 and QEP 620-2.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. None.

E. LIMITATIONS AND ACTIONS

1. None.

F. PROCEDURE

1. Evaluation Prior to Re-Entry.
 - a. Use available instrumentation to determine operational status of equipment in affected areas.
 - b. Use available instrumentation to determine radiation levels and airborne radiation concentration in the affected areas. This should be done in accordance with routine Radiation Protection Procedures.
 - c. Use available information from evacuees of affected areas to determine status of affected areas.
 - d. Document all information obtained.
2. Preparation for Re-Entry.
 - a. Protective clothing shall be worn as required in accordance with Radiation Control Standards and Radiation Protection Procedures.

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Q.C.O.S.F

- b. Respiratory equipment shall be worn as required in accordance with Radiation Control Standards, Radiation Protection Procedures.
 - c. Dosimeters shall be worn as required in accordance with Radiation Control Standards. Consideration should be given to wearing additional dosimeters to more accurately document dose if re-entry personnel may receive more than one Rem.
 - d. Communications between members of the re-entry team and between the re-entry team and other personnel shall be considered.
3. Re-Entry.
- a. Permission for re-entry shall be obtained:
 - (1) From the GSEP Station Director for an alert condition, concurrence should be obtained from the GSEP Command Center Director if practicable.
 - (2) From the GSEP Command Center Director for a site emergency or general emergency condition.
 - b. Caution shall be taken to minimize personnel doses.
 - (1) In no cases shall doses exceed those specified for emergencies in QRP 100-1 and QEP 620-2.
 - (2) An attempt shall be made to maintain doses within limits specified in 10 CFR 20.101.
 - c. The re-entry team shall consist of at least the following:
 - (1) One person highly trained in Radiation Protection (such as a Radiation Protectionman or a Health Physicist).
 - (2) For re-entry of plant areas - one person highly trained in plant operations (such as a person holding a Reactor Operator or Senior Reactor Operator License).
 - d. The re-entry team shall proceed according to plans developed during preparation for re-entry. If major changes in plans are required, the team shall leave the affected area and determine a new course of action.
 - e. Exact plans for re-entry shall be made and shall be discussed with all members of the re-entry team to insure an understanding of what is to be done.
 - f. Radiological instrumentation shall be obtained for use in accordance with Radiation Protection Procedures.
4. Evaluation after Re-Entry.

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- a. Document all information obtained from re-entry.
- b. Evaluate re-entry information.
 - (1) Obtain engineering assistance if necessary.
 - (2) Obtain other assistance if necessary.
- c. Prepare and document plans for recovery operations.

G. CHECKLISTS

- 1. None.

H. TECHNICAL SPECIFICATION REFERENCES

- 1. None.

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MAY 8 1981
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SUMMARY OF RELATIONSHIP BETWEEN DOSE AND INJURY

Probable Condition of Majority During Emergency

<u>Type of Exposure</u>	<u>Type of Injury</u>	<u>Medical Care Required</u>	<u>Able to Work</u>	<u>Probable Mortality Rate During Emergency*</u>	<u>Comment</u>
Brief, whole body, x-rays; 12 - 50 r	Asymptomatic	No	Yes	0	Similar effect from ERD*** of 12 - 50 r
50 - 200 r	Acute radiation sick- ness, Group I	No	Yes	Less than 5%	Similar effect from ERD of 50 - 200 r
200 - 450 r	Acute radiation sick- ness, Group II	Yes	No	Less than 50%	Probable similar effect from ERD of 200 - 450 r
450 - 600 r	Acute radiation sick- ness, Group III	Yes	No	More than 50%	Uncertain effect of ERD in excess of 450 r
More than 600 r	Acute radiation sick- ness, Groups IV & V	Yes	No	100%	Uncertain effect of ERD in excess of 450 r
Internal deposit	Acute radiation sick- ness, with severity proportional to internal dose	Varies	Varies	Varies	No reliable data on rela- tion between internal dose and whole-body brief external dose
Beta-irradiation of skin less than 1000 r**	Radiation dermatitis, Type I	No	Yes	0	Associated with whole-body radiation dose of variable size
1000 - 5000 r	Radiation dermatitis, Types II & III	Yes	No	Less than 50%	Mortality related to area of burn
More than 5000 r	Radiation dermatitis Type IV	Yes	No	More than 50%	Mortality related to area of burn

* This refers to acute mortality; death during first 6 months after onset of exposure.

** Beta-ray dose is usually stated in rads.

*** Emergency Radiation Dose (ERD).

ID/3A,3B

RECOVERY

620-0
Recovery

Rev. 4 10-14-82

620-1
Recovery Following GSEP Emergencies

Rev. 4 10-14-82

620-2
Emergency Personnel Dose Limits
and Radiological Controls for
Rescue and Recovery Operations

Rev. 2 08-10-81

620-T1
Corrective Action Items for Plant Recovery

Rev. 1 10-14-82

APPROVED
OCT 14 1982
Q.C.O.S.H.

RECOVERY FOLLOWING
GSEP EMERGENCIES

QEP 620-1
Revision 4
October 1982

ID/3R

A. PURPOSE

The purpose of this procedure is to outline the steps to be taken for recovery following GSEP emergencies.

B. REFERENCES

1. 10CFR20.101.
2. 10CFR50, Appendix E.
3. QRP 1000-1, Radiation Control Standards.
4. QEP 620-2.

C. PREREQUISITES

1. None.

D. PRECAUTIONS

1. Plant recovery to operational status is an event-oriented concept. Any considerable degradation of the plant as a result of fire, explosion, etc. may require many unforeseen procedural steps or procedures.

E. LIMITATIONS AND ACTIONS

1. Recovery procedures must address the specific degradations of plant and environs that are present as a result of the event. Therefore, recovery procedures shall be written and processed as special Operating or Maintenance procedures. They shall receive the On-Site Review in accordance with normal station procedures.
2. The need for specific recovery procedures will be determined by the Operations Director, the Technical Director, the Maintenance Director, the Command Center Director and other advisory agencies (i.e. NRC or ESDA).
3. The Technical Director shall coordinate the writing and processing of the special procedures identified as necessary to accomplish recovery.
4. During an emergency situation, a repeat exposure to any overexposed individual (greater than 3 Rem/qtr.) should be prevented.

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OCT 14 1982
J. J. J.

F. PROCEDURE

1. Recovery operation shall be done in accordance with predetermined plans.
2. All recovery operations shall be carefully documented.
3. Caution shall be taken to minimize personnel doses.
 - a. In no cases shall doses exceed those specified for emergencies in QRP 1000-1 and QEP 620-2.
 - b. An attempt shall be made to maintain doses within limits specified in 10 CFR 20.101.
4. A list of plant problems as a result of the event should be compiled so that priorities can be developed for corrective actions.

G. CHECKLISTS

1. QEP 620-T1, Corrective Action Items for Plant Recovery.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

EMERGENCY PERSONNEL DOSE LIMITS
AND RADIOLOGICAL CONTROLS FOR RESCUE
AND RECOVERY OPERATIONS

QEP 620-2
Revision 2
August 1981

ID/3A

A. PURPOSE

The purpose of this procedure is to provide guidelines for the control of radiation exposures received by personnel involved in rescue and recovery operations.

B. REFERENCES

1. Commonwealth Edison Radiation Control Standards.
2. Title 10 Parts 19 & 20 of the Code of Federal Regulations.
3. EPA "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", 1975 (and updated 1979).
4. NCRP Report Number 39, "Basic Radiation Protection Criteria".
5. NCRP Report Number 55, "Protection of the Thyroid Gland in the Event of Release of Radioiodines".
6. QEP 610-T1.

C. PREREQUISITES

1. Plan emergency operations prior to entry whenever practicable, obtaining radiation levels, contamination levels and airborne radioactivity levels.
2. Obtain and wear dosimetry capable of measuring the anticipated range of exposures as required by Radiation Protection.
3. Obtain protective clothing as required by Radiation Protection.

D. PRECAUTIONS

1. In certain on-site emergency situations, such as a spent fuel cask drop accident, loss of coolant accident or accidental criticality, extremely high dose rates may be encountered (more than several hundred rem/hr). Before a rescue team is committed to such a hazardous area, the probability of success must be balanced against the probable cost of commitment. Specifically, there must be reasonable assurance that the victim is in the area to be searched and that he is alive. When the probability that the victim is alive is negligible, it is a factor that should be weighed.
2. Whenever possible, approval of the Corporate Command Center, Station and Rad./Chem Directors shall be obtained prior to allowing personnel to incur exposures in excess of the 10 CFR 20 occupational limits.

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Q.C.O.S.R.

3. Women should not participate in efforts involving emergency radiological exposures without approval from the Medical Director.

E. LIMITATIONS AND ACTIONS

1. The emergency exposure limits described below apply under the following conditions:
 - a. When it is deemed necessary to implement life saving actions, including search for and removal of injured personnel or when entry to an emergency area is necessary to prevent conditions which would be injurious to others.
 - b. Where it is desirable to enter an emergency area for the protection of facilities or to eliminate or otherwise control serious unplanned radioactive effluent releases.

NOTE

This procedure is intended only as a guideline for recovery and reentry following a GSEP incident. Detailed procedures will be written for specific operations as the need arises during an incident.

2. Personnel subjected to emergency exposure conditions shall be volunteers and shall have prior knowledge of the existing exposure conditions or shall have with them equipment capable of measuring the suspected dose rates. These personnel should preferably be older individuals physically capable of effecting the designated emergency function and should be cognizant of the possible effects of their anticipated exposures. Refer to QEP 610-T1.
3. During an emergency situation, a repeat exposure to any overexposed individual (greater than 3 Rem/quarter.) should be prevented.
4. Every reasonable effort shall be made to keep personnel exposures within the occupational exposure limits as specified in 10 CFR 20.
5. Internal or external doses in excess of the occupational regulatory limits shall be reported to the Medical Director, the NRC and individuals exposed as required by 10 CFR 19 and 20.
6. Emergency personnel exposures shall be limited by the recommendations of the U.S. EPA and the NCRP (References 3 through 5).
7. Records of all personnel external doses, internal and external contamination and medical evaluations shall be compiled and maintained.

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AUG 10 1981

Q.C.O.S.R.

F. PROCEDURE

1. When performing emergency operations under abnormally high radiation exposure conditions, personnel shall conduct themselves as follows:
 - a. Within the limits allowed by the urgency of the circumstances, every reasonable effort must be made to provide the rescue team with all the pertinent information and protection that can be brought to bear.
 - b. Wear dosimeters and protective equipment as prescribed by Radiation Protection.
 - c. Plan rescue operations prior to entry.
 - d. Work as quickly as is consistent with safety.
 - e. Avoid high dose rate areas as is practicable.
 - f. Perform rescue operations consistent with first aid practices as dictated by dose rates encountered.
 - g. When a projected dose to the worker's thyroid is in excess of 10 rem, the use of thyroid blocking agents should be considered.
2. If occupational exposure limits as specified in the Radiation Control Standards or 10 CFR 20 must be exceeded, personnel doses shall be restricted as follows:
 - a. Emergency workers - This applies to conditions where it is desirable to enter an emergency area to protect facilities, eliminate serious unplanned release of effluents or to control fires.
 - (1) Planned whole-body dose equivalent shall not exceed 25 rem, (Reference 3);
 - (2) Planned dose equivalent to the thyroid shall not exceed 125 rem, (Reference 3);
 - (3) Planned dose equivalent to the extremities shall not exceed 100 rem, (the whole-body dose equivalent is to be included in this total), (Reference 4).
 - b. Life saving actions - This applies to search for and removal of injured persons or entry to the emergency area to prevent conditions that would injure other people.
 - (1) Dose equivalent to the whole body shall not exceed 75 rem, (Reference 3);
 - (2) No limit for the thyroid since total loss of thyroid function could be allowable, (Reference 3);
 - (3) Additional dose equivalent to the extremities shall not exceed 200 rem, (Reference 4).

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O.C.O.S.R.

3. Following control and stabilization of the emergency conditions, recovery and reentry efforts are to begin. Guidelines for general radiological control and assessment are provided below.
 - a. Recovery personnel will use station instrumentation and appropriate Radiation Protection procedures to determine the extent of radioactive contamination and radiation exposure in the affected areas.
 - b. Routine procedures have been established for operating survey equipment necessary to define radiation and contamination areas and equipment. Radiation Protection personnel are qualified to interpret survey instrument responses to alpha, beta, gamma and neutron contamination levels and personnel dose rates. Whenever possible, areas and equipment should be posted or marked consistent with normal operating procedures.
 - c. Resumption of routine operations and reentry shall occur only when radiation levels and contamination levels are such that the criteria in 10 CFR 20 are met.

G. CHECKLISTS

1. None.

H. TECHNICAL SPECIFICATION REFERENCES

1. None.

ID/5J

CORRECTIVE ACTION ITEMS
FOR PLANT RECOVERY

QEP 620-T1
Revision 1
October 1982

*1 = need ASAP
2 = needed for reactor shutdown/cooldown
3 = prior to unit start-up

[illegible]

APPROVED
OCT 14 1962

QEP 700-0
Revision 7
July 1983

ID/2I,2J

TELEPHONE DIRECTORIES

700-0

Telephone Directories

Rev. 7

07-20-83

700-T2

Employee List

Rev. 4

02-10-83

700-T3

Supplemental Phone Listing

Rev. 4

07-20-83

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JUL 20 1983
C.O.D.S.H.