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Monticello Nuclear Generating Plant  
Docket 50-263  
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Emergency Plan Implementing Procedures

Furnished with this letter is a revision to the Monticello Nuclear Generating Plant Emergency Plan Implementing Procedures. The following procedures are revised:

<u>Procedure</u>	<u>Procedure Title</u>	<u>Revision</u>
A.2-213	Responsibilities of the Emergency Director	10
A.2-410	Out-of-Plant Surveys	14

Please post changes in your copy of the Monticello Nuclear Generating Plant Emergency Plan Implementing Procedures. The superseded procedures should be destroyed.

These revisions do not reduce the effectiveness of the Monticello Nuclear Generating Plant Emergency Plan.

Please contact John Fields at 763-295-1663 if you require further information.

  
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Enclosure

A045

<b>MONTICELLO NUCLEAR GENERATING PLANT</b>		<b>A.2-213</b>
<b>TITLE:</b>	<b>RESPONSIBILITIES OF THE EMERGENCY DIRECTOR</b>	<b>Revision 10</b>
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## **1.0 PURPOSE**

This procedure outlines the duties and responsibilities of the Emergency Director and provides instructions and guidance for the conduct of Emergency Director activities in the Technical Support Center during a declared emergency at the Monticello Nuclear Generating Plant.

Sections of this procedure, which satisfy commitments M76060A and M90125A, are marked with a \$.

## **2.0 APPLICABILITY**

- 2.1 An emergency (Alert or higher classification) has been declared at the Monticello Nuclear Plant and the TSC is activated.
- 2.2 A designated Emergency Director has received a turnover from the Duty Shift Manager (Interim Emergency Director) and assumed the duties and responsibilities of Emergency Director.

## **3.0 ORGANIZATION AND RESPONSIBILITIES**

- 3.1 The Emergency Director is responsible for:
  - 3.1.1 Implementation of this procedure and management of emergency response activities in the TSC.
  - 3.1.2 Overall direction and coordination of MNGP's emergency response activities. (Prior to turnover of this responsibility to the Emergency Manager.)
  - 3.1.3 Off-site communications with State and Local authorities and federal agencies (before turnover to the EOF).
  - 3.1.4 Notification of new emergency classifications (prior to turnover of this responsibility to the Emergency Manager). The Emergency Director retains primary responsibility to classify or re-classify emergencies.
  - 3.1.5 Making off-site Protective Action Recommendations (PARs) to State and/or County authorities (prior to turnover of this responsibility to the Emergency Manager).

## **4.0 DISCUSSION**

This procedure provides instructions for the various duties and responsibilities of the Emergency Director in the Monticello TSC. In some cases, this procedure references other procedures which provide more detailed instructions for the performance and coordination of Emergency Director tasks (e.g., Event Termination/Recovery).

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The instructions contained within each section of this procedure are presently in the "most probable" sequential order and, although presented in this sequence, they are intended to be implemented as the emergency situation dictates and as determined by the Emergency Director.

During the implementation of this procedure the Emergency Director must consider the three distinct phases in the Emergency Classification, Declaration and Notification process.

**Classification:** The act of assessing the EALs to determine the appropriate classification which the ongoing events are categorized. This may take a reasonable length of time (5 to 15 minutes for most situations) depending upon the complexity of the situation. This 15 minute assessment period is consistent with the NRC Branch Position on Timeliness of Classification of Emergency Conditions, EPPOS No. 2.

**Declaration:** The act of formally declaring the classification based on the assessment of EALs. This is the point at which the classification time is set and the 10CFR50, App. E 15 minute off-site notification clock starts.

**Notification:** The act of making the notification(s) to the State, Wright and Sherburne Counties, NRC, etc.

## **5.0 PRECAUTIONS**

- 5.1 When transferring off-site responsibilities from the TSC to the EOF, the various functions should be transferred simultaneously due to their inter-dependence (i.e., transferred as a package, at the same time, and not independently).
- 5.2 Emergency classification changes and Off-site Protective Action Recommendations (when made) **SHALL** be transmitted to the State and Counties within 15 minutes.

## **6.0 INSTRUCTIONS**

### **6.1 Response to an Unusual Event**

- \$ 6.1.1 When contacted by the Duty SEC, obtain a general description of the event including the following information (if applicable):
  - A. The cause of the event and immediate corrective actions taken.
  - B. Plant status before (and after) the event occurred (e.g., operating, shutdown, reduced power, etc.).
  - C. On-site personnel status (e.g., injuries, contaminations, over exposures).
  - D. If the event involves any radioactive releases above allowable limits.

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E. Status of off-site notifications to State, Counties, NRC and whether the event warrants additional individual/organization notifications in accordance with 4 AWI-04.08.01 (EVENT NOTIFICATIONS).

6.1.2 The SEC will ask if (precautionary) notification of a Radiological Emergency Coordinator (REC) is necessary. Instruct the SEC to contact a REC if (in your opinion) the event involves or has significant potential to involve off-normal radiological consequences. The duty Shift Manager or Control Room Supervisor may be consulted to make this determination.

6.1.3 If located at the plant, consider responding to the Control Room, Work Execution Center Office or TSC (if warranted). If located off-site, provide the Duty SEC with the telephone (or pager) number at which you can be contacted (if you will not be reporting to the Plant).

**NOTE:** There is no requirement that the Emergency Director report to the Plant during a NUE

6.1.4 Maintain a heightened state of awareness throughout the event. If conditions degrade, respond accordingly. If the emergency classification escalates (to Alert or higher), refer to Section 6.2 of this procedure.

## **6.2 Response to an Alert (or higher)**

6.2.1 Upon receipt of the Alert declaration (via PA announcement or pager activation) all designated Emergency Directors should report immediately to the TSC.

6.2.2 Upon arrival, refer to the TSC ERO Tag Board and determine the initial Emergency Director assignment as follows:

- A. If no one has assumed the ED position turn the ED tag and sign-in as Emergency Director.
- B. If the Plant Manager is present, he/she should assume the duties of Emergency Director.
- C. If the Plant Manager is not present, another qualified, designated Emergency Director should assume the duties until relieved by the Plant Manager.
- D. Read the ED task tag and turn it over, and sign-in to indicate the ED position is filled.

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6.2.3 Report to the Control Room for the most recent update of plant status and the turnover of Emergency Director responsibilities from the Duty Shift Manager.

- A. Upon assumption of Emergency Director duties, remain in the Control Room until the TSC reaches minimum staffing levels as identified in A.2-106 (ACTIVATION AND OPERATION OF THE TSC).
- B. Contact the TSC to determine if the following personnel are available in the TSC to meet minimum staffing criteria.
  - 1. REC
  - 2. Lead SEC or EC
  - 3. Mechanical Engineer
  - 4. Electrical Engineer
  - 5. Nuclear Engineer

6.2.4 Report to the TSC when minimum staffing levels have been met.

### 6.3 ED Activation and Staffing In the TSC

6.3.1 Initiate Form 5790-213-01 (EMERGENCY DIRECTOR ACTIVATION CHECKLIST).

6.3.2 If necessary, establish contact with the Control Room (Shift Manager or Communicator) to determine any changes in plant status and emergency response actions in-progress. The Operations Group Leader (when staffed) will assume this duty.

6.3.3 Ensure the following key TSC emergency positions are being staffed (by qualified personnel). If any of the positions remain unfilled (after about 30 minutes) direct the Lead Emergency Communicator (EC) to contact qualified personnel (refer to 5970-001-01 (EMERGENCY RESPONSE ORGANIZATION) to identify qualified candidates and the Monticello and Prairie Island Nuclear Emergency Telephone Directory for home/office/pager telephone numbers):

- A. Support Group Leader (TSC Coordinator)
- B. Operations Group Leader (OGL)
- C. Radiological Emergency Coordinator (REC)
- D. Engineering Group Leader (EGL)

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E. Maintenance Group Leader (MGL)

F. Security Group Leader (SGL)

6.3.4 As TSC staffing progresses, begin assessing the event using available information from the following sources:

A. Periodic discussions with the TSC Group Leaders.

B. Review of completed EMERGENCY NOTIFICATION FOLLOW-UP MESSAGE FORM(S), and OFF-SITE PROTECTIVE ACTION RECOMMENDATION FORM(S) generated by the REC (or transmitted from the EOF after off-site communications is turned-over).

C. Review of critical plant parameters, plant process monitor and in-plant radiological data from SPDS.

D. (CR-TSC-OSC-EOF) Technical Communicator link information being posted on Operation Status Board.

E. TSC/EOF counterpart communications (e.g. REC/RPSS, Engineering Group Leader/Tech Support Supervisor, etc.) when the positions are staffed.

6.3.5 Continuously, during the course of the emergency, perform the duties of Emergency Director in accordance with the applicable section(s) of this procedure.

#### **6.4 Emergency Director Record-keeping**

6.4.1 Upon activation initiate the Emergency Director Log book.

6.4.2 When TSC Support Group staff are available, designate (or have the Support Group Leader assign) an individual to perform the duties of Emergency Director Recorder (ED Recorder) and maintain the Emergency Director Log. When staffed, the ED recorder should be positioned near the Emergency Director to facilitate the flow of information in a timely and accurate fashion.

6.4.3 Record significant events and make other entries into the Emergency Director Log in accordance with the following criteria:

A. Significant events and the time(s) which they occur including changes in plant conditions, radiological releases, and adverse plant parameter trends.

B. The general context of reports made to the Emergency Director and/or discussions (in-person and telephone) between the ED and other personnel (including the NRC, if present).

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- C. Emergency notifications (e.g. Classification changes, Off-site Protective Action Recommendations) and the time(s) the notification forms were approved.
- D. Summarize major decisions made by the Emergency Director including the time the decision was communicated and its basis.

6.4.4 Periodically monitor the distribution of completed, approved forms in the TSC (specifically to the ED and NRC) to ensure prompt dissemination of information (forms control and distribution is the responsibility of the Support Group Leader).

6.4.5 Ensure all completed forms are filed in the appropriate container provided and retained as emergency records.

#### **6.5 Transfer of Off-site Responsibilities**

#### **CAUTION**

**When transferring off-site responsibilities from the TSC to the EOF, the various functions should be transferred simultaneously due to their Inter-dependence (i.e., transferred as a package, at the same time, and not independently).**

- 6.5.1 When the EOF is operational consider transfer of the following responsibilities from the TSC to the EOF:
  - A. Performance of off-site dose projection (MIDAS) activities.
  - B. Coordination of off-site radiological monitoring teams (including the Field Teams and Sample Couriers) for the purpose of MIDAS results comparison and validation.
  - C. Off-site communications including the issuance and transmittal of the following emergency forms:
    1. EMERGENCY NOTIFICATION REPORT FORMS (for re-classification of the emergency and PARs at a General Emergency).
    2. EMERGENCY NOTIFICATION FOLLOW-UP MESSAGES (generated by MIDAS and issued periodically to the State Emergency Operations Center (EOC) Planning and Assessment Center (PAC)).
    3. OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLISTS (for off-site protective action recommendations based on projected dose).



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- D. Responsibility for emergency class declaration and notification. (The Control Room and Emergency Director retain the primary responsibility for re-classification and make recommendations to the Emergency Manager who has the responsibility to declare the new emergency class.)

6.5.2 Consult with the Emergency Manager regarding the transfer of off-site responsibilities. Suggest the Emergency Manager consult with the Radiation Protection Support Supervisor (RPSS) regarding the transfer.

6.5.3 Consult with the Radiological Emergency Coordinator (REC) and direct the REC to confer with the RPSS on the proposed transfer.

**NOTE:** If possible, the transfer should be conducted when no off-site communications are being processed by the TSC (e.g. Follow-up Messages, etc.)

6.5.4 Direct the Lead EC and REC to prepare to transfer responsibility for off-site communications to the EOF.

6.5.5 When all parties are prepared, transfer responsibility for off-site communications (and other off-site related activities outlined in 6.5.1) and make an announcement to that effect in the TSC.

6.5.6 Confirm successful completion of the transfer with the REC and Lead EC.

6.5.7 Direct the ED Recorder to record the transfer of off-site responsibilities to the EOF in the ED Log.

6.5.8 In the event of an EOF evacuation or if other circumstances dictate, transfer the responsibility for off-site communications (specified in 6.5.1) back to the TSC by reversing the transfer process outlined in this section.

6.5.9 If (due to EOF evacuation or other circumstances) the responsibilities for off-site communication are transferred back to the TSC:

- A. Direct the Lead EC to immediately contact the appropriate State and County authorities and inform them that the TSC has assumed responsibility for off-site communications.
- B. Upon completion of the transfer, consider conducting a briefing in the TSC which includes a status report in the following areas:
  - 1. MIDAS operational status including the latest dose projection results.
  - 2. Off-site Monitoring team status including locations and recent survey results.

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3. Estimate of when the next EMERGENCY NOTIFICATION FOLLOW-UP MESSAGE will be prepared for review (first follow-up transmission from the TSC).
  4. Status of notifying the State and counties of the transfer of off-site responsibilities.
  5. The status of State and County EOC activations (i.e., which EOCs are staffed and operational and which are not).
  6. Communications equipment operational status including the status of any transmissions currently in progress.
- C. Review, approve and issue the various forms used for off-site emergency communications in accordance with the applicable section of this procedure.

#### **6.6 TSC Status Updates and ED Briefings**

- 6.6.1 During initial TSC activation and staffing, make periodic status announcements in the TSC which include:
  - A. The current emergency classification.
  - B. A narrative summary of the event (when known) including emergency response actions underway or planned and the present status of the reactor.
  - C. The status of any on-site or off-site protective actions taken or initiated (e.g., plant evacuation, etc.)
  - D. The Fitness-for-Duty verification of personnel responding to the TSC (during off-hours activation only).
- 6.6.2 Announce significant events in the TSC as they occur (versus waiting for a formal status update). For important events, such as significant increases in radiological release rates, etc. ensure all personnel in the TSC are aware of the occurrence.
- 6.6.3 During routine TSC operation, conduct periodic status updates (about every 30 minutes) as follows:
  - A. Prior to the update, make an announcement in the TSC that an update will be conducted in 1-5 minutes. This will allow key TSC personnel time to prepare their input.
  - B. Initiate Form 5790-213-02 (EMERGENCY DIRECTOR STATUS UPDATE CHECKLIST). Record the date and time of the status update on the form.

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- C. Announce the beginning of the update in the TSC and request personnel keep background noise (in the TSC) to a minimum during the entire update.
  - D. Using Form 5790-213-02 (as a guide) conduct the update.
  - E. As personnel provide status reports in their respective area(s) note significant items and ask questions to ensure the current status is understood (Form 5790-213-02 may be used for notes).
  - F. If the NRC is present (in the TSC) they should provide their status reports (in each functional area) immediately after their MNGP counterpart.
  - G. Upon completion of the status update announce the estimated time of the next scheduled update in the TSC.
  - H. Direct the ED Recorder to note the update in the Emergency Director Log and retain the completed EMERGENCY DIRECTOR STATUS UPDATE CHECKLIST as emergency records.
- 6.6.4 Upon completion of TSC status update(s) contact the Emergency Manager in the EOF command center and provide a status report (with current information obtained during the TSC update).
- 6.6.5 Ensure the TSC Group Leaders update their personnel (e.g. OSC, Control Room, Access Control, etc.) with current information obtained during the TSC status update.
- 6.6.6 Direct the Lead Emergency Communicator to conduct periodic general status announcements in the Plant, and Site Administration Building via the PA system. The announcements should include the following information (if applicable):
- A. The current emergency classification and status of the plant (reactor).
  - B. The extent of any off-site radiological releases and status of on-site and off-site protective actions taken.
  - C. The habitability of the occupied areas including general area dose rates (if applicable).
- 6.6.7 If the need arises for private conference(s) outside the TSC (e.g., with NRC officials, ED turnover briefings, etc.) the NRC Conference Room (immediately outside the Command Center) or the Back-up OSC may be used if not occupied.

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## **6.7 TSC Operations**

- \$ 6.7.1 If off-site agencies or organizations respond to the TSC (e.g., NRC, State Health Department, etc.) direct the Support Group Leader to serve as the liaison for these organizations.
- \$ 6.7.2 Serve as the utility "point-of contact" for senior off-site officials present in the TSC (e.g., NRC Director of Site Operations, Site Team Leader, etc.) and:
  - A. Include the officials in TSC Status Updates, Emergency Director briefings, discussions and ED turnover activities.
  - B. Confer with the officials on formulation of off-site protective action recommendations (if the EOF has not assumed this responsibility).
  - C. Ensure the officials receive copies of completed forms and transmittals distributed in the TSC.
- 6.7.3 If radiological controls and/or protective actions are required in the TSC (e.g., transfer of TSC access, use of PCs, etc.) ensure the necessary actions are initiated in accordance with the applicable section(s) of this procedure.
- 6.7.4 Conduct periodic status updates in the TSC throughout the emergency in accordance with Section 6.6 of this procedure.
- 6.7.5 When the criteria for event termination or recovery are met direct the Support Group Leader to coordinate compiling the short-term and long-term recovery action lists developed by the TSC Group Leaders.

## **6.8 Technical Assessment**

- 6.8.1 Direct the Engineering Group Leader to perform engineering and operational assessments of the event in accordance with EPIP A.2-210 (ENGINEERING SUPPORT IN THE TSC) and:
  - A. Continuously monitor critical plant parameters and indications (using SPDS and Technical Communicator link).
  - B. Continuously man the EOF-OSC-TSC-CR Technical communications link and maintain the Operational Status Board in the TSC.
  - C. Trend selected plant parameters critical to the event to determine adverse trends and predict (or anticipate) plant transients or potential releases (e.g., containment pressure, etc.)

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- D. Evaluate the engineering and operational aspects of the event including the assessment of inoperable components and/or systems critical to accident mitigation and the determination of alternative methods or corrective actions to restore those capabilities.
- 6.8.2 Direct the Engineering Support Group to serve as the liaison (or primary contact) with off-site engineering and technical vendors and services required by the TSC (e.g. General Electric Emergency Support, A/E vendor, etc.) until the EOF is activated.
- 6.8.3 If 24 hour staffing is required, direct the Engineering Group Leader to coordinate the establishment of a ERO shift schedule for the TSC Engineering Staff with the Support Group Leader.
- 6.8.4 Direct the Engineering Staff to continuously compare plant parameters, indications, events and trends with the Emergency Action Levels (EALs) contained in EPIP A.2-101 (CLASSIFICATION OF EMERGENCIES) and to make recommendations on classification changes immediately upon verification of indications.
- 6.8.5 Ensure the TSC Engineering Staff continuously mans the Emergency Notification System (ENS) link with NRC Headquarters (when required) and provides technical and operational information to the NRC as requested.
- 6.8.6 Direct the Engineering Group Leader to provide a status report on engineering and operational assessment during TSC status updates.
- 6.8.7 Direct the Engineering Group Leader to coordinate providing technical support to the TSC for the evaluation of inoperable systems or components, related to accomplishing accident mitigation objectives, and the determination of alternate methods to accomplish those objectives.
- 6.8.8 Ensure the Engineering Staff maintains a list of inoperable components, systems and/or facility damage identified throughout the event. When the criteria for event termination (or recovery) are met, direct the Engineering Group Leader to coordinate the development of short-term and long-term recovery item lists identifying those tasks required to return the plant (and/or immediate site) to a pre-accident state.
- 6.8.9 If applicable, ensure the TSC Engineering Staff and the Operations Group Leader follows the implementation of the EOPs (by the Control Room) to predict significant operational evolutions (e.g., containment venting) and verify proper EOP implementation.

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**6.8.10** If the Control Room indicates that Severe Accident Management Guidelines (SAMGs) have been entered, take the following steps:

- A. Direct the Operations Group Leader to assume the SAMG Decision Maker responsibilities.
- B. Direct qualified personnel to assume their SAMG Evaluator responsibilities.
- C. Ensure that SAMG Implementors (Control Room and OSC personnel) carry out their duties as directed by the Operations Group Leader.
- D. Announce the transition to the Severe Accident Management Guidelines in the TSC and ensure that the EOF is made aware of the transition.
- E. Monitor the activities of the SAMG Group and provide management support and/or assistance as requested.

## **6.9 Radiological Assessment**

**6.9.1** Direct the Radiological Emergency Coordinator (REC) to coordinate the activities of the Radiation Protection staff including:

- A. The coordination of RP Group staffing and emergency response activities in accordance with EPIP A.2-209 (RESPONSIBILITIES OF RADIOLOGICAL EMERGENCY COORDINATOR).
- B. Radiological accident assessment including the coordination of off-site dose projections, dose assessment and the formulation of off-site Protective Action Recommendations in accordance with EPIP A.2-204 (OFF-SITE PROTECTIVE ACTION RECOMMENDATIONS).
- C. Radiological habitability monitoring and control in the Plant including the formulation of protective action recommendations for Plant personnel in accordance with EPIP A.2-201 (ON-SITE PROTECTIVE ACTION).

**6.9.2** Ensure the REC implements radiological monitoring and controls at the plant. Refer to Section 6.13 for Emergency Director instructions regarding:

- A. Radiological monitoring and control at the Plant.
- B. Establishment of Control Room EFT and TSC Emergency Ventilation System Boundaries.
- C. Plant habitability and protective actions for ERO personnel.

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**D. Emergency exposure authorizations for ERO personnel.**

- 6.9.3 Ensure the Radiation Protection Group continuously performs off-site dose projections throughout the event and formulates off-site protective action recommendations (as necessary). Refer to Section 6.12 of this procedure for Emergency Director instructions regarding the formulation and issuance of off-site protective action recommendations.
- 6.9.4 If 24 hour staffing is required, direct the REC to coordinate the establishment of a ERO shift schedule for the Plant Radiation Protection Group with the Support Group Leader.
- 6.9.5 Direct the Radiation Protection Group to continuously monitor and compare actual (and potential) radiological releases (e.g. release rate, etc.) indications, events and trends with the Emergency Action Levels (EALs) contained in EPIP A.2-101 and to make recommendations on classification changes based on radiological conditions.
- 6.9.6 Direct the REC Assistant to continuously update the Radiological Status Board in the TSC using data from approved Emergency Notification Follow-up Messages and other appropriate sources.
- 6.9.7 Direct the REC to provide a status report on radiological assessment, meteorological conditions and plant habitability during TSC status updates.
- 6.9.8 When the REC submits Form 5790-102-03 (EMERGENCY NOTIFICATION FOLLOW-UP MESSAGE) for approval, process the form in accordance with Section 6.10 of this procedure.
- 6.9.9 If making a change in emergency classification, review and approve Form 5790-102-02 (EMERGENCY NOTIFICATION REPORT FORM), submitted by the REC, in accordance with Section 6.11 of this procedure.
- 6.9.10 If (and when) the REC submits Form 5790-204-01 (OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST) for approval, process the form in accordance with Section 6.12 of this procedure.
- 6.9.11 Ensure the Radiation Protection Group continuously mans the Health Physics Network (HPN) link with the NRC (when required) and provides radiological and meteorological information to the NRC as requested.
- 6.9.12 If the plant conducts a Site Evacuation (or removal of non-essential personnel from the site following a Plant Evacuation) direct the REC to coordinate the procession of evacuees from the site with the RPSS (and off-site authorities if off-site protective actions such as evacuation or sheltering have been implemented).

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6.9.13 If habitability, environmental radiological conditions or other conventional hazards dictate, consider implementation of protective actions for ERO personnel based on REC recommendations. Refer to Section 6.14 of this procedure for Emergency Director instructions regarding personnel protective actions including:

- A. Use of protective anti-contamination clothing.
- B. Issuance and use of Potassium Iodide (KI) for ERO personnel.
- C. Emergency exposure authorizations (in excess of MNGP or NRC Limits).
- D. Plant or Site evacuation.

6.9.14 When the criteria for event termination or transition to Recovery is met direct the REC to coordinate the development of recovery item list(s) which identify short-term and long-term radiological considerations to be taken into account during the recovery phase.

6.9.15 If off-site radiological releases have occurred (in excess of ODCM limits) and when significant releases have been terminated consider increasing the frequency (and scope) of the MNGP Radiological Environmental Monitoring Program (REMP). Direct the REC to contact the RPSS to initiate REMF activities.

#### **6.10 Emergency Notification Follow-up Messages**

**NOTE:** Emergency Notification Follow-up Message Forms are generated by computer (MIDAS) and transmitted to the State EOC PAC to aid in their dose projection calculations. Follow-up Messages should be issued about every 30 minutes and/or when significant changes in emergency classification, plant conditions or radiological releases occur.

6.10.1 Upon receipt of an Emergency Notification Follow-up Message (from the REC) review the form for completeness and:

- A. Note the date and time (at the top of Page 1) which indicates when the form was generated by MIDAS (question the REC on the issuance of follow-up messages that are more than 1 hour old).
- B. Ensure the proper (current) emergency class is indicated.
- C. Note the wind direction and affected sectors indicated on the form. Briefly compare the affected sectors and/or wind direction to those previously indicated to determine if new affected sectors are identified (due to wind shifts).



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- D. Review the projected integrated dose section (bottom of Page1) to determine if any projected off-site dose exceeds the Protective Action Guides (PAGs). If so, discuss the formulation of Off-site Protective Action recommendations, based on projected dose, with the REC.
- 6.10.2 If the NRC is present (in the TSC) briefly review the completed form with your NRC counterpart (if available) before issuing the form.
- 6.10.3 Discuss any questions regarding the information on the form with the REC.
- 6.10.4 Upon completion of the review (and when satisfied that the information contained on the form is accurate) sign, date and time the form (at the bottom of Page 2).
- 6.10.5 Either return the signed form to the REC (with instructions to have it transmitted) or forward the form delivered to the Lead EC for transmittal.

#### **6.11 Emergency Classification Changes**

<b>CAUTION</b>
<b>Emergency classification changes <i>SHALL</i> be transmitted to the State and Counties within 15 minutes.</b>

- 6.11.1 **Classification** - When informed of plant parameters, radiological release levels or events which indicate that a change in emergency classification may be appropriate evaluate the emergency classification change as follows:
  - A. Confirm that the indications have been verified using redundant or coincidence indications.
  - B. Review the applicable guideline(s), initiating condition(s) and Emergency Action Level(s) (EALS) in EPIP A.2-101 to determine the appropriate emergency class (if not already done by the TSC or EOF staffs).
  - C. If multiple events and/or indications are involved re-classify the emergency based on the event (or indication) that results in the highest (most conservative) emergency classification.
  - D. Consider the effect that combinations of events have, that, if taken individually, would constitute a lower emergency classification but collectively may exceed the criteria for a higher classification.

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- 6.11.2 Make an announcement in the TSC that a change in emergency classification is being considered. If the TSC has responsibility for off-site communications, instruct TSC personnel to prepare for processing a classification change.

**NOTE:** The preliminary announcement of a potential classification change will aid the REC and Emergency Communicators in preparing to make the required 15 minute notifications to the State and Counties when the declaration occurs.

- 6.11.3 Confer with the TSC Group Leaders and Emergency Manager (if not already done) regarding the proposed change in emergency class.
- 6.11.4 If the NRC is present (in the TSC) review the proposed classification change with your NRC counterpart (this review is for information only and not to obtain concurrence).
- 6.11.5 If the evaluation outlined above has been completed (indicating a change in emergency classification is warranted) re-classify the emergency.
- 6.11.6 Declaration - Declare the emergency class as follows:
- A. If the EOF has not assumed responsibility for off-site communication, then declare the emergency class.
    - 1. Announce the new emergency classification in the TSC.
    - 2. Inform the REC of the new emergency class and the time of declaration.
    - 3. Ensure the new emergency classification is announced on the site PA system (Access #305)
  - B. If the EOF has assumed responsibility for off-site communication immediately inform the Emergency Manager (EM) of the classification change. The EM is responsible for declaration and off-site notifications.
    - 1. Announce the new emergency classification in the TSC.

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6.11.7 **Notification** - If the EOF has not assumed responsibility for off-site notifications, make the off-site notifications as follows:

- A. Instruct the REC to complete Form 5790-102-02 indicating the new emergency classification and submit the form for review and approval.

<b>CAUTION</b>
<b>If the new emergency classification is General Emergency, Off-site Protective Action Recommendations are required and should be specified on the Emergency Notification Report Form which transmits the classification change.</b>

- B. Review the completed Emergency Notification Report Form and:
  - 1. Verify the appropriate emergency classification is indicated.
  - 2. Verify the time of the emergency classification.
  - 3. If the new emergency class is a General Emergency, verify Off-site Protective Action Recommendations are specified on the form. Prior to (or simultaneously with) its transmittal, a telephone call should be initiated (by the ED or REC) to the Planning Chief (at State EOC PAC) to explain the basis for the recommendations (refer to Section 6.12 of this procedure for additional instructions).
  - 4. Sign the form in the space provided.
- C. Forward the approved Emergency Notification Report Form promptly to the Lead EC for immediate transmittal to the State and Counties (within 15 minutes of the re-classification).

6.11.8 Direct the TSC Emergency Communicators to announce the new emergency classification on the site PA system.

6.11.9 Direct the ED Recorder to record the emergency re-classification in the ED Log Book.

6.11.10 Ensure the new emergency classification is posted on the Organization Status Board in the TSC.

6.11.11 Direct the Lead EC to complete Form 3195 (EVENT NOTIFICATION WORKSHEET) reflecting the classification change and submit the completed form for review and approval.

6.11.12 Upon receipt of the completed Form 3195:

- A. Review the form for completeness.

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- B. Sign, date and time the form in the space provided (SM signature box).
- C. Promptly return the approved form to the Lead EC with instructions to transmit the information to NRC Headquarters (via the ENS) immediately following state and local notifications and not to exceed one hour of the classification change.

#### **6.12 Off-site Protective Action Recommendations**

- 6.12.1 Continuously project off-site doses throughout the duration of the event (Integrated Dose section of the Emergency Notification Follow-up Message).
- 6.12.2 Direct the REC to formulate Off-site Protective Action Recommendations based on the following:
  - A. Projected off-site dose(s) compared to MNGP Conservative Protective Action Guides (PAGs).

#### **CAUTION**

**Off-site Protective Action Recommendations *SHALL* be transmitted to the State and Counties within 15 minutes.**

- 6.12.3 Transmit Off-site Protective Action Recommendations (PARs) using the following forms:
  - A. Off-site Protective Action Recommendations made (required) upon declaration of a General Emergency should be specified on Form 5790-102-02 and transmitted with the emergency classification change notification (within 15 minutes of the GE declaration).
  - B. Off-site Protective Action recommendations made based on projected doses should be specified on Form 5790-204-01.
- 6.12.4 When the REC submits off-site protective action recommendations review the applicable form and:
  - A. Verify the form is complete.

#### **CAUTION**

**If protective actions are being recommended for subarea 5N, protective actions required for Sherco Plant personnel (located in the southwest corner of 5N) should be discussed with the Utility Management.**

- B. Note the affected sectors (A-R) and affected Sub-Areas (e.g., 2, 5E, 5N, etc.) identified on the form.

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- 6.12.5 Briefly discuss the basis for the recommendations with the REC, NRC (if present), and State or County authorities. Consider review of the following information as necessary:
- A. The Emergency Notification Follow-up Message (or MIDAS printout) which projected off-site doses exceeding the PAGs.
  - B. The current (or forecast) meteorological conditions (e.g. wind shifts) which affect the recommendation.
  - C. Identify population centers affected by the recommendations including:
    - 1. When the population will be affected based on plume direction, wind speed, etc.
    - 2. Evacuation time estimates for the affected population.
    - 3. Special groups or facilities within the affected population of area that may require special consideration (e.g., hospitals, nursing homes, etc.).
  - D. Review the protective actions required for Sherco Plant personnel if the recommendations include Subarea 5N.
- 6.12.6 When the basis for the recommendations is understood sign, date and time the form in the space provided.
- 6.12.7 Determine who (Emergency Director or REC) will contact the State EOC PAC to explain the basis for the recommendations.
- 6.12.8 Promptly either return the signed form to the REC with instructions to have it transmitted to the State (or Counties prior to State EOC Activation).
- 6.12.9 Prior to (or simultaneous with) the transmittal of Off-site Protective Action Recommendations to the State ensure a call is initiated (by the ED or REC) to the State EOC PAC to explain the basis for the recommendations.
- 6.12.10 If the recommendations include Subarea 5N contact Generation management to determine the best course of action regarding the Sherco Plant in accordance with the criteria in EPIP A.2-204.
- 6.12.11 Ensure the protective action recommendations made are indicated on the Radiological Status Board in the TSC.
- 6.12.12 Ensure the EOF (Emergency Manager), and JPIC are informed of the off-site protective action recommendations being made.

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- 6.12.13 Ensure the REC informs the NRC regarding the off-site protective actions via the HPN system.
- 6.12.14 Direct the ENS Technical Communicator to inform NRC Headquarters of the off-site protective actions via the ENS.
- 6.12.15 Direct the REC to monitor and follow-up on the implementation of the recommendations (with the State) and indicate the status of implementation on the status board and PAR Map in the TSC.
- 6.12.16 Periodically check on the status of protective action implementation. If, after 1 hour, protective actions have not been initiated (e.g. PANS activated) direct the REC to contact the State and determine the status of initiating protective actions.
- 6.12.17 If the protective actions actually implemented are different than those recommended ensure the EOF and JPIC are promptly informed of the protective actions taken.
- 6.12.18 Direct the REC to continue with off-site dose assessment and formulate subsequent off-site protective action recommendations based on projected dose and MNGP Protective Action Guides (PAGs).
- 6.12.19 Issue additional off-site protective action recommendations (as necessary) in accordance with the instructions in this section.

### **6.13 TSC Radiological Monitoring and Control**

- 6.13.1 Ensure the REC continuously monitors radiological conditions in the TSC and immediate environs by:
  - A. Conduct of periodic habitability surveys in occupied areas of the TSC, Control Room, OSC, Access Control and Security Building.
  - B. Operation of the PIOPS CAM immediately outside the TSC by the elevator.
  - C. Operation of the portable DARM in the TSC.
- 6.13.2 Ensure all TSC personnel are issued dosimetry which is periodically checked (prompt TSC personnel during briefings).
- 6.13.3 If personnel exposures approach MNGP annual administrative limits (2000 mrem TEDE) direct the REC to evaluate exposures and provide recommendations in accordance with EPIP A.2-401 (EMERGENCY EXPOSURE CONTROL) including:
  - A. Evacuation of less essential ERO personnel.
  - B. Logging of exposures and rezeroing dosimeters or issuance of high range dosimetry to essential personnel.

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C. Authorization of emergency exposures (up to 5 rem TEDE) for essential personnel.

6.13.4 If significant releases are occurring (in excess of the Alert levels specified in EPIP A.2-101 ensure the REC coordinates the establishment of EFT and EVS boundaries.

6.13.5 If (and when) loose surface contamination levels exceed 1000DPM/100CM<sup>2</sup>, ensure the REC establishes strict contamination control measures for the EFT and EVS boundaries in accordance with A.2-402 (ON-SITE RADIOLOGICAL MONITORING).

#### **6.14 TSC Protective Actions and Evacuation**

6.14.1 If elevated contamination levels are detected in the uncontrolled areas of the Plant, consider implementing the following protective actions based on REC recommendations.

- A. Direct the REC to post and control contaminated areas (and decontaminate if possible).
- B. Consider protective clothing use in the TSC.
- C. Ensure the REC (and TSC Radiation Protection staff) initiate strict contamination control measures including monitoring of food stuffs, etc. prior to consumption.
- D. Direct the REC to initiate personnel decontamination procedures, as necessary. Personnel may need to be sent to Access Control or the EOF for decontamination.
- E. Consider relocation of the OSC (to the backup OSC).

6.14.2 If elevated radiation levels exist in the Plant, consider implementing the following protective actions based on REC recommendations.

- A. Evacuation of non-EFT or EVS boundary areas of the Plant.
- B. Evacuation of non-essential personnel from the Site.
- C. Initiate exposure tracking and emergency exposure authorizations for essential TSC personnel.

6.14.3 If elevated airborne radiation levels exist in the TSC, consider implementing the following protective actions based on REC recommendations.

- A. Evacuation of non-EFT or EVS boundary areas of the Plant.
- B. Evacuation of non-essential personnel from the Plant.

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- C. Initiate tracking of DAC Hours and emergency exposure authorizations for essential TSC personnel.

6.14.4 If thyroid doses of ERO personnel are projected to exceed 25 rem TEDE (FDA recommended level for KI use), consider issuance of Potassium Iodide (KI) to essential personnel (including Field Teams) and evacuation of non-essential ERO personnel.

6.14.5 If the TSC becomes uninhabitable for any reason, then:

- A. The Emergency Director should relocate to the Control Room.
- B. TSC staff should relocate to the EOF, Backup EOF or as directed by the ED.

#### **6.15 Emergency Director Turnover**

6.15.1 Upon arrival at the TSC the on-coming Emergency Director should initiate a Form 5790-213-03 (EMERGENCY DIRECTOR TURNOVER CHECKLIST) and complete the turnover in accordance with the checklist instructions.

#### **6.16 Event Termination or Recovery**

6.16.1 Continue to assess plant and environmental conditions throughout the event. When all of the following criteria are met consider termination of the emergency or the transition to the Recovery Phase:

- A. The plant is in a stable condition with at least one fission product barrier intact.
- B. No radioactive releases are being made to the environment in excess of plant ODCM limits.
- C. The potential for future degradation of plant conditions is small.

6.16.2 When the above conditions are satisfied, implement the applicable Section(s) of EPIP A.2-602 (EVENT TERMINATION OR RECOVERY).



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## 7.0 FIGURES

None

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\* The following Instruction sections begin with a new page for ease of use in the field: 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.13, & 6.14.

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## **1.0 PURPOSE**

This procedure provides instructions for the activation of Off-site Radiological Monitoring Teams (Field Teams) and the various methods of radiological and environmental monitoring during a declared Emergency at either the Monticello or Prairie Island plants.

## **2.0 APPLICABILITY**

- 2.1 Abnormal conditions exist which involve an airborne or liquid radiological release to the Monticello plant environs and out-of-plant surveys have been requested.
- 2.2 An emergency (Alert or higher classification) has been declared at the Prairie Island Nuclear Generating Plant and Monticello's assistance has been requested.

## **3.0 ORGANIZATION AND RESPONSIBILITIES**

- 3.1 The Radiological Emergency Coordinator (REC) is responsible for:
  - 3.1.1 Overall direction and control of the Field Teams until these responsibilities are assumed by the Emergency Operations Facility (EOF).
- 3.2 The Radiation Protection Support Supervisor (RPSS) is responsible for:
  - 3.2.1 Overall direction and control of the Field Teams after these responsibilities are transferred from the Technical Support Center (TSC).
- 3.3 The Field Team Communicator(s) are responsible for:
  - 3.3.1 Coordination of the Field Teams via radio communication from the TSC or EOF.
- 3.4 The Field Teams are responsible for:
  - 3.4.1 Implementation of this procedure.
  - 3.4.2 Maintaining a constant communication link with the Field Team Communicator in the TSC or EOF.
  - 3.4.3 Performing surveys in accordance with applicable instructions contained in this procedure and as directed by the Field Team Communicator.

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3.5 The Sample Courier(s) are responsible for:

3.5.1 Transportation of samples (taken by the Field Teams) to the EOF.

#### 4.0 DISCUSSION

Off-site surveys during an emergency are normally performed by sister plant Radiation Protection personnel when the EOF is fully activated. Prior to this, off-site surveys must be performed by the affected plant's personnel. Surveys of on-site, out-of-plant areas are always assigned to the affected plant's personnel.

During the initial stage of an emergency, the number of personnel available to perform surveys may be limited. The REC will make decisions on deployment of personnel resources. When the RPSS position is staffed and the EOF is fully operational, control of the Field Teams will be transferred to the RPSS.

There are normally two vehicles designated for off-site monitoring purposes. The Radiation Protection Coordinator maintains control of the keys (24 or 25) for these vehicles.

The EOF Count Room is the primary off-site facility for the receipt and analysis of radioactive samples. The EOF Count Room is staffed by Chemistry personnel from the affected plant who are familiar with its equipment and operation. Unless circumstances dictate otherwise, the EOF Count Room will be used for most samples taken pursuant to this procedure.

#### 5.0 PRECAUTIONS

5.1 Monitoring and sampling instruments **SHALL** be operated in accordance with standard procedures for each instrument type.

5.2 During off-hours activations, Field Team personnel should verify their fitness-for-duty (FFD) with appropriate supervisory personnel (F/T communicator) prior to engaging in activities which directly affect the Health and Safety of the public (e.g. off-site surveys to validate MIDAS projections). This confirmation may be conducted via radio (or telephone) and need not occur in person.

5.3 Minnesota has severe weather conditions which can seriously affect instrument operation. The following guidelines have been established to eliminate or minimize cold weather instrument problems:

5.3.1 Allow approximately 5 minutes for the instrument to warm up completely.

5.3.2 If the outside temperature is greater than 32°F (0°C), instrument use is not restricted by temperature.

5.3.3 If the outside temperature is between 32°F (0°C) and 0°F (-18°C), use the instrument outside no more than 5 (five) minutes.

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- 5.3.4 If the outside temperature is between 0°F (-18°C) and -20°F (-28°C), use the instrument outside no more than 2 (two) minutes.
- 5.3.5 If the outside temperature is below -20°F (-28°C), the instrument should not be used outside unless special batteries (alkaline or Ni-Cd) are installed in the instrument. These batteries increase the minimum temperature range to -40°F (-40°C) but allows less than 30 seconds of use in this type of environment.
- 5.4 If an instrument malfunctions or "pegs out" during survey operations, immediately exit the area by the same route used to enter, and obtain a new instrument if necessary.
- 5.5 During radio and cellular phone communications, observe the following precautions:
  - 5.5.1 Since radio and cellular phone communications can be intercepted by commercially available scanners, all communications must be brief, factual and free of all exclamatory or alarming expressions.
  - 5.5.2 Carefully word data transmission to minimize confusion, in particular, avoid abbreviations such as "mrem" which could be misinterpreted as "rem".
  - 5.5.3 Use the phonetic alphabet when communicating sample points location, etc., as follows:

A	ALPHA	J	JULIET	S	SIERRA
B	BRAVO	K	KILO	T	TANGO
C	CHARLIE	L	LIMA	U	UNIFORM
D	DELTA	M	MIKE	V	VICTOR
E	ECHO	N	NOVEMBER	W	WHISKEY
F	FOXTROT	O	OSCAR	X	X-RAY
G	GOLF	P	PAPA	Y	YANKEE
H	HOTEL	Q	QUEBEC	Z	ZULU
I	INDIA	R	ROMEO		

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- 5.5.4 Preface each communication with the title or name of the receiving party and your title and name. For example: "Monticello TSC"; Monticello Field Team 1..."

After the communication is completed, request the receiving party to repeat the message, if numerical data was relayed.

End message transmission with an appropriate termination phrase. For example: "Monticello Field Team 1, out." During drills always include the words, "THIS IS A DRILL," with each transmission.

- 5.6 Observe respiratory protection and exposure precautions at all times while performing off-site monitoring. If substantial airborne activity or contamination is suspected, don appropriate protective clothing as directed by the REC (or RPSS) IAW the following guidelines:

- 5.6.1 Field Team members should don respirators with GMR canisters if the following conditions occur:

- A. A General Emergency is declared and the affected sectors have been evacuated; and
- B. Measured dose rates are more than 100 mrem/hr true Beta.

- 5.6.2 Respiratory equipment may be removed if the following is indicated:

- A. Field measurements of gross iodine activity indicates less than  $1\text{E-}7 \mu\text{Ci/CC}$ ; or
- B. The REC/RPSS indicates that no significant iodine is or has been released from the plant; and
- C. Measured dose rates are less than 100 mrem/hr true Beta.

- 5.7 Exposures of survey team personnel **SHALL** be IAW administrative control levels. All Field Team members and Sample Couriers **SHALL** have proper dosimetry, which is frequently checked. They **SHALL** remain alert to their own exposure and request relief if cumulative exposure approaches administrative control levels. The Emergency Director may authorize exposure limit extensions if necessary (refer to A.2-401). All exposures **SHALL** be maintained AS LOW AS REASONABLY ACHIEVABLE aided by the following guidelines:

- 5.7.1 Field Teams should not linger in areas greater than 100 mr/hr.

- 5.7.2 Field Teams should not proceed to areas projected to be greater than 1000 mrem/hr unless directed by the REC or RPSS.

- 5.7.3 Field Teams **SHALL NOT** proceed to areas projected to exceed 10,000 mrem/hr.

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- 5.8 During off-site monitoring operations, vehicles and/or survey instruments could become highly contaminated and plume, ground contamination or background radiation conditions may be encountered which could interfere with sample analysis or survey results. Remain alert to these conditions and take appropriate precautions to ensure accurate sample/survey results (i.e., move away from vehicle to analyze samples, prevent instrument contamination by bagging instrument, prevent sample from cross-contamination, etc.).

## **6.0 INSTRUCTIONS**

### **6.1 Field Team Activation**

- 6.1.1 If responding to a MNGP event, refer to the OSC tagboard to determine Field Team assignment.
- 6.1.2 Obtain Emergency vehicle keys. (From the Radiation Protection Controlled Key Cabinet.) If necessary obtain a dose rate meter for use enroute to the EVES Building.
- 6.1.3 Obtain respirator corrective lenses, as applicable.
- 6.1.4 Log in on RWP 902. If responding to an event at MNGP, then retain your personal dosimetry (TLD, and electronic dosimeter) from the plant when exiting. If responding to an event at Prairie Island or circumstances prevent use of normal plant dosimetry, then obtain dosimetry from the Emergency Kits in the EVES building.
- 6.1.5 At the EVES Building initiate Form 5790-410-02 (OUT-OF-PLANT SURVEY CHECKLIST).

**NOTE: Emergency Instrument and Equipment Kits may be stored in the vehicles.**

- 6.1.6 Obtain one (1) Instrument Kit (aluminum case) and one (1) Equipment Kit (grey case) from the storage area in the EVES Building, if not in vehicle.
- 6.1.7 Ensure that each member of the monitoring team has dosimetry (one TLD and either an electronic dosimeter, or a 0-200 mrem DRD and a 0-5000 mrem DRD).
- 6.1.8 Record the applicable dosimetry information for each member of the team on Form 5790-410-02.

**NOTE: A "check source" is provided in the EVES Building for this purpose.**

- 6.1.9 Obtain a count rate meter with 2" pancake probe and dose rate meter from the cabinet and perform the applicable operability and source checks. Leave the instruments on.
- 6.1.10 Obtain one (1) cellular phone and one (1) cellular phone adapter unit from the EVES Building and install in vehicle.

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**NOTE:** Instructions for using the cellular phones are located in each vehicle.

- 6.1.11 Perform an operability check of the mobile radios by establishing contact with the TSC or EOF (when staffed). Obtain a phone number in the area (TSC or EOF) to call. Perform an operability check of the cellular phone by calling the number obtained.
- 6.1.12 For emergency events at the Monticello plant, contact the Field Team Communicator (TSC/EOF). When ready to depart, obtain updated information pertaining to the event and wait for further instructions.
- 6.1.13 If responding to a PI event, refer to Section 6.3 of EPIP A.2-702 (RESPONSE TO AN EMERGENCY AT PRAIRIE ISLAND) for travel routes and instructions for response to the Prairie Island EOF.
- 6.1.14 When departing the plant site area (or entering PI 10 mile EPZ), initiate a plume search (if applicable) IAW Section 6.2 of this procedure.
- 6.1.15 Document all survey/sample data on Form 5790-410-01 (EMERGENCY SAMPLE RESULTS LOG) or Form 5790-410-03 (GROUND DEPOSITION SAMPLE RESULTS LOG) as applicable.
- 6.1.16 Report all survey/sample results to the Field Team Communicator.
- 6.1.17 Forward samples which require further analysis (as directed by the Field Team Communicator) to the EOF Count Room via sample courier or retain the samples for future analysis and/or disposal as directed.
- 6.1.18 When directed, return to the EOF for debriefing and reassignment. Complete and submit all sample result logs and Form 5790-410-02 to the RPSS for review.



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## 6.2 Plume Search Procedure

- 6.2.1 With the count rate meter on the lowest scale (on which meter deflection can be observed) place the probe on the dashboard facing the windshield and observe the instrument for meter deflection while in transit.

**NOTE:** A BETA reading indicates that the plume has been encountered. A GAMMA reading with zero BETA indicates the plume is elevated or displaced.

- 6.2.2 If a meter deflection is observed, stop the vehicle and perform a dose rate survey in accordance with Section 6.5

**NOTE:** If the survey location is NOT at a predesignated survey point, identify the location using known landmarks or road intersections, etc.

- 6.2.3 Report the survey results to the Field Team Communicator as recorded on Form 5790-410-01.

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### **6.3 Particulate and Iodine Air Sampling**

- 6.3.1 Install a particulate filter and a Silver Zeolite cartridge into the air sampler cartridge/filter holder. (See FIGURE 7.6 for Assembly Diagram.)

**NOTE 1:** Engine should be running to maintain a steady battery voltage.

**NOTE 2:** If precipitation is occurring, the sample should be drawn from a covered area. The umbrella included in the Emergency Kit may be used for this purpose.

- 6.3.2 Connect the air sampler to the vehicle power supply and start the air sampler.

- 6.3.3 Record the sample START TIME, SURVEY POINT (sample location), sample FLOW RATE and SURVEY TYPE on Form 5790-410-01.

**NOTE:** Whenever possible air samples should be a standard 25 cu. ft. sample (i.e. 7.07 E+5 CCs or approximately 10 minute sample run time).

- 6.3.4 When the desired sample time has lapsed, stop the air sampler and record the sample STOP TIME.

- 6.3.5 Calculate and record the sample volume in cubic centimeters (cc) using the following formula:

Sample Volume in CCs = (Flow Rate in CFM) x (Sample Time in Minutes) x (2.83 E+4 CCs/ft<sup>3</sup>).

- 6.3.6 Remove the particulate filter and the Silver Zeolite cartridge from the filter cartridge holder, place them in SEPARATE plastic sample bags and seal the bags.

- 6.3.7 Complete a pre-printed sample label including the sample time and date, sample location, sample volume and the contact dose rate and attach a label to each sample bag.

- 6.3.8 In a low background area (i.e. < 1000 CPM) determine the gross activity of each sample by using the following methods:

#### **A. Particulate Activity**

1. Count the particulate filter using a count rate meter with a 2" pancake probe. Subtract the background to determine the Net CPM of the sample.

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**NOTE 1:** Probe Efficiency = 0.1 (10%) for Count Rate Meter with a 2" pancake probe.

**NOTE 2:** Correction Factor (CF) = 0.3 for 4" filter paper counted with a 2" pancake probe or 1.0 for 2" filter paper counted with a 2" pancake probe.

2. Calculate the gross particulate activity of the sample using the Gross Particulate Activity Table (FIGURE 7.4) or the following formula:

$$\text{ACTIVITY } (\mu\text{Ci/CC}) = \frac{(\text{NET CPM}) \times (4.5 \text{ E-7 } \mu\text{Ci/DPM})}{(\text{PROBE EFFICIENCY}) \times (\text{SX VOLUME in CCs}) \times (\text{CF})}$$

**B. Iodine Activity**

1. Count the Silver Zeolite cartridge using a count rate meter with a 2" pancake probe. Subtract the background to determine the Net CPM of the sample.
2. Calculate the sample activity using the Gross Iodine Activity Table (FIGURE 7.1) or the following formula:

$$\text{IODINE ACTIVITY } (\mu\text{Ci/CC}) = \frac{(\mu\text{Ci(s) on cartridge determined by Table})}{(\text{SX volume in CCs})}$$

6.3.9 Record the results on Form 5790-410-01.

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#### 6.4 Gaseous Air Sampling

##### **CAUTION**

**If hands are contaminated, handle chamber with clean surgeon gloves.**

- 6.4.1 Obtain the gas sampling chamber, suction bulb and filter assembly from the Emergency Kit. (See FIGURE 7.2 for assembly diagram.)
- 6.4.2 Install a new filter in the filter holder assembly.
- 6.4.3 Connect the suction bulb, sample chamber and filter assembly such that air passes through the filter assembly into the sample chamber then to the suction bulb.
- 6.4.4 Open the stop cocks on the gas sample chamber, squeeze the suction bulb ten (10) times to obtain a representative sample, then shut the stop cocks on the gas sampling chamber.
- 6.4.5 Record the SAMPLE TIME, SURVEY POINT, (sample location) and SAMPLE TYPE on Form 5790-410-01.
- 6.4.6 In a low background area (i.e., <1000 CPM) determine the activity of the gas sample ( $\mu\text{Ci}/\text{CC}$  of Xe 133 equivalent) using the following method:
  - A. Count the gas sample chamber using a count rate meter with a 2" pancake probe by placing the probe on the chamber over the mylar window. Record the results as GROSS CPM on Form 5790-410-01;
  - B. Obtain a second "empty" gas sample chamber from the Emergency Kit and count the "empty" chamber using a count rate meter with a 2" pancake probe by placing the probe on the chamber over the mylar window. Record the result as the BACKGROUND CPM in Form 5790-410-01;
  - C. Calculate the NET CPM.
  - D. Determine the gas sample activity by using the NET CPM and the Gas Chamber Table (FIGURE 7.2).
- 6.4.7 Record the sample results on Form 5790-410-01.
- 6.4.8 Complete a pre-printed sample label with all applicable sample data. Place the sample in a plastic sample bag, seal the bag and attach the label to the bag.

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## 6.5 Stationary Dose Rate Survey

6.5.1 Energize the Dose Rate Meter and allow the instrument to stabilize (approximately 30 seconds) then re-zero the meter.

6.5.2 Perform a BETA/GAMMA survey of the area as follows:

- A. With the window open, hold the instrument approximately one (1) meter from ground level and survey the area for the maximum meter deflection;
- B. Record the "WINDOW OPEN" (BETA/GAMMA) reading.
- C. Close the instrument window and obtain the GAMMA reading;
- D. Record the 'WINDOW CLOSED' (GAMMA) reading.

**NOTE:** Assume a **BETA CORRECTION FACTOR** of 5.0 if the **BETA CORRECTION FACTOR** for the instrument is unknown.

E. Calculate the "TRUE BETA" reading as follows:

$$\text{TRUE BETA} = (\text{WINDOW OPEN} - \text{WINDOW CLOSED}) \times (\text{BETA CORRECTION FACTOR})$$

**NOTE:** If the survey location is **NOT** a predesignated survey point, identify the location using known landmarks or road intersections, etc.

F. Record the TRUE BETA results on Form 5790-410-01.

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## 6.6 Liquid Sampling

**NOTE:** An additional supply of sample bottles are available at the EOF.

6.6.1 Obtain a 1 liter sample bottle and install the bottle in the holder.

6.6.2

### **CAUTION**

**Use the appropriate radiological precautions when handling potentially radioactive samples.**

Cast or lower the bottle into the water to be sampled, allow the bottle to fill completely then withdraw and cap the bottle.

6.6.3 Bag the sample bottle, complete a pre-printed label. Attach the label to the sample bottle, label and seal the plastic bag.

6.6.4 Record the sample TIME, SURVEY POINT (sample location) and SURVEY TYPE on Form 5790-410-01.

6.6.5 In a low background area (i.e., <1000 CPM) determine the gross activity of the sample using the following method:

- A. Count the sample using a count rate meter with a 2" pancake probe by placing the probe on the sample as indicated on the Gross Liquid Activity Table (FIGURE 7.3). Subtract the background to determine the Net CPM of the sample.
- B. Record the background, and Net CPM on Form 5790-410-01 (EMERGENCY SAMPLE RESULTS LOG);
- C. Determine the activity of the sample using the Gross Liquid Activity Table (FIGURE 7.3) and the NET CPM of the sample.

6.6.6 Record the sample results on Form 5790-410-01.

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## **6.7 Discharge Canal Sampling (Monticello Only)**

- 6.7.1 Obtain 1 liter sample bottles from an Emergency Kit or from the Chemistry lab.
- 6.7.2 Obtain the keys for one of the Plant vehicles (if needed) and a hand held radio. (Radios are available in the TSC and OSC. Use talk group 2A unless directed otherwise.)
- 6.7.3 Proceed to the Discharge Canal Sample Station (DCSS) located on the south bank of the discharge canal approximately 550' downstream of the discharge structure. (FIGURE 7.5) Sample point (3) of on-site liquid sample locations map.
- 6.7.4 In the DCSS Building locate pumps P-112A and P-112B. Verify the sample flow into the drain trough down stream of CW-27 is at least 10 GPM as indicated by reading flow indicator FIS-1905 centered above pumps P-112A and P-112B.
- 6.7.5 Using a 1 liter bottle, take the desired sample(s) from the 1.5 inch line dumping water into the trough.
- 6.7.6 Bag the sample bottle, complete a pre-printed sample label, attach the label to the sample bottle, label and seal the plastic bag.
- 6.7.7 Record the sample TIME, SAMPLE POINT (sample location) and SURVEY TYPE on Form 5790-410-01.
- 6.7.8 Determine the gross activity of the sample using the following method:
  - A. Count the sample using a count rate meter with a 2" pancake probe by placing the probe on the sample as indicated in Gross Liquid Activity Table (FIGURE 7.3). Subtract the background to determine the Net CPM of the sample.
  - B. Record the background and Net CPM on Form 5790-410-01;
  - C. Determine the activity of the sample using the Gross Liquid Activity Table (FIGURE 7.3) and the Net CPM of the sample.
- 6.7.9 Record sample results on the Form 5790-410-01.

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#### **6.8 Ground Deposition - Direct Frisk Survey**

- 6.8.1 Obtain a count rate meter with a 2" pancake probe or equivalent.
- 6.8.2 Proceed to the designated survey point and carefully scan flat surfaces in the area (e.g., roads, lawns, mailboxes, vehicles, fields, etc.).
- 6.8.3 Record the sample TIME and SURVEY POINT (sample location) on Form 5790-410-03.
- 6.8.4 Calculate the ground deposition activity as follows:

$$\mu\text{Ci}/\text{m}^2 = \frac{\text{Net CPM}}{400}$$

- 6.8.5 Record sample results on Form 5790-410-03.

#### **6.9 Ground Deposition - Smear Samples**

- 6.9.1 Obtain the appropriate number of cloth smears from the Emergency Kit and number the smears (if necessary).

**NOTE:** Each smear area should be clearly identified on a map of the area or in a written description of the area.

- 6.9.2 Proceed to area to be surveyed and smear approximately 100cm<sup>2</sup> of selected smooth surfaces (e.g., cars, mail boxes, machinery, rain gutters etc.).
- 6.9.3 Place the smear(s) in plastic sample bag(s) and seal and label the bag(s).
- 6.9.4 Record the sample TIME AND SURVEY POINT (sample location) SURVEY TYPE on Form 5790-410-03.
- 6.9.5 In a low background area (i.e., <1000 CPM), calculate the smearable activity of each smear sample using the following method:
  - A. Establish an area suitable for counting potentially contaminated smears;
  - B. Determine the background CPM;
  - C. Remove the smear(s) from the bag(s) and count using count rate meter with a 2" pancake probe.
  - D. Calculate the ground deposition activity as follows:

$$\mu\text{Ci}/\text{m}^2 = \frac{\text{Net CPM}}{200}$$



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6.9.6 Rebag the smear sample(s). Contact the Field Team Communicator and arrange to have the sample(s) transported to the EOF Count Room for analysis or retain the sample(s) for future analysis and proper disposal.

6.9.7 Record smear sample results on Form 5790-410-03.

#### **6.10 Ground Deposition - Gamma Dose Rate Survey**

6.10.1 Obtain a dose rate meter. Energize the dose rate meter and allow the instrument to stabilize (approximately 30 seconds) then re-zero the meter.

6.10.2 Proceed to the designated survey area and perform a closed window dose rate survey of the area at 1 meter above the ground.

6.10.3 Record the sample TIME, SURVEY POINT (sample location) and mrem/hr readings under Gamma Survey on Form 5790-410-03.

6.10.4 Calculate ground deposition as follows:

$$\mu\text{Ci}/\text{m}^2 = 100 \times (\text{CLOSED WINDOW mr/hr READING})$$

6.10.5 Record sample results on Form 5790-410-03 and report the results to the Field Team Communicator.

#### **6.11 Ground Deposition Samples - Snow/Dirt Survey**

**NOTE:** The selection should be based on an evaluation of current weather and ground cover conditions (high winds, rain, snow, etc.) such that the sampled area is representative of the ground cover surface. Sample the area where the deposition of contamination is most likely to occur.

6.11.1 Proceed to the designated survey area and select an area where the sample will be taken.

6.11.2 Obtain the aluminum scoop and a large plastic sample bag from the Emergency Kit.

**NOTE:** The area of the scoop is approximately 1,000cm<sup>2</sup>. When removing surface snow to a depth of 1 centimeter the volume of the melted snow is approximately 100 CC of liquid. This assumes a 10:1 snow to water ratio.

6.11.3 Using the scoop, remove snow/dirt from a surface area of about 1000 cm<sup>2</sup> to a depth of about 1 centimeter (0.4 inches).

6.11.4 Place the sample material in a large zip-lock bag, seal and label.

6.11.5 Record the sample TIME, SURVEY POINT (sample location), and the SAMPLE TYPE on Form 5790-410-03.

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## **6.12 Ground Deposition - Vegetation/Food Sampling**

6.12.1 Proceed to the designated survey area and select the area where the sample will be taken.

**NOTE:** The selection should be based on locating herbage eaten by grazing animals, since the herbage provides a key pathway to human exposure. Also, depending on season of year, plant fruit (strawberries, sweet corn, beans, wheat, oats, etc.) may be selected for sampling.

6.12.2 Obtain scissors or trimming device and large zip-lock bag from the Emergency Kit.

**NOTE:** If the vegetation is grass an area of at least 1 m<sup>2</sup> of ground should be sampled. The vegetation should be cut at approximately .5 to 1 inch from the ground and should not be contaminated in the process by soil.

6.12.3 Obtain enough vegetation/food to fill the zip-lock bag. This is about a 1/3 of a kilogram.

6.12.4 Compress the air from the bag, seal and label bag.

6.12.5 Record the sample TIME, SURVEY POINT (sample location) and SURVEY TYPE on Form 5790-410-03.

**NOTE:** This calculation is based on I-131 and CS-137.

6.12.6 Calculate the activity of the sample using the following method:

- A. Flatten the bag and lay probe of a count rate meter with 2" pancake probe on the center of the bag.
- B. Wrap bag around probe and note reading.
- C. Calculate the activity using the following formula:

$$\mu\text{Ci/kg} = \frac{\text{Net CPM}}{1.32}$$

6.12.7 Record the sample results on Form 5790-410-03 and report the results to the Field Team Communicator.

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### **6.13 Off-Site Sample Courier Instructions**

- 6.13.1 When dispatched by the OSC Coordinator, obtain an electronic dosimeter (either from the OSC or Access Control), respirator corrective lenses, as applicable, and log onto Emergency RWP 902. Retain your TLD and dosimeter when departing the plant.
- 6.13.2 Obtain the keys for a plant vehicle and the keys to EVES building. Keys may be obtained from the Security Building or Nuclear Plant Helper Supervisor key cabinet.
- 6.13.3 Obtain one Sample Courier Kit (aluminum case), one portable mobile radio kit (Channel 2A) from the EVES Bldg.
- 6.13.4 Place the Sample Courier Kit in the vehicle and install the mobile radio and antenna.
- 6.13.5 Perform an operability check of the installed radio unit, prior to departing the EVES Building, by contacting the TSC (or EOF). Ensure the radio is selected to Channel 2A.
- 6.13.6 Proceed to the EOF Command Center, using the back (Receiving Area) personnel entrance, and contact the Radiation Protection Support Supervisor (RPSS) immediately upon arrival.
- 6.13.7 Standby in the EOF for assignments as directed by the RPSS.
- 6.13.8 When dispatched from the EOF to pick up samples:
  - A. Logout of the EOF (if necessary) with EOF Security (ensure you keep your dosimetry when departing the EOF).
  - B. Establish and maintain constant radio communication with the Field Team Communicator and follow the communicators instructions regarding travel routes, etc.
  - C. Rendezvous with Field Teams at designated locations for sample pickup.
  - D. Frequently check your dosimeter and notify the Field Team Communicator when exposure approaches administrative limits.
- 6.13.9 When picking up samples from the Field Team(s):
  - A. Obtain any special instructions for handling the sample(s) from the RPSS (e.g. ALARA precautions, etc.).
  - B. Ensure the sample(s) are properly packaged (bagged) and labeled.

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**NOTE:** Protective clothing is provided in the Sample Courier Kit.

- C. Confirm radiological conditions along your travel route(s) with the RPSS and follow the instructions regarding the use of protective clothing (e.g. respiratory protection) that may be warranted.

6.13.10 Transport the sample(s) promptly to the EOF Count Room for analysis. While enroute (to the EOF) contact the EOF Count Room (by radio) and inform the Count Room Tech you will be delivering samples.

6.13.11 Upon arrival at the EOF use the back (Receiving area) personnel entrance into the EOF Controlled Area (the posted Contaminated area in the EOF loading dock) and:

- A. Notify the Count Room Tech samples have arrived.
- B. Ensure the samples are properly re-bagged, re-labeled and surveyed (with a frisker or dose rate meter) prior to transfer out of the posted Contaminated Area into the EOF Count Room.

6.13.12 While at the EOF:

- A. Check and report dosimeter readings to the RPSS.
- B. Perform a whole body frisk (check) prior to proceeding back into the field (if immediately dispatched).
- C. If remaining at the EOF, doff protective clothing (if applicable) and perform a whole body frisk when exiting the posted Contaminated Area (at the Step-Off-Pad).
- D. Perform personnel decontamination (as necessary) under the direction of the Count Room Tech.

6.13.13 Upon completion of sample delivery notify the Field Team Communicator you are ready to be dispatched again.

6.13.14 If dispatched into the field again, obtain additional sampling supplies (e.g. sample bottles, filters, etc.) from the storage cabinet in the Receiving Area and deliver the supplies to the Field Teams (as requested).

6.13.15 When sample courier(s) are no longer required (or when relieved by the next shift) report to the RPSS for debriefing and next shift assignments.

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#### **6.14 Prairie Island Off-Site Field Team Driver Instructions**

- 6.14.1 When dispatched by the OSC Coordinator, obtain an electronic dosimeter (either from the OSC or Access Control), respirator corrective lenses, as applicable, and log onto Emergency RWP 902. Retain your TLD and electronic dosimeter when departing the plant.
- 6.14.2 Report to the EOF and check in with the Radiation Protection Support Supervisor (RPSS).
- 6.14.3 Serve as a driver for the Prairie Island Off-Site Survey Team. The EOF Field Team Communicator will provide instruction on desired sample points.
- 6.14.4 Request advice from the RPSS regarding procedures or special precautions which should be considered when approaching or searching for the plume.
- 6.14.5 Provide assistance to the Field Team as requested.

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## 7.0 FIGURES

### FIGURE

#### 7.1 Gross Iodine Activity Table

Using Count Rate Meter with 2 inch Pancake Probe and Silver Zeolite Absorber

CFM	Flow Min.	Volume	
2.5	10.0	=	707500 cc
3.0	8.3	=	707500 cc
3.5	7.1	=	707500 cc
4.0	6.2	=	707500 cc

Probe eff. 0.10  
Flow CF 1.0

NOTE: The  $\mu\text{Ci/cc}$  activity assumes the above conditions.

NCPM	$\mu\text{Ci}$ Iodine	$\mu\text{Ci/cc}$	NCPM	$\mu\text{Ci}$ Iodine	$\mu\text{Ci/cc}$	NCPM	$\mu\text{Ci}$ Iodine	$\mu\text{Ci/cc}$
100	4.3E-02	6.E-08	800	4.0E-01	6.E-07	6000	3.2E-00	5.E-06
120	5.3E-02	7.E-08	900	4.6E-01	7.E-07	7000	3.8E-00	5.E-06
140	6.0E-02	8.E-08	1000	5.0E-01	7.E-07	8000	4.5E-00	6.E-06
160	7.0E-02	1.E-07	1200	6.0E-01	8.E-07	9000	5.0E-00	7.E-06
180	9.0E-02	7.E-07	1400	7.0E-01	1.E-06	10000	5.6E-00	8.E-06
200	1.0E-01	1.E-07	1600	8.0E-01	1.E-06	12000	6.0E-00	8.E-06
220	1.2E-01	2.E-07	1800	9.0E-01	1.E-06	14000	7.5E-00	1.E-05
240	1.4E-01	2.E-07	2000	1.0E-00	1.E-06	16000	1.0E+01	1.E-05
260	1.5E-01	2.E-07	2200	1.1E-00	2.E-06	18000	1.3E+01	2.E-05
280	1.6E-01	2.E-07	2400	1.2E-00	2.E-06	20000	1.5E+01	2.E-05
300	1.7E-01	2.E-07	2600	1.4E-00	2.E-06	25000	2.5E+01	4.E-05
350	1.8E-01	3.E-07	2800	1.5E-00	2.E-06	30000	3.3E+01	5.E-05
400	2.0E-01	3.E-07	3000	1.6E-00	2.E-06	35000	5.0E+01	7.E-05
450	2.3E-01	3.E-07	3500	1.8E-00	3.E-06	40000	6.0E+01	8.E-05
500	2.6E-01	4.E-07	4000	2.1E-00	3.E-06	45000	1.0E+02	1.E-04
600	3.0E-01	4.E-07	4500	2.5E-00	4.E-06			
700	3.6E-01	5.E-07	5000	2.8E-00	4.E-06			

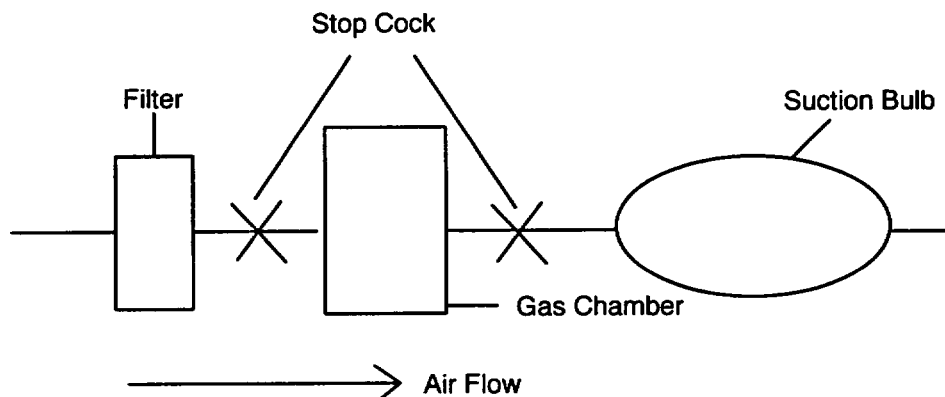
<b>MONTICELLO NUCLEAR GENERATING PLANT</b>		<b>A.2-410*</b>
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## FIGURE

### 7.2 Gas Chamber Table

using Count Rate Meter with 2 inch Pancake Probe and 100 cc S.S. Gas Chamber

NCPM	$\mu\text{Ci/cc}$ (Xe-133 equiv.)	NCPM	$\mu\text{Ci/cc}$ (Xe-133 equiv.)
100	1.0E-05	2500	4.5E-04
150	1.5E-05	3000	5.5E-04
200	2.0E-05	3500	6.5E-04
250	2.5E-05	4000	8.0E-04
300	3.2E-05	4500	9.0E-04
350	4.0E-05	5000	1.1E-03
400	4.5E-05	5500	1.3E-03
450	5.1E-05	6000	1.5E-03
500	6.0E-05	8000	1.8E-03
600	7.5E-05	10000	2.5E-03
800	1.1E-04	12000	3.0E-03
1000	1.5E-04	14000	3.5E-03
1200	1.7E-04	16000	4.0E-03
1400	2.0E-04	18000	4.7E-03
1600	2.5E-04	20000	5.5E-03
1800	3.0E-04	25000	7.5E-03
2000	3.5E-04	30000	9.5E-03

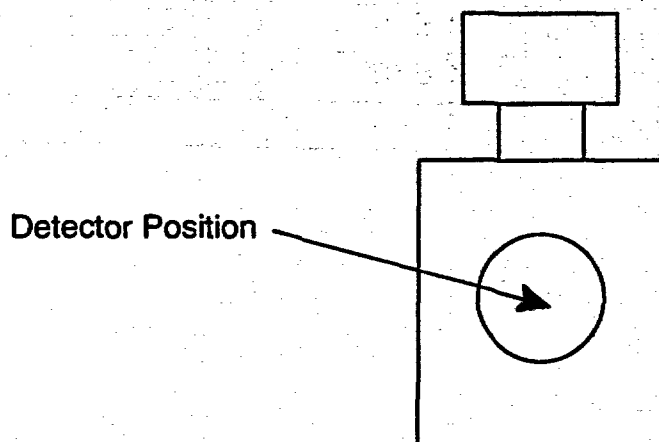


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# FIGURE

## **7.3 Gross Liquid Activity Table** using Count Rate Meter with 2 inch Pancake Probe and 1000 ML Poly Bottle

NCPM	$\mu\text{Ci/ML}$
100	1.5E-04
200	2.5E-04
300	3.5E-04
400	4.5E-04
500	5.5E-04
600	6.5E-04
700	7.5E-04
800	8.5E-05
900	9.5E-05
1000	1.0E-03
2000	1.8E-03
3000	2.6E-03
4000	3.4E-03
5000	4.1E-03
6000	4.8E-03
7000	5.5E-03
8000	6.2E-03
9000	6.9E-03
10000	7.6E-03





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## FIGURE

### **7.4 Gross Particulate Activity Table** using Count Rate Meter with 2 inch Pancake Probe

<u>CFM</u>	<u>Flow Min.</u>	<u>Volume</u>	
2.5	10.0	=	707500 cc
3.0	8.3	=	707500 cc
3.5	7.1	=	707500 cc
4.0	6.2	=	707500 cc

Probe eff. 0.10  
 Flow CF 1.0  
 4" filter CF 0.3  
 Conversion 4.51E-07  $\mu\text{Ci/dpm}$

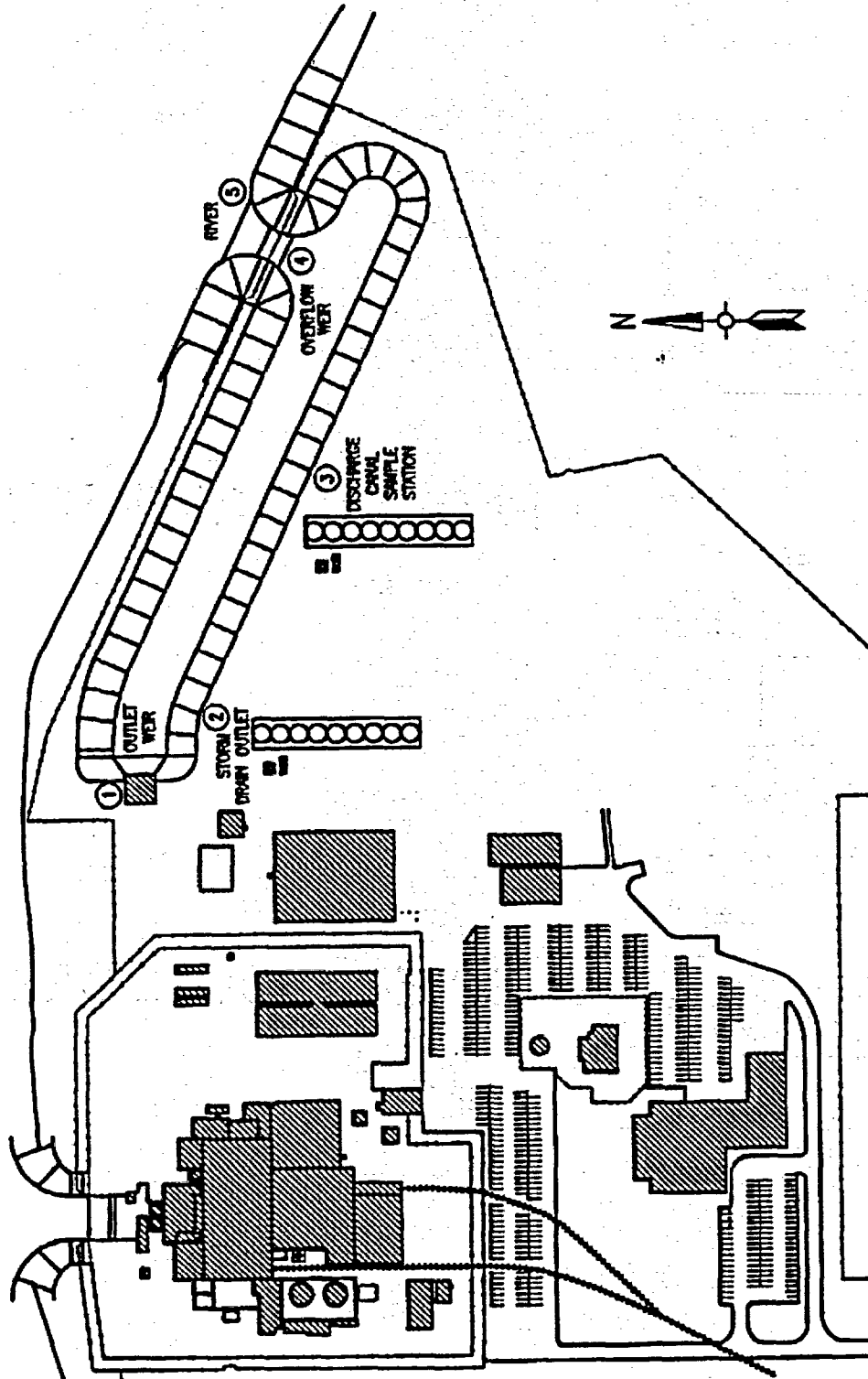
NOTE: The  $\mu\text{Ci/cc}$  activity assumes the above conditions.

<u>NCPM</u>	<u><math>\mu\text{Ci/cc}</math></u>	<u>NCPM</u>	<u><math>\mu\text{Ci/cc}</math></u>	<u>NCPM</u>	<u><math>\mu\text{Ci/cc}</math></u>
100	2.E-09	900	2.E-08	6000	1.E-07
120	3.E-09	1000	2.E-08	7000	1.E-07
140	3.E-09	1200	3.E-08	8000	2.E-07
160	3.E-09	1400	3.E-08	9000	2.E-07
180	4.E-09	1600	3.E-08	10000	2.E-07
200	4.E-09	1800	4.E-08	12000	3.E-07
220	5.E-09	2000	4.E-08	14000	3.E-07
240	5.E-09	2200	5.E-08	16000	3.E-07
260	6.E-09	2400	5.E-08	18000	4.E-07
280	6.E-09	2600	6.E-08	20000	4.E-07
300	6.E-09	2800	6.E-08	25000	5.E-07
350	7.E-09	3000	6.E-08	30000	6.E-07
400	8.E-09	3500	7.E-08	35000	7.E-07
500	1.E-08	4000	8.E-08	40000	8.E-07
600	1.E-08	4500	1.E-07	45000	1.E-06
700	1.E-08	5000	1.E-07		
800	2.E-08	5500	1.E-07		

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# FIGURE

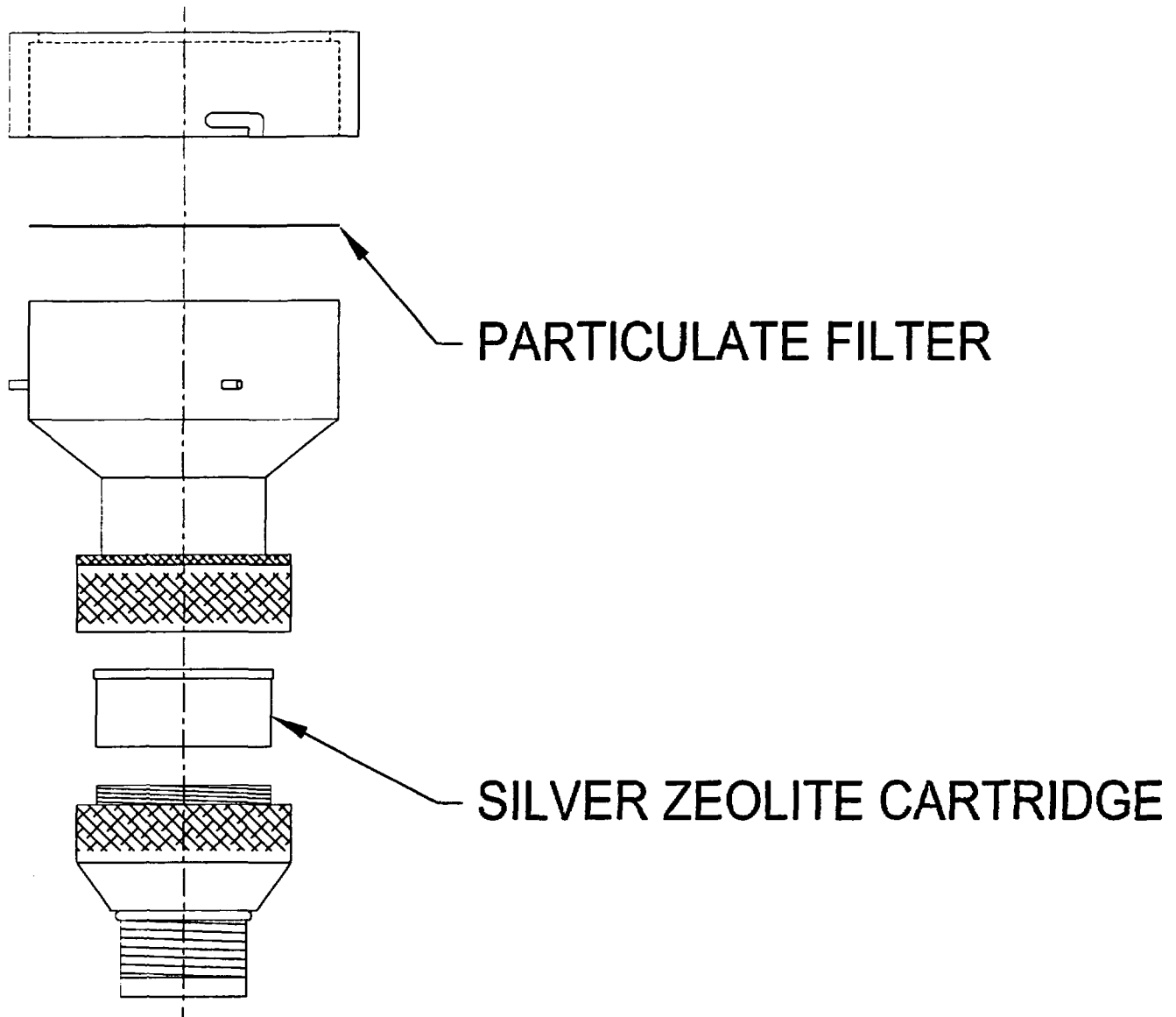
## 7.5 On-Site Liquid Sample Locations



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FIGURE

**7.6 Air Sample Filter Assembly**



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### FIGURE

#### **7.7 Forms Utilized In this Procedure**

- |    |             |                                      |
|----|-------------|--------------------------------------|
| 1. | 5790-410-02 | OUT-OF-PLANT SURVEY CHECKLIST        |
| 2. | 5790-410-01 | EMERGENCY SAMPLE RESULTS LOG         |
| 3. | 5790-410-03 | GROUND DEPOSITION SAMPLE RESULTS LOG |