BellBendCOLPEm Resource

From: Sgarro, Rocco R [rrsgarro@pplweb.com]
Sent: Friday, August 28, 2009 6:25 PM
To: 'Freeman, Barton'
Cc: 'Tamanini, Henry'; 'Janati, Rich'; Coffin, Diane B; Remsky Jr, Ronald P; Peal, Robert M; Canova, Michael; 'Mihalcik, Joseph'; 'Ronald Markovich'; Woodring, Kathryn L; Harpster, Terry L; 'Vyenielo, Martin'
Subject: Response to FEMA Final RAI
Attachments: BNP-2009-243 - BBNPP FEMA RAI Response Cover Letter _08-28-09 signed w-o bcc.pdf

Bart,

Attached please find an advance copy of the PPL Bell Bend initial response to FEMA's Final RAI letter for your use and information. The formal copy will be forthcoming to FEMA HQ by mail. I look forward to continuing our discussions of these issues; I'll contact you next week to answer any questions you may have, and to discuss our plans going forward.

Thank you.

Rocky

R. R. Sgarro
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From: Sgarro, Rocco R

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August 28, 2009

ATTN: Ms. Vanessa E. Quinn
Chief, Radiological Emergency Preparedness Branch
Federal Emergency Management Agency
U. S. Department of Homeland Security
500 C Street, SW
Washington, D. C. 20472

BELL BEND NUCLEAR POWER PLANT
RESPONSE TO FEMA REQUEST FOR
ADDITIONAL INFORMATION
BNP-2009-243 Docket No. 52-039

Reference: 1) Letter, V. E. Quinn (FEMA) to R. R. Sgarro (PPL), "Federal Emergency Management Agency (FEMA) Final Request for Additional Information (RAI) for the Bell Bend Nuclear Power Plant (BBNPP) Combined License (COL) Application", dated June 4, 2009

The purpose of this letter is to respond to FEMA's final request for additional information (RAI) for the Bell Bend Nuclear Power Plant (BBNPP). PPL accepts FEMA's characterization of the issues described in Reference 1. Prior to its issuance additional issues which were identified during FEMA's initial review were resolved through discussions with FEMA Region III.

A number of the questions transmitted to PPL in Reference 1 require changes to the plans controlled by the Commonwealth of Pennsylvania. Others can be resolved independent of those plans. Thirteen (13) of the items in Enclosure 1 are proposed to be resolved (5, 10, 11, 13, 16, 17, 18, 19, 26, 30, 40, 41, 42).

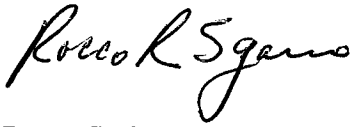
A complete status of all 44 questions is provided in Enclosure 1, PEMA's response to FEMA's Request for Additional Information. Enclosure 2 provides PEMA's Interim Radiological Plans Guidance, which they reference in Enclosure 1. It is understood that the interim guidance may not provide final resolution from FEMA's perspective.

PPL is continuing to work with the Commonwealth and all other affected stakeholders to ensure that all of the remaining 31 RAI's, including those that can be managed independently of the Commonwealth's plans, are properly resolved. A resolution schedule for these items will be provided to you on or before September 14, 2009.

Additionally, for your information, Enclosure 3 provides a list of the contacts made in each of the Risk and Support Counties indicating their commitment to address emergency plan changes in support of BBNPP.

If there are any questions regarding this transmittal, please contact the undersigned at 570.802.8102.

Respectfully,



Rocco R. Sgarro

RRS/kw

Enclosures:
1) PEMA Response to FEMA Request for Additional Information
2) PEMA Interim Radiological Plans Guidance, April 6, 2009
3) Risk and Support County Contact Table Indicating Their Commitment to Address Emergency Plan Changes in Support of BBNPP

cc:

B. Freeman, FEMA Region III
D. Hammons, FEMA Region III
H. Tamanini, PEMA
R. Janati, PADEP/BRP
S. Collins, U.S. NRC Region I
M. Canova, U.S. NRC
D. Barss, U.S. NRC
U.S. NRC Document Control Desk (Docket No. 52-039)

Enclosure 1

PEMA Response to FEMA Request for Additional Information

NOTE: At the end of the enclosed matrix, the following referenced documents are also provided:

- Geisinger Health System Letter [see BBNPP-004]
- Potassium Iodide Tablets Information [see BBNPP-010]
- Sample EAS messages [see BBNPP-017]
- DEP letter regarding instrument calibration [see BBNPP-022]

Memo

TO: Susquehanna Steam Electric Station – Emergency Preparedness

FROM: Henry C. Tamanini, Chief Technological Hazards Division, PEMA Bureau of Plans

SUBJECT: Bell Bend Emergency Preparedness Issues

DATE: July 22, 2009

On or about June 18, 2009 a conference call was conducted between PEMA and Rocco Sgarro Manager - Nuclear Regulatory Affairs, PPL Bell Bend, LLC.

The attached material and information was discussed in detail regarding the potential resolution of the various identified items. Additionally, it must be noted that several items were answered by the Pennsylvania Bureau of Radiation Protection via a written response dated June 17, 2009.

RAI Number	RAI Description	RAI For	Status / Response
BBNPP – 001	**Subject: KI use for the public** **Basis: NUREG-0654, Evaluation Criterion J.10.f** **SRP ACCEPTANCE CRITERION: Requirement H**		**"Resolved"**
A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 5, *Radiological Exposure Control*, Section 6.C, and Attachment B, Section 3.B.2, state that "KI should be taken only at the direction from the State of Pennsylvania. The projected dose that triggers this advice is 25 rem CDE to the adult thyroid." This is inconsistent with the BRP-ER-A-7.0 criteria of when a General Emergency is declared OR at a projected child thyroid committed dose equivalent of 5 rem. Please provide amended plan information that is consistent with BRP guidance.			**Resolution and Pending Action:** PEMA Interim Radiological Plans Guidance Memo dated April 6, 2009, Enclosure III, clarifies that BRP procedure regarding the criteria for administering KI supersedes the information contained in the PA State Plan, Annex E, Appendix 5. This resolves the RAI, pending incorporation of this interim guidance into the revised PA State Plan.
B. Risk Counties The Risk County RERPs, Appendix 13, *Radiological Exposure Control*, Section 6.C, state that "KI should be taken only at the direction from the State of Pennsylvania. The projected dose that triggers this advice is 25 rem CDE to the adult thyroid." This is inconsistent with the BRP-ER-A-7.0 criteria of when a General Emergency is declared OR at a projected child thyroid committed dose equivalent of 5 rem. Please provide amended plan information that is consistent with BRP guidance.			**Resolution and Pending Action:** PEMA Interim Radiological Plans Guidance Memo dated April 6, 2009, Enclosure III, clarifies that BRP procedure regarding the criteria for administering KI supersedes the information contained in the PA State Plan, Annex E, Appendix 5. This resolves the RAI, pending incorporation of this interim guidance into the revised PA State Plan. The Columbia and Luzerne County Plans require revision to be fully compliant with PA policy and FDA guidance.

RAI Number BBNPP – 002	RAI Description Subject: FRMAC location Basis: NUREG-0654, Evaluation Criterion C.1.c SRP ACCEPTANCE CRITERION: Requirement H	Status / Response
A. Pennsylvania: Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 23, states that formal agreements are pending to locate the FRMAC at the Ashley U.S. Army Reserve Center and the DFO at the Kingston Armory. Please provide information on the final arrangements for the location of the FRMAC.		The term DFO (Disaster Field Office) is outmoded. New language should reference the Joint Field Office (JFO). Typically, a FRMAC is located at or near a major Airport. PEMA suggests that discussions be initiated and arrangements made with the WB Scranton – Avoca Airport.
B. Risk Counties: The PA State plan says that the county EMAs who provide support to the Federal response are to cooperate with the Federal government and PEMA in planning for and making the necessary support arrangements; however, the Risk County RERPs do not contain reciprocal language acknowledging that the counties are responsible for assisting with support arrangements for Federal agencies. Please provide Risk County plan information acknowledging the statement in the PA State plan that the counties may be called upon to provide resources to support the Federal response.		PEMA will encourage all REP Counties to add related language to their REP plans on their next update.

C. Support Counties: RAI Number BBNPP – 002 The PA State plan says that the county EMAs who provide support to the Federal response are to cooperate with the Federal government and PEMA in planning for and making the necessary support arrangements; however, the Support County Nuclear/Radiological Incident Plans do not contain reciprocal language acknowledging that the counties are responsible for assisting with support arrangements for Federal agencies. Please provide Support County plan information acknowledging the statement in the PA State plan that the counties may be called upon to provide resources to support the Federal response.	PEMA will encourage all REP Counties to add related language to their REP plans on their next update.

RAI Number BBNPP – 003 **Subject: Dosimeter correction factor** **Basis: NUREG-0654, Evaluation Criterion K.3.a** **SRP ACCEPTANCE CRITERION: Requirement H**	Please refer to PA BRP Response below.

BRP Response to RAIs for Bell Bend NPP

BBNPP-003 - Dosimeter Correction Factor

BRP-ER-A-7.0, Section 7.5.2.1 Emergency Worker Dosimetry, will be modified to read as follows:

7.5.2.1 Emergency Worker Dosimetry

Since emergency worker exposure is controlled retrospectively, some means of active monitoring is required. Monitoring of external exposure from the plume and ground deposition (EDE) is effected through the use of direct reading dosimeters (DRDs) and thermoluminescent dosimeters (TLDs). The internal exposure from inhalation (CEDE) cannot be measured with a direct reading dosimeter or a TLD.

Adjustment or correction of DRD readings to account for internal exposure from inhalation (CEDE) is not necessary in situations where the plume is absent from the point of interest, or the plume contains no iodines or particulates.

However, in situations where the internal exposure from inhalation is significant (CEDE > 10 % of the TEDE), the exposure measured by the dosimeters will under-report the
total whole body exposure. For these situations, DRD readings must be corrected by a ratio calculated from dose projections provided by the utility, or measurements of the radionuclide mix in the plume. For these situations, this will be accomplished as follows:

Until evacuation of the general public is complete, the monitoring and control of emergency worker dose will be based only on the gamma radiation exposure as measured by a direct reading dosimeter without regard to additional dose that may be received from inhalation. Emergency workers entering the plume after evacuation of the general public has been completed will be assigned a predetermined administrative dose limit, stated in terms of external radiation dose only, that is lower than the maximum TEDE dose recommended by the EPA for the class of emergency response activity to be performed. The TEDE calculation for emergency

workers who have taken KI should not include the contribution from thyroid dose due to the inhalation of radioiodine, as that contribution will be minimal if KI is administered prior to exposure. The lower administrative dose limit may account for: (1.) radiation dose already received by workers; and, (2.) the calculated ratio of external dose to the TEDE. The basis of this calculated ratio will be dose projections provided by the licensee; or measurements of the radionuclide mix in the plume. The licensee is responsible for determining the calculated ratio, and providing it to BRP. The licensee will provide two calculated ratios, one that includes the radioiodine component and one that does not. BRP will determine the appropriate calculated ratio for the determination of the administrative dose limit.

Using the calculated ratio, BRP will determine the administrative dose limit. The administrative dose limit is stated in terms of external radiation dose only. It is the DRD reading that corresponds to the maximum TEDE dose recommended by EPA for the class of emergency response activity to be performed.

The administrative dose limit is computed by applying the calculated ratio to the maximum TEDE dose recommended by the EPA for the class of emergency response activity to be performed:

Administrative Dose Limit = Calculated Ratio x EPA TEDE Maximum Dose Limit (1)

EPA TEDE Maximum Dose Limit – dependent on activity performed , i.e. normal activities, protection of valuable property or life saving activities.

Note: Administrative Dose Limit Adjustment -- Some emergency workers may have received a radiation dose during the portion of the emergency phase during which evacuation of the general public was taking place. For these emergency workers, their administrative dose limit will be adjusted downward by subtracting the DRD dose they received during the portion of the emergency phase during which evacuation of the general public was taking place from the computed administrative dose limit described in equation (1) above.

BRP will communicate the administrative dose limit to PEMA. PEMA will disseminate this information to the agencies, counties or municipalities to which the emergency workers report in the affected areas. The respective agency, county or municipality is responsible for the Administrative Dose Limit Adjustment.

Any emergency worker who exceeds the TEDE dose limit for the class of emergency response activity performed, and who, by calculation, receives an internal exposure from inhalation that is significant (CEDE > 10 % of the applicable TEDE), will receive a bioassay to determine the internal dose commitment received.

RAI Number BBNPP – 004	Subject: MS-1 hospitals Basis: NUREG-0654, Evaluation Criterion L.1 SRP ACCEPTANCE CRITERION: Requirement H	Status / Response
A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 11, Attachment A, *List of Designated MS-1 Hospitals Capable of Evaluation and Emergency Treatment of Contaminated Individuals* identifies four MS-1 hospitals serving SSES. This list is inconsistent with the Luzerne and Columbia County plans. Please update the PA State plan to show the correct MS-1 hospitals and their capacities.		The Commonwealth of PA is served by sixteen (16) hospitals designated as MS-1. The Susquehanna / SSES EPZ is now served by three (3) MS-1 Hospitals; namely, Geisinger Wyoming Valley, Williamsport (Susquehanna Health System), Bloomsburg Hospital. The former Mercy Hospital – Wilkes Barre had become a part of the Geisinger organization and became known as Geisinger "South". However, due to the capabilities and location of Geisinger Wyoming Valley, the former Mercy Hospital / Geisinger South facility is no longer listed. This change occurred recently (2009). Luzerne and Columbia Counties will be requested to revise their county REP plans accordingly.

RAI Number BBNPP – 005	Subject: Hospital and EMS support facilities Basis: NUREG-0654, Evaluation Criterion L.3 SRP ACCEPTANCE CRITERION: Requirement H	Status / Response
A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 11, Attachment J, *Hospitals Serving in a General capacity to the Susquehanna Steam Electric Station,* says that a listing of hospitals capable of providing medical support for contaminated injured individuals is found in the Pennsylvania Department of Health; a copy of the directory is maintained in the State and Risk County EOCs. This list was not provided for review. Please provide the list of hospitals and EMS organizations capable of providing medical support for contaminated injured individuals.	Previous versions of the State Plan and County REP Plans did list Hospitals in General Support". The Pennsylvania Department of Health website lists all hospitals within Pennsylvania. A serch function is available for "County", "Type", etc. http://app2.health.state.pa.us/commonpoc/content/publiccommonpoc/commonpocselect.asp?formSubmitted=SearchByFacType&factype=01 The Pennsylvania Department of Health website lists the 2008 Emergency Medical Services Report for 2008 and states "There are 1,533 recognized ambulance services in Pennsylvania. http://www.dsf.health.state.pa.us/health/lib/health/ems/2008_ems_annual_report.pdf	
B. Risk Counties The Risk County RERPs, Appendix 7, Attachment F *Hospitals Serving in General Support,* state that general support hospitals around SSES capable of providing medical support for contaminated injured individuals are included on a list that is maintained in the EOC. This list was not provided for review. Please provide the list of hospitals and EMS organizations capable of providing medical support for contaminated injured individuals.	Please see response above for **RAI Number BBNPP – 005 A**.	

BBNPP – 006	Subject: Contamination action levels Basis: NUREG-0654, Evaluation Criterion K.5.a SRP ACCEPTANCE CRITERION: Requirement H	Status / Response
A. Pennsylvania A.1. Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 5, *Radiological Exposure Control*, Section 4.F, *Monitoring/ Decontamination Teams*, specifies 1000 counts per minute including background for GM pancake probes action level. This contradicts the FEMA-REP-22 guidance for loose contamination, and the 300 counts per minute action level given in the county plans and BRP-ER-A-7.4.4, *Protective Response, Surface Contamination Control*. A.2 Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 5, *Radiological Exposure Control*, Attachment A, Section 2.G(8), *Monitoring Procedures for Vehicles*, says to consider vehicles contaminated if any of the readings are greater than 1000 counts per minute with a Geiger-Mueller Beta/Gamma pancake probe. This contradicts the FEMA-REP-22 guidance for loose contamination, and the 300 counts per minute action level given in the county plans and BRP-ER-A-7.4.4, *Protective Response, Surface Contamination Control.*		**Resolution and Pending Action:** PEMA Interim Radiological Plans Guidance Memo dated April 6, 2009, Enclosure I, Section V.B.2 *Vehicle and Equipment Decontamination or Release Decision Criteria*, states that when using a CD V-700 or modern instrument with pancake detector, if greater than 300 counts per minute(cpm) is detected while monitoring a vehicle or equipment, decontamination procedures shall be initiated. Enclosure II, Attachment C, Table 2 and Tab 1 correctly establishes 1000 cpm as the detection parameter for fixed contamination vehicles, equipment and other possessions. **This resolves the RAI, pending incorporation of this interim guidance into the revised PA State Plan.**

BBNPP – 007	Subject: Portal monitor use Basis: NUREG-0654, Evaluation Criterion K.5.a SRP ACCEPTANCE CRITERION: Requirement H	Status / Response
A. Pennsylvania A.1. Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 5, *Radiological Exposure Control*, Section 4.F, *Monitoring/Decontamination Teams*; Section 9.X, *Definitions*, and Attachment A, Section 2.G, *Monitoring Procedures for Vehicles*, all indicate that portal monitors may be used to monitor vehicles. This is contrary to PEMA Emergency Management Guidance and Information Circular, "Contamination Monitoring and Decontamination Guidance for Radiological Emergency Response", (No.: C2004-2). Please provide amended plan pages clarifying that portal monitors may *not* be used to monitor vehicles.		**Resolution and Pending Action:** PEMA Interim Radiological Plans Guidance Memo dated April 6, 2009, Enclosure I, Section V.D *Survey Equipment Requirements*, and Attachment C, Section A.1 states that portal monitors are not permitted for the monitoring of vehicles. Enclosure II, Section II.B *Scope*, states that monitoring for vehicles and equipment should be done with hand held instruments only. **This resolves the RAI, pending incorporation of this interim guidance into the revised PA State Plan.**

(BBNPP-007 cont'd)	A.2 Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 5, *Radiological Exposure Control*, does not include a procedure to source check the portal monitors used at monitoring and decontamination centers. Please provide procedures for source checking portal monitors in accordance with FEMA-REP-21. **Pennsylvania response:** PEMA Interim Radiological Plans Guidance Memo dated April 6, 2009. Enclosure II, Section V.B.1.a (Page II-4) states that pre-operational checks on portal monitors must be conducted in accordance with the manufacturer's instructions. **Additional clarification of question:** In addition to manufacturer's instructions, FEMA-REP-21 specifies that the pre-operational source check must include a demonstration that the portal monitor will alarm when one or more cesium-137 source(s) with a total activity not exceeding one μCi of Cs-137 source(s) located at several points along a vertical line centered between the two side columns of the portal monitor between 0.5 and 5½ feet above the base upon which the individual stands when being monitored. **B. Risk Counties** Risk County RERPs, Appendix 13, *Radiological Exposure Control*, Attachment A, *Monitoring and Decontamination Procedures,* do not include a procedure to source check the portal monitors used at monitoring and decontamination centers. Please provide procedures for source checking portal monitors in accordance with FEMA-REP-21. **Pennsylvania response:** PEMA Interim Radiological Plans Guidance Memo dated April 6, 2009. Enclosure II, Section V.B.1.a (Page II-4) states that pre-operational checks on portal monitors must be conducted in accordance with the manufacturer's instructions.	Procedures developed by PEMA for the Counties using "Portal Monitors" include language regarding the use of a 1 micro Curie Cesium 137 test source. The procedure addresses using the source at the 0.5 foot, 5.5 foot and mid level point on centerline between the two "pillars".

BBNPP – 008	**Subject: Emergency Classification Levels** **Basis: NUREG-0654, Evaluation Criterion D.3** **SRP ACCEPTANCE CRITERION: Requirement H** **A. Pennsylvania** Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Section 13, *Definitions and Terms*, describes Emergency Classification Levels that are not consistent with those in the Applicant's plan. The PA State plan does not include the security threat language. Please provide amended Emergency Classification Levels that are consistent with those established by the Applicant. **B. Risk County** Columbia County RERP, Enclosure 4 *Emergency Response Action Guidelines Classes of Incidents*, describes Emergency Classification Levels that are not c those in the Applicant's plan. The Columbia County plan does not include the language. Please provide amended Emergency Classification Levels that are c those established by the Applicant.	Security threat language had been added to the Emergency Classification Levels in approximately 2006. Plan revisions require the new language and will incorporate the new language.

BBNPP – 009	Subject: Dose limits during re-entry activities Basis: NUREG-0654, Evaluation Criterion M.1 SRP ACCEPTANCE CRITERION: Requirement H	Status / Response
A. Pennsylvania A.1. Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 15, *Return and Recovery*, incorrectly characterizes reentry activities as "emergency" activities and consequently specifies the wrong dose limits. EPA states [in Section 4.6 of the Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA 400-R-92-001)] that individuals who enter the restricted zone should have their doses controlled in accordance with occupationally-exposed worker limits (i.e., those found in 10CFR20.1201 Occupational Dose Limits for Adults). Please provide amended plan pages showing correct dose limits during reentry activities.		Please see BRP response below.

BBNPP-009 - Dose Limits During Re-entry Activities

BRP has reviewed the content of its Radiological Emergency Response Plan relating to this issue and believes the Plan's language is correct and consistent with the State Plan.

BBNPP – 010	Subject: KI inventory maintenance Basis: NUREG-0654, Evaluation Criterion J.10.e SRP ACCEPTANCE CRITERION: Requirement H	Status / Response
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 5 *Radiological Exposure Control*, Section 4, states that PEMA will specify implementation of comprehensive inventory maintenance programs for KI. The storage guidelines and replacement procedures for KI are not provided. Please provide KI storage guidelines and replacement procedures.	The information provided with the KI contains information regarding storage and replacement. Please see the two attached documents.
BBNPP – 011	**Subject: Mass care planning basis** **Basis: NUREG-0654, Evaluation Criterion J.12** **SRP ACCEPTANCE CRITERION: Requirement H**	**Status / Response**
	A. Risk Counties Risk County RERPs, Appendix 12 *Mass Care* Section 4 *Requirements* Part A says that the appendix is based upon the assumption that 30 percent of the evacuees will need mass care services. Section 4 Part C says the county has assumed that 20 percent of the evacuees will require mass care space. Please provide plan material explaining the rationale for the difference in the planning basis between the two sections, or provide amended plan material using the same planning basis.	State (PEMA) believes that an older set of County documents may have been provided for the review. The Commonwealth of Pennsylvania uses the 20% value for evacuees requiring Mass Care. This has been in effect for many years.

BNPP – 012	Subject: Post-decontamination monitoring Basis: NUREG-0654, Evaluation Criterion K.5.a SRP ACCEPTANCE CRITERION: Requirement H	Status / Response
	A. Risk Counties Risk County RERPs, Appendix 13 *Radiological Exposure Control*, allows for a final post decontamination survey be conducted using a portal monitor. This is not consistent with the intent of FEMA REP-21 and 22; per FEMA guidance, the portal monitor is intended to screen individuals who have not bathed and changed prior to monitoring (as a distribution of fixed and removable contamination is factored into the 1 microcurie portal monitor sensitivity requirement). Please provide amended plan information indicating that the primary post-decontamination monitoring will be conducted using an appropriate hand-held instrument.	The guidance document is slated to be changed. The final monitoring will be conducted using hand held instruments applicable to REP-22. Portal Monitors will not be used for the final post decontamination screening.
	B. Support Counties (except Montour) Support County Nuclear/Radiological Incident Plans (except Montour), Appendix 4, Attachment F, Tab D *Post Decontamination Monitoring using Portal Monitors of Individuals found to be Contaminated*, allows for a final post decontamination survey be conducted using a portal monitor. This is not consistent with the intent of FEMA REP-21 and 22; per FEMA guidance, the portal monitor is intended to screen individuals who have not bathed and changed prior to monitoring (as a distribution of fixed and removable contamination is factored into the 1 microcurie portal monitor sensitivity requirement). Please provide amended plan information indicating that the primary post-decontamination monitoring will be conducted using an appropriate hand-held instrument.	The guidance document is slated to be changed. The final monitoring will be conducted using hand held instruments applicable to REP-22. Portal Monitors will not be used for the final post decontamination screening.
BBNPP – 013	**A. Risk Counties** Risk County RERPs, Appendix 9, Attachment A, *Transportation Resources*, state that the list of medical transportation providers is on file at the EOC, but the list was not provided for review. Please provide the list of medical transportation providers, as well as the appropriate LOAs with the providers or a statement that the provider's services are ensured through Title 35.	Please refer to the response posted for BBNPP-005

BBNPP – 014	Subject: LOAs with transportation providers Basis: NUREG-0654, Evaluation Criterion A.3 SRP ACCEPTANCE CRITERION: Requirement H	Status / Response
	A. Risk Counties A.1 Luzerne County RERP, Appendix 20, *Agreements and Statements of Understanding,* includes descriptions of 14 agreements with transportation providers. Of the 14, the supplemental COL application information (BNP-2008-009 Attachment 4 – Luzerne County – A4 through A16) indicates that 8 are out of business; no copy of the agreements could be obtained for 5 companies, and there was no information on the remaining 1 agreement. There is no documentation that any of Luzerne County's agreements for transportation are valid. Please provide current, valid agreements for transportation in Luzerne County.	**Luzerne** County will need to update / provide the current list and evidence the agreements.
	A.2 Columbia County RERP, Appendix 20, *Agreements and Statements of Understanding*, includes a description of an agreement with 1 transportation provider. The supplemental COL application information (BNP-2008-009 Attachment 3 – Columbia County – A7 and A8) contains agreements with two transportation companies dated over 10 years ago. Furthermore, the description in Appendix 20 does not match either of the agreements provided. Please provide current agreements for transportation in Columbia County and amend the agreement descriptions in Appendix 20 accordingly.	County will need to update / provide the current list and evidence the agreements..
BBNPP – 015	**Subject: Alert and activation of response organization** **Basis: NUREG-0654, Evaluation Criterion E.2** **SRP ACCEPTANCE CRITERION: Requirement H**	**Status / Response**
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Section 4 *Concept of Operations*, G *State Emergency Operations Center (EOC) Notification Procedures* says that detailed procedures for the alert and activation of the emergency response personnel are contained in the State EOC Standard Operating Procedures (SOP) and departmental implementing procedures, but these documents were not provided for review. Please provide these documents for review.	Due to the fact that this document and responses will become a public document, PEMA will not provide a copy of the SOP. Arrangements may be made for a representative to witness the materials and verify their existence.

	B. Risk Counties B.1 Luzerne County RERP, Enclosures 5 and 6, state that the Luzerne County Resource Manual contains implementing procedures for alert and activation of the emergency response personnel, but the Resource Manual was not provided for review. Please provide the Luzerne County Resource Manual for review.	**Luzerne** Luzerne County will need to provide a response.
	B.2 Columbia County RERP, Enclosures 5 and 6, state that the Columbia County Plan call out list and Risk Municipality emergency management organizations list are maintained in the Columbia County EOC for alert and activation of the emergency response personnel, but the these documents were not provided for review. Please provide the Columbia County Plan call out list and Risk Municipality emergency management organizations list for review.	**Columbia** Columbia County will need to provide a response.
	Support Counties The Support County Emergency Operations Plan specifies that the emergency response may be activated by the Emergency Management Coordinator, but it does not provide procedures for this activation. Please provide the activation procedures.	Support Counties will need to provide a response

BBNPP – 016	**Subject: Siren design objective** **Basis: NUREG-0654, Evaluation Criterion E.6** **SRP ACCEPTANCE CRITERION: Requirement H**	**Status / Response**
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 3 *Public Alert and Notification*, Sections 2 through 4 say the design objective for siren coverage within 5 miles of the plant is 90%. However, NUREG 0654/FEMA REP-1, Rev 1., Appendix 3, states that the design objective for the initial notification system will ensure direct coverage of essentially 100% of the population within 5 miles of the site. Please provide amended plan pages showing siren design objectives consistent with NUREG guidance.	SSES Siren Design materials dated October 4, 2005 with a cover letter dated October October 25, 2005 state that the materials have been designed to comply with FEMA-REP-10. Subsequent materials were submitted by PPL-Susquehanna via PEMA to FEMA. Material dated September 23, 2008 also indicates the FEMA-REP-10 requirements. FEMA-Region III has provided a letter to PEMA dated November 7, 2008 indicating that the system design, testing and maintenance are in compliance with FEMA-REP-10.
BBNPP – 017	**Subject: Sample EAS messages** **Basis: NUREG-0654, Evaluation Criterion E.7** **SRP ACCEPTANCE CRITERION: Requirement H**	**Status / Response**
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 16 Public Education and Information, contains draft initial EAS messages, but it does not contain draft message providing specific protective actions to be taken such as information on the use of KI or agricultural advisories. Please provide these additional draft messages.	Please see the attached pdf file titled im4511_2009072 2_160923.pdf EAS messages are released from the State EOC.
	B. Risk Counties Risk County RERPS, Appendix 4, *Public Information*, contain draft initial EAS messages, but it does not contain draft message for agricultural advisories (referenced in Risk County plans Appendix 15). Please provide these additional draft messages.	Please see the attached pdf file titled im4511_2009072 2_160923.pdf EAS messages are released from the State EOC.

RAI Number BBNPP – 018	Subject: Training for accident assessment personnel Basis: NUREG-0654, Evaluation Criterion O.4.b SRP ACCEPTANCE CRITERION: Requirement H
A. Pennsylvania A.1 Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 17, *Training*, Attachment A, *Listing of Approved Training* Programs provides information on Federal, State, county, and licensee training courses; however, it does not specify which courses and other training requirements are necessary for accident assessment personnel. Please provide specific training requirements for accident assessment personnel.	**PA Please see the additional BRP comment below.**
A.2 The BRP RERP does not provide specific training requirements for individuals tasked with accident assessment responsibilities. Please provide specific training requirements for accident assessment personnel. **BRP Response:** In BRP-ER-A-4.0, is a description of the qualifications necessary for personnel who are assigned to roles in BRP's Initial Activation. The *BRP Radiological Emergency Response Plan* is an operational plan, and as such does not include detailed training documentation. **Additional clarification of question:** BRP-ER-A-4.0 does not include descriptions of the qualifications of response personnel (or their training requirements); it contains functional descriptions of various positions. Training requirements needs can be included in the BRP Plan (since, contrary to the comment, there are non-operational issues in that plan) or as part of the PA State plan.	

BBNPP-018 and 019 Training

BRP staff will meet the training and experience requirements for a Radiation Health Physicist 2. They will receive on-the-job training during nuclear power plant drills and exercises to develop and demonstrate proficiency in REP program response.

BBNPP – 020	**Subject: Training for emergency information personnel** **Basis: NUREG-0654, Evaluation Criterion O.4.j** **SRP ACCEPTANCE CRITERION: Requirement H**	**Status / Response**
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 17, *Training*, states that personnel responsible for transmission of emergency information will receive training; however, the plans do not describe the content of training. Please provide information describing training for personnel responsible for transmission of emergency information.	The State EOC is responsible for transmission of the emergency information. SOPs are on file in the State EOC. Due to the public nature of this document, the SOPs will not be provided. A representative is welcome to observe and witness the existence of the document(s).
	B. Risk Counties Risk County RERPs do not address training for personnel responsible for transmission of emergency information. Please provide information describing training for personnel responsible for transmission of emergency information.	County EMAs and the Plant Emergency Preparedness Section will need to provide input / reply. The Plant provides information to the State for the FEMA Annual Letter of Certification.
BBNPP – 021	**Subject: Annual retraining of emergency response personnel** **Basis: NUREG-0654, Evaluation Criterion O.5** **SRP ACCEPTANCE CRITERION: Requirement H**	**Status / Response**
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E,	The PEMA Bureau of Operations and Training addresses these items. The State EOP, Basic Plan Section VI. Training and Exercises addresses these items

	Appendix 17, *Training*, does not address annual retraining of State emergency response personnel. Please provide plan information addressing annual retraining of State emergency response personnel.	(pages 29-31).
BBNPP-022	**Subject: Equipment check frequency** **Basis: NUREG-0654, Evaluation Criterion H.10** **SRP ACCEPTANCE CRITERION: Requirement H**	**Status / Response**
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 5, *Radiological Exposure Control*, Attachment C, *Inventory and Maintenance Procedures* specifies annual, rather than quarterly, checks of equipment (other than communications equipment). Please provide amended plan pages specifying quarterly checks of equipment. **B. Risk Counties** Risk County RERPs, Appendix 13 *Radiological Exposure Control*, Attachment C *Inventory and Maintenance Procedures* specify annual, rather than quarterly, checks of equipment (other than communications equipment). Please provide amended plan pages specifying quarterly checks of equipment. **C. Support Counties** Support County Nuclear/Radiological Incident Plans, Appendix 5 *Inventory and Maintenance Procedures* specify annual,	Please refer to pdf file titled "Allards letter regarding instrument calibration. Direct Reading Dosimeters are "leak-rate" tested on an annual basis. Risk and Counties will need to reply.

	rather than quarterly, checks of equipment (other than communications equipment). Please provide amended plan pages specifying quarterly checks of equipment.	
BBNPP-023	**Subject: Training of individuals responsible for planning** **Basis: NUREG-0654, Evaluation Criterion P.1** **SRP ACCEPTANCE CRITERION: Requirement H**	**Status / Response**
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E Appendix 17 *Training*, does not specify whether individuals responsible for the planning effort are required to attend specific training courses such as those described in Appendix 17. Please provide information on training requirements for individuals responsible for the planning effort.	State Plan Annex-E is being rewritten and replaced with the Commonwealth Nuclear/Radiological Plan. The PEMA Bureau of Operations and Training addresses the master training plan for employees. Please refer to the PEMA website: http://www.portal.state.pa.us/portal/server.pt/community/training_and_exercises/4684
	B. Risk Counties Risk County RERPs, Section 6 *Organization and Responsibilities,* B do not specify whether individuals responsible for the planning effort are required to attend specific training courses such as those described in Appendix 17 of the PA State plan. Please provide information on training requirements for individuals responsible for the planning effort.	Counties have specific employment and training requirements. Counties and Municipalities have specific employment and training requirements. State Agencies, Counties and Municipalities are encouraged to attend various in-service training such as the “Annual Government Training Day”, Annual Training and the like. Certain programs such as the Radiological Response Team Training and Radiological Officer Training require biennial recertification.

	C. Risk Municipalities Risk County Municipality RERPs, Section VII *Training and Exercises* do not specify whether individuals responsible for the planning effort are required to attend specific training courses such as those described in Appendix 17 of the PA State plan. Please provide information on training requirements for individuals responsible for the planning effort. **D. Support Counties** Support County Nuclear/Radiological Incident Plans do not contain any information on whether individuals responsible for the planning effort are required to attend specific training courses such as those described in Appendix 17 of the PA State plan. Please provide information on training requirements for individuals responsible for the planning effort.	Counties and Municipalities have specific employment and training requirements. State Agencies, Counties and Municipalities are encouraged to attend various in-service training such as the "Annual Government Training Day", Annual Training and the like. Certain programs such as the Radiological Response Team Training and Radiological Officer Training require biennial recertification.
BBNPP-024	**Subject: Plan update frequency** **Basis: NUREG-0654, Evaluation Criterion P.4** **SRP ACCEPTANCE CRITERION: Requirement H**	**Status / Response**
	A. Risk Municipalities Risk Municipality RERPs, Section IX *Plan Changes and Distribution*, A.1 do not specifically state that the agreements will be re-certified annually. Please provide information on annual re-certification of agreements.	PEMA Directive 2007-1 **Requirements for the Preparation, Review and Update of Municipal Emergency Operation Plans (EOPs) and Accompanying Documents** Is available on the PEMA web-site. Language in the Agreement dictates the frequency of "recertification".
	B. Support Counties Lackawanna, Northumberland, and Union County RERPs, County Support Procedure, *Annex Maintenance and Concurrence*, state that they will update their plans at least biennially, rather than annually as required by Criterion P.4. Please provide amended plan pages stating that plans will be updated at least annually.	PEMA D-2009-1 Addresses the Requirements for the County Update of Plans and supporting documents on an Annual Basis. The REP plans are incident specific documents of the County EOP.

BBNPP-025	**Subject: Plan changes and distribution** **Basis: NUREG-0654, Evaluation Criterion P.5** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Risk Municipalities Risk Municipality RERPs, Section IX *Plan Changes and Distribution* do not describe a method to make changes other than during the annual review/ distribution. Please provide information describing the method used to make changes other than during the annual review/distribution.	PEMA Directive D2007-1 addresses specifically the process of review, plan changes and distribution. The REP plans are incident specific documents of the Municipal EOP.
BBNPP-026	**Subject: Listing of supporting plans** **Basis: NUREG-0654, Evaluation Criterion P.6** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Risk Municipalities Risk Municipality RERPs do not include a listing of supporting plans. Please provide a listing of supporting plans. **B. Support Counties** Risk Municipality RERPs and Support County Nuclear/Radiological Incident Plans do not include a listing of supporting plans. Please provide a listing of supporting plans.	RERP's are considered to be Supporting Plans of the Municipal EOP.
BBNPP-027	**Subject: Implementing procedure listings** **Basis: NUREG-0654, Evaluation Criterion P.7** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Appendix 22 *Supporting Plans and Implementing Procedures* includes a listing of procedures required to implement the plan. The referenced listings do not include the sections(s) of the plan to be implemented by each procedure. Please provide updated plan procedure listing pages showing the sections(s) of the plan to be implemented by each procedure.	PEMA will investigate; however, the State utilize multiple SOPs for a variety of subjects ranging from communications, EAS, EOC activation, building maintenance, etc. Most if not all are "Official Use Only"

BBNPP-027 Continued	**B. Risk Counties** Risk County RERPs, Appendix 21 *Supporting Plans and Implementing Procedures,* include a listing of procedures required to implement the plan. The referenced listings do not include the sections(s) of the plan to be implemented by each procedure. Please provide updated plan procedure listing pages showing the sections(s) of the plan to be implemented by each procedure. **C. Risk Municipalities** Risk Municipality RERPs, Section X *Standard Operating Procedures* include a listing of procedures required to implement the plan. The referenced listings do not include the sections(s) of the plan to be implemented by each procedure. Please provide updated plan procedure listing pages showing the sections(s) of the plan to be implemented by each procedure.	Counties will investigate; however, the counties utilize multiple SOPs for a variety of subjects ranging from communications, EOC activation, building maintenance, etc. Most if not all are "Official Use Only" Municipalities will investigate; however, the municipalities utilize multiple SOPs for a variety of subjects ranging from communications, EOC activation, building maintenance, etc. Most if not all are "Official Use Only"
BBNPP-028	**Subject: Quarterly update of phone numbers** **Basis: NUREG-0654, Evaluation Criterion P.10** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Section 4 *Concept of Operations*, G *State Emergency Operations Center (EOC) Notification Procedures* references notification procedures (these were not provided for review) and does not specify that telephone numbers/call down lists will be updated quarterly. Please provide plan pages showing that telephone numbers/call down lists and maps will be updated quarterly.	PEMA will investigate; however, the State utilizes multiple SOPs for a variety of subjects ranging from communications, EAS, EOC activation, building maintenance, etc. Notification procedures are "Official Use Only" and non-public. Information is updated "constantly".

BBNPP-028 Continued	**B. Risk Counties** B.1 Luzerne County RERP does not address the updating of maps. Please provide plan pages showing that maps will be updated quarterly. B.2 Columbia County RERP, Enclosures 5 and 6, says that the telephone numbers and call down list is updated as necessary (no frequency is specified). The plan does not address the updating of maps. Please provide plan pages showing that telephone numbers/call down lists and maps will be updated quarterly. **C. Risk Municipalities** C.1 Risk Municipality RERPs, Section XI *Notification and Resource Manual*, Annex A, *Emergency Notification List*, say that the call down lists are updated annually. The plans do not address the updating of maps. Please provide plan pages showing that telephone numbers/call down lists and maps will be updated quarterly. C.2 Nescopeck Township RERP, Annex A *Emergency Notification List* did not designate anyone to fill the key position of emergency management coordinator or deputy coordinator. **D. Support Counties** Support County Nuclear/Radiological Incident Plans do not provide information for updating telephone numbers and call down lists or the updating of maps. Please provide plan pages showing that telephone numbers/call down lists and maps will be updated quarterly.	Counties utilize modern day GIS (Geographic Information Systems) for maps. These are updated via a variety of means including daily, weekly and monthly uploads and downloads. Counties will investigate; however, the Counties utilize multiple SOPs for a variety of subjects ranging from communications, EAS, EOC activation, building maintenance, etc. Notification procedures are "Official Use Only" and non-public. Information is updated "constantly" rather than waiting for a prescriptive quarterly cycle. Please specify why a county should change to a lesser standard. Please refer to BBNPP-024 and 025 Per PA Code Title 35 Section 7502 requires each local emergency management agency to have a coordinator. See comment above regarding Risk Counties on this subject.

BBNPP-029	**Subject: Protective action guide references** **Basis: NUREG-0654, Evaluation Criterion J.9** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 7, Section 6, *References*; and Appendix 7, Attachment C, Tab 1, *Ingestion Protective Action Decision Points* incorrectly refer to and/or incorporate language from superseded 1982 FDA guidance. The current guidance document is *Accidental Radioactive Contamination of Human Food and Animal Feeds; Recommendations for State and Local Agencies* by FDA on August 13, 1998 (FDA 1998). Plan material should be amended as appropriate. Please provide corrected plan pages as specified.	Corrections will be incorporated in the new plan.

BBNPP-029	**B. Risk Counties** Risk County RERPs, Appendix 15, Section 3.B, *Protective Actions*; Appendix 15, Section 3.C. *Notification*; and Appendix 15, Attachment C, *Ingestion Exposure Pathway Emergency Planning Zone*, Section 2.A-D incorrectly refer to and/or incorporate language from superseded 1982 FDA guidance. The current guidance document is *Accidental Radioactive Contamination of Human Food and Animal Feeds; Recommendations for State and Local Agencies* by FDA on August 13, 1998 (FDA 1998). Plan material should be amended as appropriate. Please provide corrected plan pages as specified. **C. Support Counties** Support County Nuclear/Radiological Incident Plans, Appendix 9 (Appendix 3 in Montour County), Section 3.B, *Protective Actions*; Section 3.C. *Notification*; and Attachment C, *Ingestion Exposure Pathway Emergency Planning Zone*, Section 2.A-D incorrectly refer to and/or incorporate language from superseded 1982 FDA guidance. The current guidance document is *Accidental Radioactive Contamination of Human Food and Animal Feeds; Recommendations for State and Local Agencies* by FDA on August 13, 1998 (FDA 1998). Plan material should be amended as appropriate. Please provide corrected plan pages as specified.	Counties will be requested to update the references.

BBNPP-030	**Subject: Protective action guide references** **Basis: NUREG-0654, Evaluation Criterion J.9** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Pennsylvania A.1 Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 7, Section 6, *References;* Appendix 7, Attachment C, Section C.1.f, *Food Protection, General;* and Appendix 7, Attachment C, Section C.2.F(1), *Drinking Water PAG Analogues* incorrectly refer to and/or incorporate language from superseded EPA drinking water guidance. The current drinking water guidance is 40 CFR 141.55, *National Primary Drinking Water Regulations, Radionuclide Rule* (EPA, December 7, 2000). Plan material should be amended as appropriate. Please provide corrected plan pages as specified. **Resolution:** RAI is resolved per BRP information detailed in A.2. A.2 BRP-ER-A-8.0, Ingestion Pathway, Section 8.2.1, *Drinking Water PAG Analogues* incorrectly refers to and/or incorporate language from superseded EPA drinking water guidance. The current drinking water guidance is 40 CFR 141.55, *National Primary Drinking Water Regulations, Radionuclide Rule* (EPA, December 7, 2000). Plan material should be amended as appropriate. Please provide corrected plan pages as specified.	RAI is resolved per BRP information detailed in A.2. **Resolution:** FEMA concurs. RAI is resolved.
BBNPP-030	**B. Risk Counties** Risk County RERPs, Appendix 15, Section 5, *References,* and Appendix 15, Attachment C, *Ingestion Exposure Pathway Emergency Planning Zone*, Section 2.B incorrectly refer to and/or incorporate language from superseded EPA drinking water guidance. The current drinking water guidance is 40 CFR 141.55, *National Primary Drinking Water Regulations, Radionuclide Rule* (EPA, December 7, 2000). Plan material should be amended as	**Luzerne** **Columbia** **Resolution:** RAI is resolved per BRP information detailed in A.2.

	appropriate. Please provide corrected plan pages as specified. **Resolution:** RAI is resolved per BRP information detailed in A.2.	
	C. Support Counties Support County Nuclear/Radiological Incident Plans, Appendix 9 (Appendix 3 in Montour County), Section 5, *References,* and Appendix 9 (Appendix 3 in Montour County), Attachment C, *Ingestion Exposure Pathway Emergency Planning Zone*, Section 2.B incorrectly refer to and/or incorporate language from superseded EPA drinking water guidance. The current drinking water guidance is 40 CFR 141.55, *National Primary Drinking Water Regulations, Radionuclide Rule* (EPA, December 7, 2000). Plan material should be amended as appropriate. Please provide corrected plan pages as specified. **Resolution:** RAI is resolved per BRP information detailed in A.2.	**Resolution:** RAI is resolved per BRP information detailed in A.2.
BBNPP-031	**Subject: Age-dependent KI dosage** **Basis: NUREG-0654, Evaluation Criterion J.10.e** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 5, *Radiological Exposure Control*, Section 4.a does not provide the age-dependent dosage level of KI for members of the general public (adolescents, children and infants). Please provide the age-dependent dosage level of KI for members of the general public (adolescents, children and infants).	Pennsylvania Department of Health is responsible for General Public – KI PADOH has specific procedures.
BBNPP-032	**Subject: Traffic capacities of evacuation routes** **Basis: NUREG-0654, Evaluation Criterion J.10.i** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 4, *Protective Response*, 6. *Evacuation Time Estimates,* Section E does not contain information on traffic capacities of evacuation routes. Please provide amended plan pages incorporating information on traffic capacities of evacuation routes.	A new ETE was recently conducted by KLD Associates. Appropriate references to the new ETE will be included in the new plan document.

	B. Risk Counties Risk County RERPs, Appendix 10, Attachment B *Evacuation Time Estimates* do not contain information on traffic capacities of evacuation routes. Please provide amended plan pages incorporating information on traffic capacities of evacuation routes.	A new ETE was recently conducted by KLD Associates. Appropriate references to the new ETE will be included in the new plan document.
BBNPP-033	**Subject: Monitoring of school children** **Basis: NUREG-0654, Evaluation Criterion J.12** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Risk Counties Risk County RERPs, Appendix 13 *Radiological Exposure Control* do not contain information on how school children (and staff evacuated with them) will be monitored for contamination if they are not evacuated prior to a release of radioactive materials. Please provide information on how school children (and staff evacuated with them) will be monitored for contamination if they are not evacuated prior to a release of radioactive materials.	**Luzerne** **Columbia** School children and staff could be monitored and decontaminated at their relocation site by means of portal monitors and hand-held friskers brought to the location(s). Legal ramifications must be considered regarding school children / minors. Please provide guidance regarding the monitoring of underage children regarding state laws including but not limited to 24 P.S. §1-111, as amended, and Chapter 8 of the State Board of Education Regulations. Additionally PA Act 114 of 2006, and the Pennsylvania State Police Request for Criminal Records Check (Act 34) along with the Department of Public Welfare Child Abuse History Clearance (Act 151) and Federal Criminal History Record Information (CHRI) in a manner prescribed by the Department of Education.

BBNPP-033	**B. Support County** Montour County Nuclear/Radiological Incident Plans, Appendix 2 *Host School Operations* does not contain information on how school children (and staff evacuated with them) will be monitored for contamination if they are not evacuated prior to a release of radioactive materials. Please provide information on how school children (and staff evacuated with them) will be monitored for contamination if they are not evacuated prior to a release of radioactive materials.	School children and staff could be monitored and decontaminated at their relocation site by means of portal monitors and hand-held friskers brought to the location(s). Legal ramifications must be considered regarding school children / minors. Please provide guidance regarding the monitoring of underage children regarding state laws including but not limited to 24 P.S. §1-111, as amended, and Chapter 8 of the State Board of Education Regulations. Additionally PA Act 114 of 2006, and the Pennsylvania State Police Request for Criminal Records Check (Act 34) along with the Department of Public Welfare Child Abuse History Clearance (Act 151) and Federal Criminal History Record Information (CHRI) in a manner prescribed by the Department of Education.

BBNPP-034	**Subject: Legal basis of plans** **Basis: NUREG-0654, Evaluation Criterion A.2.b** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Risk Municipalities A.1 The Butler Township/Conyngham Borough RERP has been adopted (signed) by Butler Township but not Conyngham Borough. Please provide evidence that Conyngham Borough has adopted the RERP.	SSES-Plant EP
	A.2 The Huntington Township/New Columbus Borough RERP has been adopted (signed) by New Columbus but not Huntington Township. Please provide evidence that Huntingdon Township has adopted the RERP.	SSES-Plant EP
	A.3 The Nescopeck Township RERP cover is marked as a "Draft" with a date of 12/2003. The plan includes a notation that it was updated 2008 in lower right corner. Please provide an amended plan cover without the "Draft" notation.	SSES-Plant EP
BBNPP-035	**Subject: Letters of Agreement** **Basis: NUREG-0654, Evaluation Criterion A.3** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 21 identifies agreements with support organizations, but no actual agreements or descriptions with signatory pages per are included as required by NUREG Criterion A.3. Please provide copies of the listed agreements or descriptions of each agreement with a signature page.	The Annual Letter of Certification from PEMA to FEMA addresses Agreements.
BBNPP-036	**Subject: Block diagrams of the response organization** **Basis: NUREG-0654, Evaluation Criterion A.1.c** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Support Counties Support County Nuclear/Radiological Incident Plans do not contain block diagrams; the NUREG cross reference indicates that this diagram is "TBD."	

BBNPP-037	**Subject: Table of emergency responsibilities** **Basis: NUREG-0654, Evaluation Criterion A.2.a** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Risk Municipalities Risk Municipality RERPs, Section V.A-I *Emergency Responsibilities and Functions,* and Section VI *Emergency Management Organization* do not provide a table or comparable clear and concise summary showing how the emergency responsibilities are discharged. Please provide a table or comparable clear and concise summary showing how the emergency responsibilities are discharged. **B. Support Counties** Support County Nuclear/Radiological Incident Plans, Section 4.B *Organizations and Responsibility* do not provide a table or comparable clear and concise summary showing how the emergency responsibilities are discharged. The Support County plans also do not list all of the functions and responsibilities of the response organizations. Please provide a table or comparable clear and concise summary showing how the emergency responsibilities are discharged.	Commonwealth entities including Counties and Municipalities are to be NIMS / ICS Compliant.
BBNPP-038	**Subject: Capability for protracted operations** **Basis: NUREG-0654, Evaluation Criterion A.4** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Support Counties Support County Nuclear/Radiological Incident Plans, Enclosure 2, *Staffing Status Flowchart* lack any specific requirements for protracted operations (although it is noted on Enclosure 2, *Staffing Status Flowchart)* and do not assign a lead individual for continuity of operations. Please provide information describing requirements for protracted operations and assigning a lead individual for continuity of operations.	Commonwealth entities including Counties and Municipalities are to be NIMS / ICS Compliant.

BBNPP-039	**Subject: Protective equipment for emergency workers** **Basis: NUREG-0654, Evaluation Criterion H.11** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Appendix 5, Section 6, Radiological Exposure Control for Emergency Workers, says that emergency workers should use their suitable personal clothing as protective gear. However, BRP-ER-A-6.*02 Emergency Equipment Operational Checks and Maintenance,* identifies the protective equipment (including coveralls, shoe covers and gloves) carried in the BRP emergency response vehicles. Please provide amended plan pages showing consistent policy regarding protective equipment for emergency workers.	This is a BRP Issue.
	C. Risk Municipalities Risk Municipality RERPs, Attachment I-5 list the dosimetry, KI, and area kits provided to municipality emergency responders during emergencies. No information is provided regarding the availability, storage or inventory of protective equipment (e.g. gloves, paper suits, booties, etc). Please provide information addressing protective equipment for use by emergency workers (e.g. gloves, paper suits, booties, etc).	Municipalities do not have actions requiring the use of paper suits, gloves, booties, etc.
	D. Support Counties Support County Nuclear/Radiological Incident Plans, Appendix 4 *Monitoring/ Decontamination Procedures* say that personnel monitors should wear disposable or plastic gloves while monitoring. It is suggested that shirts/blouses with long sleeves and long trousers/slacks be worn. No additional information is provided regarding the availability, storage or inventory of protective equipment (e.g. gloves, paper suits, booties, etc). Please provide information addressing protective equipment for use by emergency workers (especially monitoring/ decontamination personnel (e.g. gloves, paper suits, booties, etc)).	Counties are responsible for Inventories.

BBNPP-040	**Subject: 24-hour communication links** **Basis: NUREG-0654, Evaluation Criterion F.1.a** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Support Counties Support County Nuclear/Radiological Incident Plans do not describe the communications links that would be used for notification and the arrangements for 24-hour receipt and communication of emergencies. Please provide information describing communications links that would be used for notification and the arrangements for 24-hour receipt and communication of emergencies.	The State EOP and the current Annex-E state that the SEVAN System and regular telephone lines are used to communicate with the Support Counties. All counties in Pennsylvania have 911 systems which are 24/7 operation. These are covered by Act 78 of 1990 as amended by Act 17 of 1998 and Act 56 of 2003
BBNPP-041	**Subject: Communication links for medical facilities** **Basis: NUREG-0654, Evaluation Criterion F.2** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Support Counties Support County Nuclear/Radiological Incident Plans do not identify any coordinated communication link for fixed and mobile medical support facilities. Please provide information identifying any coordinated communication link for fixed and mobile medical support facilities.	The Emergency medical Services Act at Section 6924 of Pa Title 37A addresses all of these aspects. FCC Assigned Radio Frequencies designated for Emergency medical Services are used which include simplex, duplex and multiplex modes including telemetry.
BBNPP-042	**Subject: Emergency communications testing** **Basis: NUREG-0654, Evaluation Criterion F.3** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Support Counties Support County Nuclear/Radiological Incident Plans do not address testing of the emergency communications system. Please provide information describing testing of the emergency communications system.	The Emergency medical Services Act at Section 6924 of Pa Title 37A addresses all of these aspects. County SOPs also address the frequency of testing. Directive D2005-1 addresses this subject and is available on the PEMA

		website.
BBNPP-043	**Subject: Contamination monitoring capacity** **Basis: NUREG-0654, Evaluation Criterion J.12** **SRP ACCEPTANCE CRITERION: Requirement H**	
	A. Support Counties A.1 Support County Nuclear/Radiological Incident Plans (except Montour), Appendix 4, Section D.3 *Calculations of the Number of Personnel That Can be Monitored in 12 Hours*, indicates that 300 individuals per hour can be monitored with a portal monitor. Information is not provided on how the monitors are set up to accomplish this throughput. As stated, 300 individuals per hour would allow only 12 seconds per individual and does not account for transit time between individuals or any other circumstances that would cause monitoring delays (providing instructions, re-monitoring to verify alarms, etc). Please provide plan material explaining how 300 individuals per hour will be monitored with a portal monitor.	PEMA Circular C2004-2 addresses monitoring and monitoring rates. The interim guidance also applies.
	A.2 Northumberland and Schuylkill County Nuclear/Radiological Incident Plans do not indicate that they have portal monitors nor do they specify which type of hand-held survey instruments are in use; therefore, it cannot be determined if there is sufficient equipment/personnel allocated to monitor the evacuees assigned to their facilities within 12 hours. Provide information to verify contamination monitoring capacity to meet the requirement.	Both counties have portals and REP-22 compliant hand held devices.

BBNPP-044	Subject: Add Bell Bend to plans Basis: NUREG-0654, Evaluation Criterion (ALL) SRP ACCEPTANCE CRITERION: Requirement H	
	A. Pennsylvania Commonwealth of Pennsylvania Emergency Operations Plan, Annex E does not include references specific to Bell Bend Nuclear Power Station or information from the most recent Evacuation Time Estimate. Amend all relevant plan areas per letters of agreement submitted with the license application to include specific references to Bell Bend Nuclear Power Station and the most recent Evacuation Time Estimate.	The Bell Bend Plant does not currently exist. Plans will be updated and include references to Bell Bend when appropriate. **Inclusion of the site at this time would likely require the owner-operator to pay to the Commonwealth of Pennsylvania appropriate planning fees per Act 147 of 1984 as amended.**
	B. Risk Counties Risk County RERPs do not include references specific to Bell Bend Nuclear Power Station or information from the most recent Evacuation Time Estimate. Amend all relevant plan areas per letters of agreement submitted with the license application to include specific references to Bell Bend Nuclear Power Station and the most recent Evacuation Time Estimate.	The Bell Bend Plant does not currently exist. Plans will be updated and include references to Bell Bend when appropriate. **Inclusion of the site at this time would likely require the owner-operator to pay to the Commonwealth of Pennsylvania appropriate planning fees per Act 147 of 1984 as amended**

Quality and Regulatory Compliance, Manager
60 Public Square, Fl. 7
Wilkes-Barre, PA 18701
570 819.5810 Tel
570.826.7690 Fax
hwskene@geisinger.edu

GEISINGER
HEALTH SYSTEM

September 4, 2008

Mr. Henry Tamanini
Pennsylvania Emergency Management Agency
2605 Interstate Drive
Harrisburg, PA 17110

RE: Geisinger South Wilkes-Barre MS-1 Status

Dear Mr. Tamanini:

It was my pleasure to speak with you yesterday. I appreciate the information you shared regarding MS-1 hospitals and their role in the Pennsylvania Emergency Management program. Per our conversation, I am writing to formally request your approval to terminate the MS-1 status for Geisinger South Wilkes-Barre ("GSWB") (formally Mercy Hospital).

As you are aware, Geisinger Health System is transitioning the operating platform for its two Wilkes-Barre hospitals to function as one hospital with two campuses, Geisinger Northeast. In this process, the provision of service is campus based. At a recent Radiation Safety Committee meeting at GSWB, the MS-1 status was discussed. Concern was raised that the necessary technical personnel may not always be available 24/7 to provide radiation detection services. After significant discussion and further review, the consensus of the various stakeholders is to seek your approval to terminate the MS-1 status. This decision was not made lightly.

There are presently PEMA training and an annual drill scheduled in November at GSWB. I request that both be cancelled in light of our request to terminate the MS-1 status.

Please note that Geisinger will continue to actively maintain MS-1 status at our Geisinger Wyoming Valley ("GWV") campus. We are confident that any radiation contaminated or injured and contaminated patients will receive exceptional care in our new state-of-the-art Critical Care Building at GWV. Effective October 1, GWV will be designated a Level II Trauma Center with an area specially designed to handle contaminated patients.

Finally, GSWB received a portal monitor and other response equipment as part of being an MS-1 facility. Should that equipment continue to be maintained at our GSWB campus (or our GWV campus), or should we surrender it to either PP&L or the Luzerne County Emergency Management Agency?

Thank you for your review and consideration. Please confirm your decisions regarding MS-1 status, cancellation of the training and annual drill, and disposition of the response equipment.

Regards,

Harry W. Skene, JD, LLM

cc: Lissa Bryan-Smith, Chief Administrative Officer
Steven Pierdon, MD, Executive Vice President Northeast

Potassium Iodide (KI) Tablets

Instructions insert for 14-day foil packs.

IOSAT™ Tablets

IOSAT™ Tablets
(Potassium Iodide Tablets, U.S.P.)
(Pronounced poe-TASS-e-um EYE-oh-dyed)
(Abbreviated KI)

TAKE POTASSIUM IODIDE ONLY WHEN PUBLIC HEALTH OFFICIALS TELL YOU. IN A RADIATION EMERGENCY, RADIOACTIVE IODINE COULD BE RELEASED INTO THE AIR. POTASSIUM IODIDE (A FORM OF IODINE) CAN HELP PROTECT YOU.

IF YOU ARE TOLD TO TAKE THIS MEDICINE, TAKE IT ONE TIME EVERY 24 HOURS. DO NOT TAKE IT MORE OFTEN. MORE WILL NOT HELP YOU AND MAY INCREASE THE RISK OF SIDE EFFECTS. DO NOT TAKE THIS DRUG IF YOU KNOW YOU ARE ALLERGIC TO IODIDE (SEE SIDE EFFECTS BELOW).

INDICATIONS
THYROID BLOCKING IN A RADIATION EMERGENCY ONLY

DIRECTIONS FOR USE
Use only as directed by State or local public health authorities in the event of a radiation emergency.

DOSE
ADULTS AND CHILDREN ONE YEAR OF AGE OR OLDER: One (1) tablet once a day. Crush for small children.

BABIES UNDER ONE YEAR OF AGE: One-half (½) tablet once a day. Crush first.

DOSAGE: Take for 10 days unless directed otherwise State or local public health authorities. Store at controlled room temperature between 15° and 30°C (59° to 86°F). Keep package dry and foil packets intact.

WARNING
POTASSIUM IODIDE SHOULD NOT BE USED BY PEOPLE ALLERGIC TO IODIDE. Keep out of the reach of children. In case of overdose or allergic reaction, contact a physician or public health authority.

DESCRIPTION
Each IOSAT™ Tablet contains 130 mg. of potassium iodide.

HOW POTASSIUM IODIDE WORKS
Certain forms of iodine help your thyroid gland work right. Most people get the iodine they need from foods like iodized salt or fish. The thyroid can "store" or hold only a certain amount of iodine.

In a radiation emergency, radioactive iodine may be released in the air. This material may be breathed or swallowed. It may enter the thyroid gland and damage it. The damage would probably not show itself for years. Children are most likely to have thyroid damage.

If you take potassium iodide, it will fill up your thyroid gland. This reduces the chance that harmful radioactive iodine will enter the thyroid gland.

WHO SHOULD NOT TAKE POTASSIUM IODIDE
The only people who should not take potassium iodide are people who know they are allergic to iodide. You may take potassium iodide even if you are taking medicines for a thyroid problem (for example, a thyroid hormone or antithyroid drug). Pregnant and nursing women and babies and children may also take this drug.

HOW AND WHEN TO TAKE POTASSIUM IODIDE
Potassium iodide should be taken as soon as possible after public health officials tell you. You should take one dose every 24 hours. More will not help you because the thyroid can "hold" only limited amounts of iodine. Larger doses will increase the risk of side effects. You will probably be told not to take the drug for more than 10 days.

SIDE EFFECTS
Usually, side effects of potassium iodide happen when people take higher doses for a long time. You should be careful not to take more than the recommended dose or take it for longer than you are told. Side effects are unlikely because of the low dose and the short time you will be taking the drug.

Possible side effects include skin rashes, swelling of the 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).

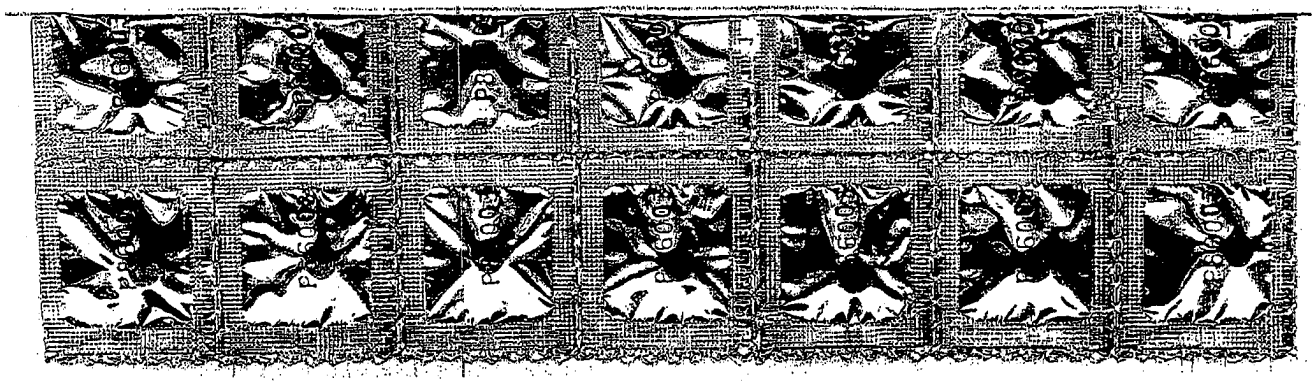
A few people have an allergic reaction with more serious symptoms. These could be fever and joint pains, or swelling of parts of the face and body and at times severe shortness of breath requiring immediate medical attention.

Taking iodide may rarely cause overactivity of the thyroid gland, underactivity of the thyroid gland, or enlargement of the thyroid gland (goiter).

WHAT TO DO IF SIDE EFFECTS OCCUR
If the side effects are severe or if you have an allergic reaction, stop taking potassium iodide. Then, if possible, call a doctor or public health authority for instructions.

HOW SUPPLIED
IOSAT Tablets (Potassium Iodide Tablets, U.S.P.): packages of 14 tablets (NDC 51803-001-01): Each white, round, scored tablet contains 130 mg. potassium iodide.

Distributed by
ANBEX, INC.
15 W. 75th St., New York, N.Y. 10023



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10 East 40th Street
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If you take potassium iodide, it will fill up your thyroid gland. This reduces the chance that harmful radioactive iodine will enter the thyroid gland.

☐ **THIS IS A DRILL** ☐ **THIS IS AN ACTUAL EVENT**

For Immediate Release

Date: _____

Time: _____

State Emergency Operations Center
Pennsylvania Emergency Management Agency
717-651-2001

EAS # 7 +KI Ordered Evacuation

There has been an incident at Susquehanna Steam Electric Station.

This is a General Evacuation Emergency Alert System Announcement

From the State Emergency Operations Center, Harrisburg, Pennsylvania. The following message has been released by the Director of the Pennsylvania Emergency Management Agency:

The Governor of Pennsylvania has announced that a **GENERAL EMERGENCY** was declared at the Susquehanna Steam Electric Station and **ORDERS** the evacuation of all persons within the Emergency Planning Zone of Columbia and Luzerne Counties.

The Secretary of Health has advised that emergency workers, special populations and the general public should take Potassium Iodide (KI).

If you live within the ten-mile Emergency Planning Zone, consult the telephone directory for detailed evacuation instructions. If you need a place to stay, you will be assigned to a mass care center after reporting to the reception center.

If you require transportation assistance, refer to the telephone directory for the telephone number. If you are unable to make contact, call your local police or fire department.

Stay tuned to this station for official bulletins and special instructions issued by the Pennsylvania Emergency Management Agency.

PLEASE REBROADCAST THIS MESSAGE EVERY 15 MINUTES

_____Senior State Official

_____Incident Manager

_____PIO

_____Operation Section Chief

☐ **THIS IS A DRILL** ☐ **THIS IS AN ACTUAL EVENT**

THIS IS AN EXERCISE MESSAGE

TO: Risk and Support Counties/ PEMA Area Offices/ All EPLOs Rumor Control

FROM: BOOT

SUBJECT: Sheltering and Stored Feed for Cattle

Effective at [ ] on [ ]

This is a precautionary agricultural message. In support of the DEP/BRP recommendations, the Secretary of Agriculture has advised farmers within a 10 mile radius of the nuclear power plant to remove animals from the pastures and place them under shelter. Cattle feed and water supplies should also be covered. Farmers with a shortage of feed should contact their county EOC or USDA/ASCS office.

_____BRP

_____ Agriculture EPLO

_____Operations Chief

_____Incident Manager

THIS IS AN EXERCISE MESSAGE

Distribution:

1. EPLOs
2. Joint Information Center/PIO
3. Rumor Control
4. Risk & Support Counties
5. Regions
6. Planning Section

Rev Dated: 4/13/09

Pennsylvania Department of Environmental Protection

Rachel Carson State Office Building
P.O. Box 8469
Harrisburg, PA 17105-8469
January 24, 2007

Bureau of Radiation Protection 717-787-2480

SUBJECT: Guidance on Calibration of Handheld Contamination and Dose Rate Radiation Monitoring Instruments

Dear Pennsylvania Emergency Responder:

Calibration of radiation monitoring instruments is necessary to ensure that the instruments are operating properly, and the reading indicated on the display is accurate. The following guidance on calibration of handheld contamination and dose rate radiation monitoring instruments is provided to State, County, and Local emergency responders in Pennsylvania. This guidance does not apply to facilities using radioactive materials, or others routinely monitoring for radiation (e.g., landfills or metal recyclers).

This guidance addresses calibration of handheld contamination and dose rate radiation monitoring instruments only. It does not address calibration of electronic or pencil dosimeters, isotopic identifiers, or portal monitors.

A. Handheld Contamination and Dose Rate Radiation Monitoring Instruments Used ONLY for Nuclear Power Plant Radiological Emergency Response:

Handheld contamination and dose rate radiation monitoring instruments normally in a storage condition used by Pennsylvania State, County, or Local emergency responders only for Nuclear Power Plant Radiological Emergency Response should be calibrated every two years.

NOTE: For CDV-700 and CDV-715 instruments used only for Nuclear Power Plant Radiological Emergency Response, the calibration period remains every four years.

For ALL handheld contamination and dose rate radiation monitoring instruments used only for Nuclear Power Plant Radiological Emergency Response, an operational check must be performed prior to use. The operational check consists of:

a. Verification of calibration,

b. Physical inspection of instrument and probes,
c. Batteries installed,
d. Battery check (if applicable),
e. Source check (small source, lower scale(s)).

B. Handheld Contamination and Dose Rate Radiation Monitoring Instruments Used for Response to Transportation Incidents, Landfill Alarms, Lost Sources, and Other Radiological Incidents:

Handheld contamination and dose rate radiation monitoring instruments used by Pennsylvania State, County, or Local emergency responders for response to transportation incidents, landfill or scrap yard alarms, lost sources, and other radiological incidents should be calibrated every two years.

NOTE: For CDV-700 and CDV-715 instruments used for transportation incidents, landfill or scrap yard alarms, lost sources, and other radiological incidents, the calibration period remains every four years.

For ALL handheld contamination and dose rate radiation monitoring instruments used for transportation incidents, landfill alarms, lost sources, and other radiological instruments, an operational check must be performed prior to use or quarterly if not used during that time period. (If an actual operational check is performed prior to instrument use, this meets the quarterly check requirement.) The operational check consists of:

a. Verification of calibration,
b. Physical inspection of instrument and probes,
c. Batteries installed,
d. Battery check (if applicable),
e. Source check (small source, lower scale(s)).

This guidance is effective immediately. If you have questions about this guidance, please contact Martin Vyenielo of my staff at 717-783-6003 or by e-mail to mvyenielo@state.pa.us.

Sincerely,

David J. Allard, CHP
Director
Bureau of Radiation Protection

Enclosure 2

PEMA Interim Radiological Plans Guidance, April 6, 2009

COMMONWEALTH OF PENNSYLVANIA
Pennsylvania Emergency Management Agency

DATE: April 6, 2009

SUBJECT: Interim Radiological Plans Guidance

TO: Nuclear Power Plant Risk and Support Counties and Appropriate State Agencies

FROM: Henry C. Tamanini
Chief, Technological Hazards Division
Bureau of Plans

Pennsylvania Annex E, Radiological Emergency Preparedness Response to Nuclear Power Plant Incidents, Change 4 dated March 2002, to the State Emergency Operations Plan is currently undergoing a major revision. As part of this overall revision, numerous related procedures, directives, and circulars are being rewritten. This is a detailed, lengthy process and currently a completion date for a replacement to Annex E and all of the supporting documents can not yet be estimated.

Some of the many areas being changed during this total plan revision include dosimetry requirements, dose limits, "trigger" points, and monitoring and decontamination procedures. Since this revision began there have been many changes made in federal and commonwealth guidance concerning these areas. This has the potential to create misunderstandings and errors due to the fact that the "old" Annex E is not congruent with the new guidance.

In order to rectify these differences and provide emergency planners and workers with current information that can be used to fill the gap until the new State Nuclear/Radiological Plan is finalized and distributed, this interim guidance letter and enclosures are hereby provided.

Enclosure 1 is excerpted from the Directive titled "Nuclear Power Plant Incident Emergency Worker Survey Equipment, Dosimetry, and Potassium Iodide (KI) for the Emergency Phase". It includes information on the issuance of dosimetry to Category A, B, and C emergency workers and institutions, calibration requirements, and standards for Personal Record Dosimeters (PRD's), Direct Reading Dosimeters (DRD's), and Potassium Iodide (KI).

Enclosure 2 provides updated guidance for monitoring and decontaminating emergency workers, the general public, vehicles, and equipment. It also provides formulas for determining amounts of survey equipment needed for processing evacuees and further provides new guidance for monitoring pets and service animals.

Enclosure 3 is a copy a letter to FEMA Region III regarding decision making guidance for the use of Potassium Iodide (KI).

This interim guidance will remain in effect until superseded by the documents replacing the current Annex E.

Any questions should be directed to me or the PEMA REP staff.

HCT/sbs

Enclosures and Attachments

cc: Mr. Darrell Hammons, Chief, FEMA Radiological Emergency Preparedness
Mr. David Allard, Director, Department of Environmental Protection/Bureau of Radiation Protection
Mr. Vince Cwietniewicz, Exelon Nuclear
Ms. Diane Coffin, PPL Susquehanna LLC
Mr. Greg Cramer, First Energy Nuclear Operating Company
Emergency Management Coordinators of the Risk and Support Counties

NUCLEAR POWER PLANT INCIDENT EMERGENCY WORKER SURVEY EQUIPMENT, DOSIMETRY, AND POTASSIUM IODIDE (KI) FOR THE EMERGENCY PHASE

I. EXECUTIVE SUMMARY

This interim document has been created to assist state-level leaders and emergency management personnel in preparing for and responding to an incident at one of the commonwealth's five nuclear power plants. It follows the principles of the National Incident Management System as specified by the Department of Homeland Security and follows a format similar to the National Response Plan.

The guidance, policies, and responsibilities for survey equipment, dosimetry, and potassium iodide in this document are specific to nuclear power plant incidents. In order for this directive to be understood and implemented effectively a user must be fully cognizant of the State Emergency Operations Plan (SEOP) and related referenced documents.

Information in this document is considered to be sensitive and restricted. Distribution is limited to those persons or organizations that have a need for it. Additional copies may be provided upon submission of a request with justification to PEMA. PEMA reserves the right to regulate the distribution of additional copies based upon "need to know" criteria.

II. INTRODUCTION

A. Purpose - This interim document implements policy established by the Pennsylvania Emergency Management Council for purchasing, issuing, maintaining, and replacing survey equipment, dosimetry, and potassium iodide (KI) in response to an incident at a nuclear power plant. The policy provides for adequate equipage for emergency workers in the ten mile emergency planning zone (EPZ), emergency workers who may have to enter the ten mile EPZ, and emergency responders outside the EPZ who may have a slight potential for exposure. The policy provides for the use of equipage provided for emergency workers. The references at paragraph X outline both federal and commonwealth approval of the policy.

B. Scope - The provisions of this interim document apply to all Pennsylvania departments and agencies, counties, municipalities, and utilities that respond to an incident at a nuclear power plant. These policies will remain in effect during the incident.

III. POLICY

A. There are three categories of emergency responders that have been established. They are defined in paragraph V.

B. The provisions of this document incorporate the area concept. Under the area concept dosimetry equipage varies with worker location, mobility, and grouping.

1. The concept of area equipage will apply where more than two mobile emergency workers respond as a team and remain in the same 500 meter area. Area equipage requirements are defined in paragraph VA1 below.

2. Dosimetry, in the form of an area kit, will be issued to a fixed location where emergency workers are in close proximity to each other during the entire mission and where adequate control of exposure can be affected for all emergency workers by dosimeters situated together at one central, continuously manned station where the dosimeters are read every 30 minutes. The area kit is defined in paragraph VB2b below.

C. The quantities specified in paragraphs VA, VB, and VC below represent the minimum acceptable standards. Augmentations to these quantities can be made with appropriate justification from the county emergency management coordinator (EMC) in agreement with the nuclear power plant and PEMA.

D. Emergency worker dose limits, which will be a determining factor as to the capabilities of dosimetry required, can be found in Section 7 of reference G. In all cases where exposure is possible the As Low As Reasonably Achievable (ALARA) principle will apply.

IV. SITUATION AND ASSUMPTIONS

The survey equipment, dosimetry, and KI program in the commonwealth has been relatively stable. For a number of years the same quantities of dosimetry and KI have been purchased. As dosimetry equipment ages there is a need to periodically purchase significant amounts of replacement items as well as update the need for and distribution of required dosimetry.

V. CONCEPT OF OPERATIONS

A. Category A (Emergency responders within the EPZ or restricted zone) - Emergency responders located within the EPZ, or those who may enter the EPZ, working in a mobile capacity with a potential for individual radiation exposure, such as: police, fire fighters, emergency medical persons, state workers, farmers, and industrial workers on a selected basis.

1. Category A Issue

PRD	1 per emergency responder
*0-20 R DRD	1 per emergency responder
KI	1 unit (2-day supply) per emergency responder

*Area Equipage - The group will have a minimum of two 0-20 R DRDs available on the emergency vehicle or at the operational site (e.g. traffic control point.) Each emergency responder will still be issued a PRD and a unit of KI.

2. Category A Guidelines

   a. A control PRD will be provided for each PRD storage location.

   b. Each location that issues DRDs will have at least one charger with a minimum of one per 100 DRDs issued. If the location is isolated (over a 10-minute drive from another charger), a backup charger is appropriate.

   c. If a task requires multiple shifts, DRDs will be passed from shift to shift.

   d. Up to one hundred 0-200 R DRDs (hereafter called "high range" DRDs) may be stocked by each risk county and two hundred will be stored at PEMA. These would be used in the rare situations were an off-scale high reading could be experienced with a 0-20 R DRD. Electronic dosimeters capable of high range readings (at least 200 R) may be used in place of high range DRDs.

   e. A stock of Category A equipage will be established for issue to farmers, industrial workers, and any others who may need to enter a restricted zone.

3. Examples

   a. Route alerting, traffic control, and emergency medical persons and fire fighters will be issued a PRD and a unit of KI. Each vehicle will be equipped with two 0-20 R DRDs (area equipage.) To avoid duplication, PRDs and KI are issued only to individuals who have not received an issue in another category. Any of these persons located outside of the EPZ, but must enter, will receive a Category A issue.

   b. Law enforcement persons in the EPZ will receive a Category A issue. Law enforcement persons who are outside the EPZ, but must enter, will receive a Category A issue.

B. Category B (Special group populations within the EPZ) - Collectively grouped persons located within the EPZ who may be exposed at facilities and institutions such as: hospitals, nursing homes, prisons, municipal and county EOCs, fire stations, police stations, and ambulance stations within the EPZ.

1. Category B Issue

PRD	1 per staff member
KI	1 unit (2-day supply) per staff member

2. Category B Guidelines

a. Each Category B facility and institution where emergency workers will remain until after completion of the evacuation of the general public will be issued at a minimum one area kit.

b. An area kit contains:

1 - PRD
2 - 0-20 R DRDs
1 - Charger

c. A reserve stock of 0-20 R DRDs will be positioned at the risk municipal and county EOCs for unforeseen incidents where there may be a need for independent missions in the EPZ. The percentage of reserve stock for each municipal EOC will equal approximately 20% of the number of persons working in the EOC. The allocation of reserve stock for each county EOC will be approximately equal to 10% of the total number of 0-20 R DRDs required by the county.

d. Hospitals

(1) A Category B issue stock equivalent to 50% of the total staff members will be allowed for each hospital. An amount greater than 50% of the Category B issue may be stocked if the hospital administrator plans to call in more than 50% of the staff to assist in the operation and evacuation of the facility.

(2) One unit of KI will be stocked for each patient. The quantity of KI stocked will equal the maximum licensed resident capacity of the hospital.

(3) The number of area kits required for each hospital will be determined by the county EMC in consultation with the hospital administrator.

e. Nursing Homes

(1) A Category B issue stock equivalent to 50% of the total staff members will be stocked for each nursing home. An amount greater than 50% may be stocked if the facility

manager plans to call in more than 50% of the staff to assist in the operation and evacuation of the facility.

(2) One unit of KI will be stocked for each patient. The quantity of KI stocked will equal the maximum licensed resident capacity of the facility.

(3) The number of area kits required for each facility will be determined by the county EMC in consultation with the facility manager.

f. Prisons

(1) A Category B issue stock for 100% of the staff members will be allocated for each prison.

(2) One unit of KI will be stocked for each inmate. The quantity of KI stocked will equal the maximum capacity of the prison or the highest population experienced during the last five years, whichever is greater.

(3) The number of area kits required for each prison will be determined by the county EMC in consultation with the superintendent/warden.

3. Examples

a. Municipal EOCs within the EPZ - Each staff member will receive the Category B issue. The EOC will have an area kit and a reserve stock of 0-20 R DRDs.

b. County EOCs within the EPZ - Each staff member will receive the Category B issue. The EOC will have an area kit and a reserve stock of 0-20 R DRDs.

c. Police, Fire, and Ambulance Stations - The area kits issued to police, fire, and ambulance stations are issued to provide protection for those persons (e.g., radio operators, dispatchers) who remain at the stations in supporting roles.

C. Category C (Emergency responders outside the EPZ) - Emergency responders located outside the EPZ who, due to assigned tasks during a nuclear emergency, have only limited potential for radiation exposure; e.g., monitoring/decontamination teams.

1. Category C Issue

PRD	1 per emergency responder

2. Examples

a. Monitoring/Decontamination Teams

Each team member who meets, directs, and monitors or decontaminates possibly contaminated people or vehicles will receive a Category C issue.

b. MS-1 Hospitals

MS-1 hospitals are required to provide dosimetry required to perform their agreed upon MS-1 missions.

D. Survey equipment requirements

1. Portal monitors that meet the FEMA Portal Monitor Standard may be used for personnel monitoring. Portal monitors are presently not permitted for the monitoring of vehicles.

2. Handheld monitors must be capable of detecting beta and gamma radiation. There are currently numerous types of handheld monitors available that meet these criteria, plus others that detect beyond these requirements. Handheld monitors that test for other types of radiation (such as alpha radiation) are authorized for use, but this additional capability will not be chargeable to REP funds. There are still many CDV-700 survey meters that have been issued or acquired. These are 1950s era civil defense meters that, while still operational and capable of detecting beta and gamma radiation, are very limited in capability. They should only be used as a last resort and serious consideration should be given to replacing them with more modern instruments.

3. CDV-700 survey meters must be calibrated every 4 years. Modern handheld contamination and dose rate survey instruments must be calibrated every 2 years, IAW Bureau of Radiation Protection policy. Portal monitors must be calibrated IAW or the manufacturers' instructions.

4. Monitoring/decontamination center for the general public - One survey meter (CDV-700 type with hotdog probe) will be required for each 144 persons, using quick monitoring, or each 30 persons, using full monitoring, passing through the monitoring/decontamination center. One survey meter (modern with pancake probe, reading in counts per minute) will be required for each 600 persons, using quick monitoring, or each 144 persons, using full monitoring, passing through the monitoring/decontamination center. One portal monitor will be required for each 3,600 persons passing through the monitoring/decontamination center. Additionally, one or more survey meters will be required for monitoring persons after showering and one or more survey meters will be required for monitoring vehicles and equipment.
Monitoring/decontamination teams will be capable of monitoring, within a

12-hour period, all residents and transients planned for arrival at each center.

*Quick monitoring is monitoring the head, hands, elbows, hips/buttocks area, knees, and feet of evacuees. Emergency workers must be checked using the full monitoring method.

*Full monitoring is monitoring of evacuees and emergency workers by use of a portal monitor or, if a handheld instrument is used, the entire surface area of the individuals must be monitored.

5. Monitoring/Decontamination Station for Emergency Workers

One survey meter (CDV-700 type with hotdog probe) will be required for each 30 persons, using full monitoring, passing through the emergency worker monitoring/decontamination station. One survey meter (modern with pancake probe, reading in counts per minute) will be required for each 144 persons, using full monitoring, passing through the emergency worker monitoring/decontamination station. One portal monitor will be required for each 3,600 persons passing through the monitoring/decontamination station. If using portal monitors, hand held survey meters must be on-hand in order to check thyroid glands. Additionally, one or more survey meters will be required for monitoring persons after showering and one or more survey meters will be required for monitoring vehicles and equipment. Monitoring/decontamination teams will be capable of monitoring all emergency workers planned for arrival at each station.

6. MS-1 Hospitals are required to provide the survey equipment required to perform their monitoring/decontamination missions.

7. Survey meters are not required for ambulances/emergency response vehicles either in the EPZ or in support of MS-1 hospitals.

8. EMS crews located outside of the EPZ and responding outside of the EPZ are not required to have survey meters, DRDs, PRDs, or KI.

NOTE: People found to be contaminated by means of portal monitors must be further monitored with a handheld meter in order to pinpoint the contamination.

E. Dosimetry requirements

1. A permanent record dosimeter (PRD) is a non-self reading dosimeter, generally considered a "badge" type dosimeter, which is sensitive to beta and gamma energy. This device provides a more accurate and legal record of the emergency worker's actual radiation exposure received during the duration of the incident as well as being a back-up for the direct reading dosimeter (DRD). The device is not a "real-time" instrument and must be

processed using specialized laboratory equipment following a radiological emergency to determine the amount and type of exposure. PRDs are typically a TLD, film badge, or other non-self reading technology. A PRD stays with the same emergency worker throughout the event and may not be traded off between workers. Badges must be read by an accredited, independent processor at the conclusion of their use in order to establish an official record of exposure. These badges have a shelf life and will expire based on the manufacturers' guidance.

2. A direct reading dosimeter is a wearable, pocket sized device that can't be read by the user and measures accumulated exposure to radiation. This is commonly a pencil shaped device that is worn at chest level on the user. It should have a range capable of measuring radiation exposure between 0.5 R and 20 R. As previously stated the state and each risk county will also stockpile a quantity of "high range" DRDs for use in situations where a 0-20 R DRD may not provide an adequate range. These high range DRDs will have a range capable of measuring radiation exposure up to 200 R.

   DRDs should be initially tested for accuracy and then checked by leak testing annually. Any DRDs that show >10% loss (initial reading to final reading) during the leak test will be replaced.

   DRDs must be charged prior to use. Off-site response organizations must ensure they have sufficient quantities of chargers on hand to charge their DRDs prior to deployment.

3. Electronic dosimeters are similar to DRDs in that they are worn and can be read by the emergency worker. They generally have a much wider range than the older pencil type DRDs and are a suitable replacement for those devices. Electronic dosimeters with a wide range (at least 200 R may be used in place of high range DRDs for emergency workers who may have to enter areas with a potential for high exposure. Electronic dosimeters will be tested and maintained IAW established policies or the manufacturers' instructions.

F. Potassium iodide (KI) requirements

1. KI for emergency workers will be contained in tamper-proof packaging that isolates it from the environment, such as sealed bottles or blister packs. The outside of each bottle or individual blister packet will be clearly labeled with the lot number and expiration date.

2. KI for emergency workers will be in pill or tablet form and contain a total daily dose of 130 milligrams of potassium iodide per tablet. The present rate of issue is 2 tablets per emergency worker. Future issues of KI may contain 65 milligrams in which case emergency workers will have to take two 65 milligram pills to get their daily dosage. One unit of KI equals one 2-day supply.

3. Any KI purchased for emergency workers must have Food and Drug Administration approval and meet U. S. Pharmacopoeia standards.

4. Any requests for extension of expired KI must be approved through PEMA. The State Department of Health will arrange for testing and provide the results to PEMA.

VI. RESPONSIBILITIES

A. It is the responsibility of elected officials to provide for public safety. That responsibility includes ensuring that the prescribed amounts of survey equipment, dosimetry, and KI are available when they are needed. In practice most elected officials rely on the emergency management agencies (EMAs) within their jurisdictions to provide this assurance.

B. PEMA will be responsible for equipage of state agencies involved in REP-related duties. State agency requirements will be reviewed and updated annually.

PEMA is responsible, in coordination with the counties, utilities, and other state agencies, for maintaining a current, detailed listing of statewide REP-related equipage requirements.

C. Bureau of Radiation Protection (BRP) will be responsible for providing standards of capability and performance for survey equipment and dosimetry for the statewide REP program. As such, they will be available to provide recommendations to counties and state agencies concerning the effectiveness and applicability of items being considered for purchase. It is highly recommended that they be consulted prior to committing to a significant investment in new equipment.

BRP is responsible for developing policies and procedures for the protection of personnel during a nuclear power plant incident.

BRP will provide their own survey equipment, dosimetry, and KI.

D. Department of Health (DOH) will be responsible for ensuring potential KI vendors are Food and Drug Administration approved and that their product meets U. S. Pharmacopoeia standards.

Once KI stocks have reached their manufacturers' expiration date they may be assayed in an effort to get the maximum utility from them. DOH will ensure the State Health Laboratory is available for assaying expired KI if needed.

E. County EMCs are responsible for identifying their dosimetry and KI needs in conjunction with their respective municipal EMCs. They will conduct a formal annual review of equipage quantities in conjunction with plan reviews. All quantities will be coordinated with PEMA, Bureau of Plans. County EMCs are responsible for ensuring their DRDs are leak tested as required and survey equipment is calibrated as required.

F. PRDs will be replaced based on manufacturer's expiration dates. KI, if necessary, may be retained past the manufacturers' expiration dates providing it has been assayed by a certified laboratory. The State Health Laboratory will be available to perform this assaying for the utility if requested. The maximum extension after any assay is two years.

VII. ADMINISTRATION AND LOGISTICS

A. Where applicable all equipages will be issued, recorded, and tracked by serial number.

B. Emergency management coordinators are encouraged to establish mutual aid agreements with other agencies and political sub-divisions in order to maximize the availability of these types of equipage during an emergency.

C. There is nothing to preclude the state, counties, or municipalities from using these items in response to other types of unforeseen non-nuclear power plant radiological incidents. However, replacements for this type of usage are the responsibility of the agency that used them, not the utilities.

VIII. TRAINING AND EXERCISES

A. Emergency management coordinators will ensure emergency workers maintain proficiency in the use of any survey equipment, dosimetry, and KI.

B. Monitoring/decontamination teams should be rotated to ensure equitable participation and evaluation in all exercises.

IX. PLANS MAINTENANCE AND DISTRIBUTION

A. The Director, PEMA Bureau of Plans is responsible for the management requirements of this document in consultation with agency executive staff and other involved parties. This document will be implemented with respect to federal and state laws and regulations.

B. This document will remain in effect until modified, superseded, or suspended.

X. AUTHORITIES AND REFERENCES

A. NUREG-0654/FEMA-REP-1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, NRC/FEMA, Rev. 1, November 1980, specifies that "each organization... shall provide for offsite radiological monitoring equipment in the vicinity of the nuclear facility. Each organization shall make provisions for 24-hour-per-day capability to determine the doses received by emergency personnel involved in any nuclear accident, including volunteers. Each organization shall make provisions for distribution of dosimeters, both direct-reading and permanent record devices."

B. FEMA Radiological Emergency Preparedness: Exercise Evaluation Methodology, April 2002, specifies that "sufficient quantities of appropriate direct-reading and permanent record dosimetry and dosimeter chargers should be available for issuance to all categories of emergency workers that could be deployed from that facility. Appropriate direct-reading dosimetry should allow individual(s) to read the administrative reporting limits and maximum exposure limits contained in the ORO's plan and procedures." The minimum acceptable system is one direct-reading dosimeter with a range capable of measuring a radiation exposure of at least 20 R and a minimum exposure of 0.5R. In addition to the above, each group or team of emergency workers should have a dosimeter charger available to zero or recharge the direct-reading dosimeters before deployment to their assigned location."

C. Section 7320 of the Emergency Management Services Code (35 Pa. C.S. § Section 7101 et seq.) requires the agency to develop, establish, and maintain a radiological emergency preparedness, planning, and recovery program consistent with the commonwealth's Emergency Operations Plan and in accordance with other applicable federal regulations and state laws. In particular, the agency is required to perform actions necessary to satisfy the commonwealth's responsibilities relative to federal guidance memoranda dealing with dosimetry and other related matters.

D. FEMA-REP-18, Statements of Consideration for FEMA-REP-14 and FEMA-REP-15, FEMA, January 1992, provides that "the use of direct-reading dosimeters is now acceptable in some designated situations by the team leader only, and in other designated situations they may be posted in the general area of work instead of being individually worn by each emergency worker."

E. U.S. Environmental Protection Agency, "Manual of Protective Action Guides and protective Actions for Nuclear Incidents," EPA 400-R-92-001, October 1991.

F. FEMA Region III Letter, January 19, 1993, provided guidance for clarification of FEMA-REP-14 dosimetry requirements under Objective 5, Emergency Worker Exposure Control, and FEMA REP-2, Revision 2, Guidance On Offsite Emergency Radiation Measurement Systems, Phase 1 - Airborne Release, dated June 1990. The letter provided FEMA agreement with the PEMA "Area Concept" and stated that the Commonwealth's revised policy and procedures for emergency worker radiological exposure control should be included in the revised state, county, municipal, and school district plans.

G. Pennsylvania Bureau of Radiation Protection, "BRP Radiological Emergency Response Plan," Revision 0, March 2008.

XI. DEFINITION OF TERMS

A. Area Kit - Dosimetry that is placed on a location where emergency workers will be in close proximity to each other during the entire mission and adequate control of exposure can be effected for all emergency workers by a dosimeter strategically placed in the work area. Area kits may be required in multiple locations within a

facility. An area kit consists of one PRD, two 0-20 R direct reading dosimeters and one CD V-750 charger.

B. Emergency Planning Zone (EPZ) – A generic area defined around a nuclear power plant to facilitate offsite emergency planning and develop a significant response base.

C. Direct Reading Dosimeter (DRD - Pocket size device that measures accumulated exposure to radiation and is capable of being read real-time by the wearer.

D. Permanent Record Dosimeter (PRD) – A non-self reading dosimeter, generally considered a "badge" type dosimeter, which is sensitive to beta and gamma energy. This device provides a more accurate and legal record of the emergency worker's actual radiation exposure received during the duration of the incident as well as being a back-up for the direct reading dosimeter(s). The device is not a "real-time" instrument and must be processed using specialized laboratory equipment following a radiological emergency to determine the amount and type of exposure. Permanent Record Dosimeters are typically a thermo luminescent dosimeter (TLD), film badge, or other non-self reading technology.

E. Potassium Iodide (chemical symbol is KI) - A thyroid-blocking agent that prevents the accumulation of radioiodine by blocking its absorption by the thyroid gland through the presence of stable (non-radioactive) iodine.

CONTAMINATION MONITORING AND DECONTAMINATION GUIDANCE FOR RADIOLOGICAL EMERGENCY RESPONSE

I. EXECUTIVE SUMMARY

This interim document has been created to assist in preparing for and responding to a radiological incident. With the wide variety of monitoring equipment available today it would not be feasible to attempt to write an all-inclusive user procedure for each type. However, this document will provide guidance to enable responders to determine how much monitoring equipment will be required for an incident and what allowable limits for release are. It follows the principles of the National Incident Management System as specified by the Department of Homeland Security and follows a format similar to the National Response Plan.

The guidance, policies, and responsibilities for survey equipment, dosimetry, and potassium iodide in this document are specific to nuclear power plant incidents. In order for this document to be understood and implemented effectively a user must be fully cognizant of the State Emergency Operations Plan (SEOP) and related referenced documents.

II. INTRODUCTION

A. Purpose

The purpose of this document is to provide emergency monitoring and decontamination decision criteria and procedural guidance for use with portable instruments and portal monitors such that the criteria are adequately protective of public health under emergency conditions.

This document provides guidance discussion and analysis on the following categories:

- personnel monitoring process based on types of instrumentation
- decontamination or release decision criteria
- portable radiological contamination instrumentation capabilities and limitations
- calculations of number of personnel that can be monitored in 12 hours.

Attachments to the document contain the following procedural guidance:

- Attachment A – Personnel Monitoring Procedures for Portals and Modern Instruments with Pancake Probes
- Attachment B – Personnel Decontamination Procedures
- Attachment C – Vehicle and Equipment Monitoring Procedures for Modern Instruments with Pancake Probes
- Attachment D – CDV-700 Personnel Monitoring Procedures
- Attachment E – CDV-700 Vehicle and Equipment Monitoring Procedures

B. Scope

This guidance only pertains to portal monitors, CDV-700s with side shield detectors (hot dog probes) or pancake probes, and modern instrumentation with pancake type detectors. For hand held instrumentation, only those that read out in "counts per minute (cpm)" are to be used for contamination monitoring. Portable instruments used for evaluation of contamination levels in accordance with this guidance will detect and measure primarily beta radiation, but also some gamma radiation. CDV-700 instruments with the hot dog probe and those with the pancake detector are normally calibrated using only gamma radiation from a sealed Cs-137 source. Other more modern instruments with pancake detectors are designed by the manufacturer to respond in the range of 3000 to 4000 counts per minute (cpm) per mR/h of gamma radiation. The criteria presented here apply only to instrument/detector combinations that have been calibrated in this same manner. CDV-700 instruments should be calibrated every four years. Other hand held instruments should be calibrated every two years. **CDV-700s will not be used for contamination monitoring in non-nuclear power plant (REP) incidents.**

Individuals, vehicles and equipment that have, or potentially have been, exposed to (1) an airborne plume containing radioactive material from an accident or incident or (2) contaminated surfaces resulting from material deposited from the passing plume may need to be monitored to determine whether decontamination is needed. Such monitoring may be accomplished for individuals using portal monitors or hand held instruments. Monitoring for vehicles and equipment should be done using hand held instruments only.

NOTE: Whether the CDV-700 uses a hot dog probe or pancake probe the contamination limits and monitoring methods are the same.

The guidance presented here is for emergency control of exposure of the public to radioactive contamination from major accidents or incidents. It is intended for monitoring evacuees and their possessions, emergency workers, their vehicles and equipment, and to provide a basis for decisions on the need for decontamination, unconditional release, or referral for professional radiological evaluation. The recommended decontamination procedure contained in this guidance should be used as a basis for decontamination plans and procedures.

III. POLICY

A. Anyone who is part of an evacuation due to a NPP incident will, upon request, be monitored and decontaminated, if necessary, at established centers.

B. All emergency workers participating in the evacuation of an EPZ due to a NPP incident will be monitored and decontaminated, if necessary, at established stations.

IV. SITUATION AND ASSUMPTIONS

It is understood that there are a diverse variety of survey instruments on the market and in use inside the commonwealth. The guidance contained in this document is intended to be general in nature and is more concerned with monitoring techniques rather than differences unique to each type of equipment. Equipment should always be used per the

manufacturers' instructions. If equipment instructions are not available it is recommended you contact the manufacturer. If the manufacturer's instructions for use of the instrument conflict with the guidance contained herein you should contact the commonwealth's Department of Environmental Protection, Bureau of Radiation Protection for clarification.

V. CONCEPT OF OPERATIONS

A. Personnel Monitoring Process

1. Types of Monitoring

a. Quick monitoring – monitoring the head, hands, elbows, hips/buttock area, knees and feet of evacuees

b. Full monitoring – monitoring of evacuees and emergency workers by use of a portal monitor, or if a hand held instrument is used, the entire surface area of the individuals must be monitored.

2. Four-Step Process

Monitoring of individuals for detection and measurement of contamination with portable radiation instruments is a four-step process as follows:

a. A speaker or earphone(s) attached to the instrument is used to audibly announce the presence of contamination. The detector is passed over a potentially contaminated surface at a specified:

- probe speed;
- distance between the probe and the contaminated surface; and
- distance between passes of the probe (path-width).

Instrument/ Detector Combination	Parameter Values for Detecting Spot or Widespread Contamination on Individuals			Calculated Time Needed for Full Monitoring of an Adult (minutes)
	Probe Speed (inches/second)	Height of Probe (inches)	Path Width (inches)	
CDV-700	4	0.5	0.6	19
Modern instruments with pancake detectors	6	1	2	3.9

b. If contamination is detected, the earphone(s) or speaker is used to find either the location of the most active spot(s) of contamination or the location of the highest concentration(s) of widespread contamination.

c. A meter reading is then taken with the detector in a fixed position at the location of the highest audible response and at the appropriate distance from the monitored surface. Visual estimation is satisfactory because small errors in this distance will be compensated by conservatism in the decontamination threshold criteria. Measurements at less than one inch will add more conservatism to decisions on the need for decontamination.

d. The meter reading is compared to the decontamination decision criteria.

B. Decontamination or Release Decision Criteria

1. Personnel Decontamination or Release Decision Criteria

a. Portal Monitors – monitors that meet the FEMA Portal Monitor Standard (REP-21) may be used for personnel monitoring. All pre-operational checks and calibration must be performed in accordance with the manufacturer recommendations. Portal monitors should be located in low background areas to operate efficiently (background should not exceed levels in paragraph b. (1) below.) If an individual being monitored with a portal monitor alarms the monitor, the individual should be instructed to re-enter the portal. A second alarm will require decontamination procedures to be initiated.

b. Hand Held Instrumentation

(1) Background – background should not exceed 60 cpm if using a CDV-700 or 100 cpm if using a modern instrument with pancake detector; if area in which monitoring is to be performed exceeds these background limits, monitoring should be relocated to an area below the values listed above.

(2) CDV-700 – if greater than 300 cpm is detected while monitoring an individual, decontamination procedures shall be initiated.

(3) Modern instrumentation with pancake detectors - if greater than 300 cpm above background is detected while monitoring an individual, decontamination procedures shall be initiated.

2. Vehicle & Equipment Decontamination or Release Decision Criteria

a. Portal Monitors – shall not be used for vehicle or equipment monitoring.

b. Hand Held Instrumentation

(1) Background – background should not exceed 60 cpm if using a CDV-700 or 100 cpm if using a modern instrument with pancake detector. If area in which monitoring is to be performed exceeds these background limits, monitoring should be relocated to an area below the values listed above.

(2) CDV-700 – if greater than 300 cpm is detected while monitoring a vehicle or equipment, decontamination procedures shall be initiated.

(3) Modern instrumentation with pancake detectors - if greater than 300 cpm above background is detected while monitoring a vehicle or equipment, decontamination procedures shall be initiated.

C. Contamination Monitoring Instrumentation Capabilities and Limitations

1. Portal Monitors

Capabilities – Portal monitors that meet the FEMA Portal Monitor Standard and that are checked, operated, and calibrated in accordance with the manufacturer recommendations are capable of monitoring 300 individuals per hour.

Limitations – Portal monitors are ideal for situations in which large numbers of evacuees need to be monitored. In incidents where a limited number of personnel are involved, it may not be practical to use a portal monitor. Portal monitors cannot be used for vehicle or equipment monitoring.

2. Hand Held Instrumentation/CDV-700

Capabilities:
Quick monitoring – 4 minutes per individual (12 per hour);
Full monitoring – 19 minutes per individual (2.5 per hour)

Limitations – Can only be used for personnel monitoring in response to an accident at a nuclear power plant (REP program).

3. Modern instrumentation with pancake detectors

Capabilities:
Quick monitoring – 1 minute per individual (50 per hour, with break);
Full monitoring – 4 minutes per individual (12 per hour, with break)

Limitations – If incident involves pure alpha emitters, alpha survey equipment must be used. If responders are unable to determine if pure alpha emitters are present, PA Department of Environmental Protection/Bureau of Radiation Protection (DEP/BRP) must be contacted.

D. Calculations of the Number of Personnel that can be Monitored in 12 Hours

1. REP Program Instrumentation

Each Offsite Response Organization (ORO) with REP responsibilities should review all instruments capabilities and limitations. It may be necessary to increase the number of monitoring teams for those OROs that currently have only CDV 700s. The previous monitoring time of 2-3 minutes has been replaced with 4 minutes for the quick monitoring method. Any individuals found to be contaminated, **and all emergency workers**, need to be fully monitored at a rate of 19 minutes per individual.

The highest through-put capable contamination monitoring instrument is a Portal Monitor that meets the FEMA REP-21 standard, with a capacity of 300 per hour.

The ideal monitoring location would have sufficient portal monitors to monitor the required evacuee amount within the 12-hour time period and possess 5 to 10 instruments with pancake detectors for monitoring of individuals that were found to be contaminated by the portal monitors. Each county ORO should perform a cost – benefit analysis to determine the appropriate ratio of instrumentation.

EXAMPLE: County "Z" must monitor 12,000 evacuees (20%) in a 12-hour period. Team = # of individuals needed to perform monitoring duties for each individual. Usually 2: one monitoring; one recording results.

Situation 1 – County Z has only CDV-700s

= 4 minutes/person QUICK MONITORING with CDV-700
= 12/hour/team with break
= 12/hour/team x 12 hours = 144/team
= 12,000/ 144/team
= 84 teams required

Situation 2 – County Z has only modern instrumentation with pancake detectors

= 1 minute/person QUICK MONITORING
= 50/hour per team with break
= 50/hour x 12 hours = 600 per team
= 12,000/600 team = 20 teams

Situation 3 – County Z has Portal Monitors

1 portal monitor = 300 individuals per hour
= 300 per hour x 12 hours = 3600 per portal in a 12 hour period
= 12,000 divided by 3600
= 4 portal monitors needed

E. Non-REP Instrumentation

The values used above for modern instruments with pancake detectors and portal numbers are applicable to non-REP incidents and accidents. The ORO needs to decide the equipment used for each type event. As stated previously; portal monitors are valuable where large numbers of evacuees and emergency workers need to be monitored. If the incident does not involve large numbers of individuals that need to be monitored, modern instruments with pancake detectors would be the best choice.

VI. RESPONSIBILITIES

A. It is the responsibility of elected officials to provide for public safety. That responsibility includes ensuring that adequate numbers of monitoring/decontamination teams and equipment are available when they are needed. In practice most elected officials rely on the emergency management agencies (EMAs) within their jurisdictions to provide this assurance.

B. PEMA is responsible, in coordination with the counties, utilities, and other state agencies, for maintaining a current, detailed listing of statewide monitoring/decontamination assets.

C. The Bureau of Radiation Protection (BRP) is responsible for providing guidance on the efficacy and proper use of survey equipment, when requested. Additionally they will ensure survey techniques are sufficient to assure the general public and emergency workers have confidence in these measures.

D. County EMCs are responsible for identifying their monitoring/decontamination team needs in conjunction with their respective municipal EMCs. They will conduct a formal annual review in conjunction with plan reviews. All quantities will be coordinated with PEMA, Bureau of Plans.

E. Utilities will be responsible for training monitoring/decontamination teams throughout the areas affected by their NPPs. This training will be coordinate with the respective REP counties and PEMA.

These utility responsibilities only apply to REP-related monitoring decontamination teams.

VII. ADMINISTRATION AND LOGISTICS

For further information or with questions, please contact the Pennsylvania Emergency Management Agency Radiological Program Area(s) at 717-651-2123/2231 or the Department of Environmental Protection/Bureau of Radiation Protection at 717-787-2480.

VIII. TRAINING AND EXERCISES

A. Emergency management coordinators will ensure emergency workers maintain proficiency in the use of any survey equipment, dosimetry, and forms.

B. Monitoring/decontamination teams should be rotated to ensure equitable participation and evaluation in all exercises.

IX. PLAN MAINTENANCE AND DISTRIBUTION

This interim document will remain in effect until such time as it is revised or rescinded.

X. AUTHORITY AND REFERENCES

A. Authority

One basis for this guidance for an accident at a nuclear power plant is REP-22, "Contamination Monitoring Guidance for Portable Instruments Used for Radiological Emergency Response to Nuclear Power Plant Accidents, October 2002", and associated background documents. Portions of REP-22 are used within this guidance. In addition, the Bureau of Radiation Protection developed a REP-22 position paper. The position paper is the basis for this guidance to include monitoring of personnel for other radiological accidents/incidents. Radiological Emergency Preparedness (REP) program manuals have been developed for responses to accidents/incidents at a nuclear power plant.

The quantity of contamination on an individual that warrants decontamination was established by the Federal Emergency Management Agency (FEMA) Portal Monitor Standard on the basis of (1) guidance on acceptable risk of health effects under emergency conditions provided in EPA 400-R-92-001, (2) estimates of exposure time for the skin, (3) the assumption that contamination will not be uniformly distributed (i.e., it may consist of both a small spot[s] of concentrated contamination and widespread non-uniformly distributed contamination), (4) concentrated spot contamination will not exist without the presence of widespread contamination, (5) the quantity of widespread contamination on an individual is assumed to be at least 10 times the quantity of contamination on a small spot of skin, and (6) the controlling health effects will be "acute exudative radio dermatitis" from a small spot of contamination and "skin cancer" from widespread contamination. It was concluded that the quantity of contamination on skin that warrants decontamination depends on whether the contamination is confined to one or more small spots or is widespread.

Conservative analyses supporting the Portal Monitor Standard showed that fixed contamination on a spot of skin having an area of 0.2 cm^2 or less should not exceed 0.1 μCi in order to avoid exceeding the dose threshold for acute exudative radio dermatitis. These analyses also showed that, in order to maintain an acceptable level of risk of skin damage under emergency conditions, widespread fixed contamination on the total body should not exceed 74 μCi, regardless of its distribution. For uniformly distributed contamination on an adult, 74 μCi corresponds to 0.004 $\mu Ci/cm^2$. Additional information on the health risks associated with skin contamination can be found in Section II of the REP-22 Background Information Document.

B. References

1. Federal Emergency Management Agency, REP-22, "Contamination Monitoring Guidance for portable instruments used for radiological emergency response to nuclear power plant accidents, October 2002"

2. Federal Emergency Management Agency, "Background information on Contamination Monitoring Guidance for portable instruments used for radiological emergency response to nuclear power plants, October 2002"

3. Federal Emergency Management Agency, "Statements of consideration for Contamination Monitoring Guidance for portable instruments used for radiological emergency response to nuclear power plant accidents, October 2002

4. Environmental Protection Agency, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", EPA 400-R-92-001, May 1992

5. NUREG-1507, "Minimum Detectable Concentrations with Typical Radiation Survey Instruments For Various Contaminants and Field Conditions"

6. Federal Emergency Management Agency. REP-21,"Contamination Monitoring Standard for a Portal Monitor Used for Radiological Emergency Response, March 1995"

7. Pennsylvania Bureau of Radiation Protection, "BRP Radiological Emergency Response Plan," Revision 0, March 2008.

8. US Department of Transportation, "Emergency Response Guide, 2002"

XI. DEFINITION OF TERMS

Attachments

A. Personnel Monitoring Procedures for Portals and Modern Instruments with Pancake Probes
B. Personnel Decontamination Procedures
C. Vehicle and Equipment Monitoring Procedures for Modern Instruments with Pancake Probes
D. CDV-700 Personnel Monitoring Procedures
E. CDV-700 Vehicle and Equipment Monitoring Procedures
F. Monitoring and Decontamination of Pets and Service Animals

ATTACHMENT A

PERSONNEL MONITORING PROCEDURES FOR PORTALS AND MODERN INSTRUMENTS WITH PANCAKE PROBES

This document provides guidelines for monitoring personnel for contamination with portal monitors and modern instruments with pancake probes in the event of an unplanned release of radioactive materials.

NOTE: If using CDV-700s see Attachment D.

A. Considerations

Considerations include, but are not limited to the following:

1. Setting up an Incident Command Center in accordance with applicable ORO plans and procedures.
2. Establishing communications for responders.
3. Evaluating other hazards that may be present in the affected area.
4. Establishing access and egress control points.
5. Determining how many people are affected.
6. Establishing cold, warm and hot zones as appropriate.
7. Establishing decontamination and staging areas for personnel and equipment.
8. Determining which instruments will provide adequate detection capabilities for radionuclides that may be present.
9. Determining how many monitoring teams are needed.
10. Determining if outside agency (e.g. DEP / BRP or contract consultants) assistance is required and obtaining outside assistance as needed.
11. Perform thyroid monitoring on all emergency workers.

B. Prerequisites

1. Personnel performing monitoring should be properly trained and qualified in accordance with OROs' emergency plans and procedures.
2. Personnel should review Flow Chart Tabs 1, 2, 3 and 4 of the procedure prior to commencement of monitoring.
3. Monitoring equipment must be in good physical condition.
4. Monitoring equipment calibration must be current.
5. Monitoring equipment pre-operational / source checks must be performed satisfactorily.
6. Instrument audio / speaker features (if available) should be used during monitoring.
7. Monitoring area background levels should not exceed 100 cpm.
8. Background levels and monitoring floor areas must be re-checked at 30 minutes intervals and after contaminated individuals are sent to shower(s) / decontamination stations.

9. Appropriate ORO forms must be available for documentation of individuals who are contaminated.

C. Precautions

1. Default monitoring times/distances listed are within the body of the procedure.
2. Soles of the shoes are the areas most likely to be contaminated and should be monitored last.
3. Exercise care to control the spread of contamination when sending individuals to shower(s) and decontamination stations.
4. Maintain a distance of at least ten feet between the individual being monitored and those waiting to be monitored to minimize the possibility of increasing instrument background.

D. Procedure

1. Initial Monitoring of Evacuees or Emergency Workers for Contamination Using Portal Monitors

   a. Ensure prerequisites of this procedure have been met.
   b. Determine and record the background radiation level in the monitoring area.
   c. Instruct individuals who are waiting to be monitored to stay at least ten feet away from portal monitor, to minimize effects on background levels.
   d. Instruct individuals to proceed, single file, through portal monitor.
   e. Release individuals who do not alarm portal monitors in accordance with ORO plans and procedures.
   f. Instruct individuals who alarm portal monitor to walk through monitor a second time.
   g. Release individuals who do not alarm portal monitors in accordance with ORO plans and procedures
   h. If individuals alarm the portal monitor a second time, take precautions to prevent the spread of contamination.
   i. Instruct individuals who alarm the portal monitor twice to proceed to decontamination area(s).
   j. Ensure portal monitor area is free of contamination after individuals are sent to decontamination area(s).
   k. Conduct follow-up monitoring of individuals in accordance with Section 3 of this procedure.

NOTE: Once a parent has passed through a portal monitor without alarming they may go back and carry an infant or small child through. If the portal alarms it indicates the child is contaminated and the contaminated area should be pin-pointed using hand-held monitors. Children too large to be comfortably carried may walk through the portal like an adult.

2. Initial Monitoring of Evacuees Using Modern Hand Held Instruments

   a. Ensure that the prerequisites of this procedure have been met.
   b. If instruments are equipped with audio / speaker capabilities, ensure this feature is turned on and used during monitoring.
   c. Place a thin plastic cover over the probe(s) to prevent it from being contaminated.
   d. Determine and record the background radiation level in the monitoring area.
   e. Instruct individuals to line up, single file, at least ten feet away from other individuals being monitored.
   f. Instruct individuals to proceed, one at a time, through the monitoring line.
   g. Perform a 1 minute survey.
   h. Keep the probe approximately 1 inch away.
   i. Beginning at the head, monitor for the presence of contamination in excess of release limits 300 cpm above background.
   j. Continue monitoring the hands, elbows, hips/buttock area where hands may have touched and knees.
   k. Monitor the soles of the shoes.
   l. Release non-contaminated individuals in accordance with ORO plans and procedures.
   m. If individual is contaminated, take precautions to prevent the spread of contamination.
   n. Ensure monitoring area is free of contamination.
   o. Instruct contaminated individuals to proceed to decontamination area(s).
   p. Conduct follow-up (post–decontamination) monitoring in accordance with Section 3 of this procedure.

3. Monitoring of Emergency Workers or Follow-Up Monitoring of Individuals Found to be Contaminated Using Modern Hand Held Instrumentation

NOTE: Portal monitors may be used for this purpose.

   a. Ensure that the prerequisites of this procedure have been met.
   b. If instruments are equipped with audio / speaker capabilities, ensure this feature is activated.
   c. Place a thin plastic cover over the probe(s) to prevent it from being contaminated.
   d. Determine and record the background radiation level in the monitoring area.
   e. Perform a 4 minute survey.
   f. Keep the probe approximately 1 inch away.

NOTE: If individuals are contaminated, initiate proper form(s), and document all areas where contamination is in excess of release limits.

g. Beginning at the head, monitor for the presence of contamination in excess of release limits.
h. After monitoring the head, instruct the individual to extend his / her arms away from the body.
i. Continue monitoring the front of the whole body (neck to feet), except for the soles of the shoes.
j. Instruct the individual to turn around and monitor the back of the whole body.
k. Monitor the soles of the shoes (leaving shoe covers on, if used).
l. If contamination is not found, remove each shoe cover (if used) and monitor the soles of each shoe again.
m. If the soles of the shoes are contaminated, take precautions to prevent the spread of contamination.
n. Instruct contaminated individuals in decontamination methods.
o. Ensure that the monitoring area is free of contamination.
p. Perform thyroid monitoring on all emergency workers.
q. Release non-contaminated individuals in accordance with ORO plans and procedures.

NOTE: Complete form(s) for individuals who are successfully decontaminated and released in accordance with ORO plans and procedures.

r. Monitor individuals who undergo decontamination attempt(s) in accordance with steps e through p of this procedure section.
s. If additional contamination is found, document on proper forms and instruct individuals to return to decontamination station(s) for a second decontamination attempt.
t. Monitor individuals who undergo a second decontamination attempt in accordance with steps e through p of this procedure section.

NOTE: Complete form(s) for individuals who are successfully decontaminated and released in accordance with ORO plans and procedures.

u. Refer individuals who are still contaminated after second decontamination effort to appropriate medical facility in accordance with ORO plans and procedures.

4. Emergency workers thyroid monitoring

a. Check the survey meter for operability.
b. Place the probe in a horizontal position across the front of the neck, just below the larynx. Turn the pancake probe over completely and monitor with the back, or shielded side, of the probe instead of the front portion with the window.
c. If the reading is less than 300 cpm above background no further action is necessary.

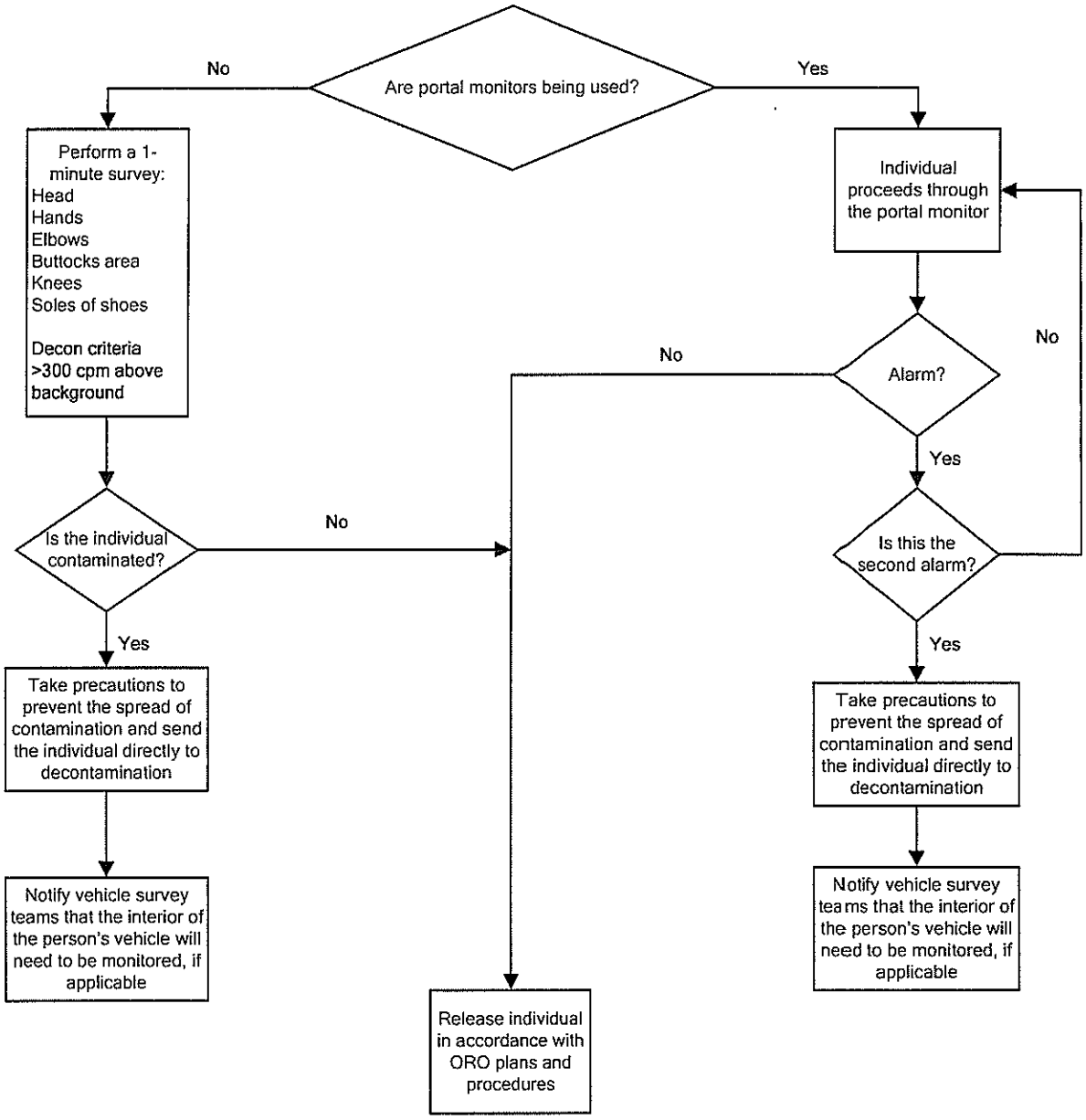
d. If the reading exceeds the limits in paragraph c. above, the individual's neck area should be decontaminated using standard surface decontamination techniques.

e. Following decontamination, repeat the thyroid screening procedure. If the second reading exceeds limits, refer the individual to the appropriate medical facility for evaluation.

f. Record the data on the form in accordance with ORO plans and procedures.

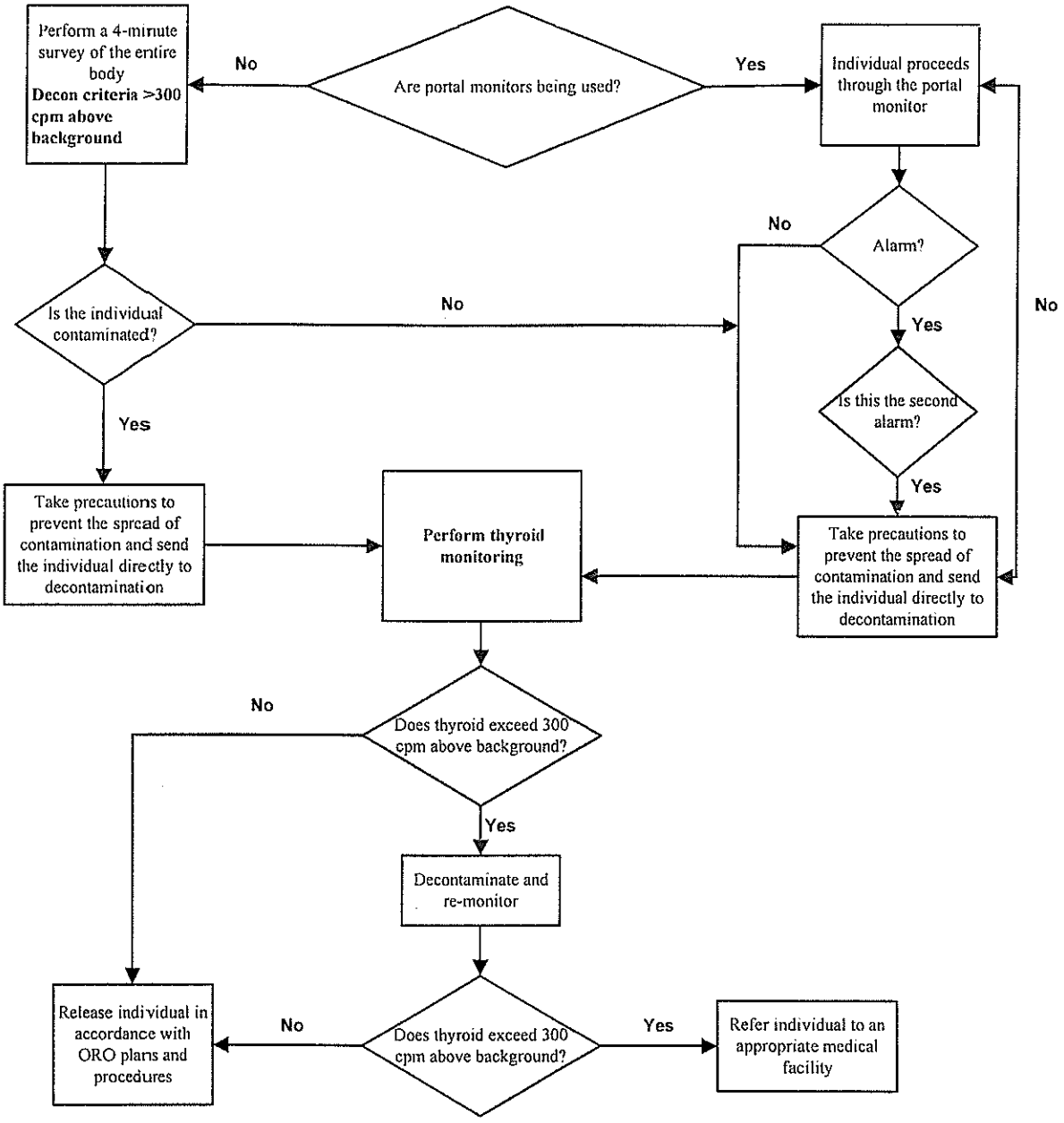
TAB 1
ATTACHMENT A

INITIAL MONITORING OF EVACUEES USING PORTALS AND MODERN INSTRUMENTATION WITH PANCAKE PROBES



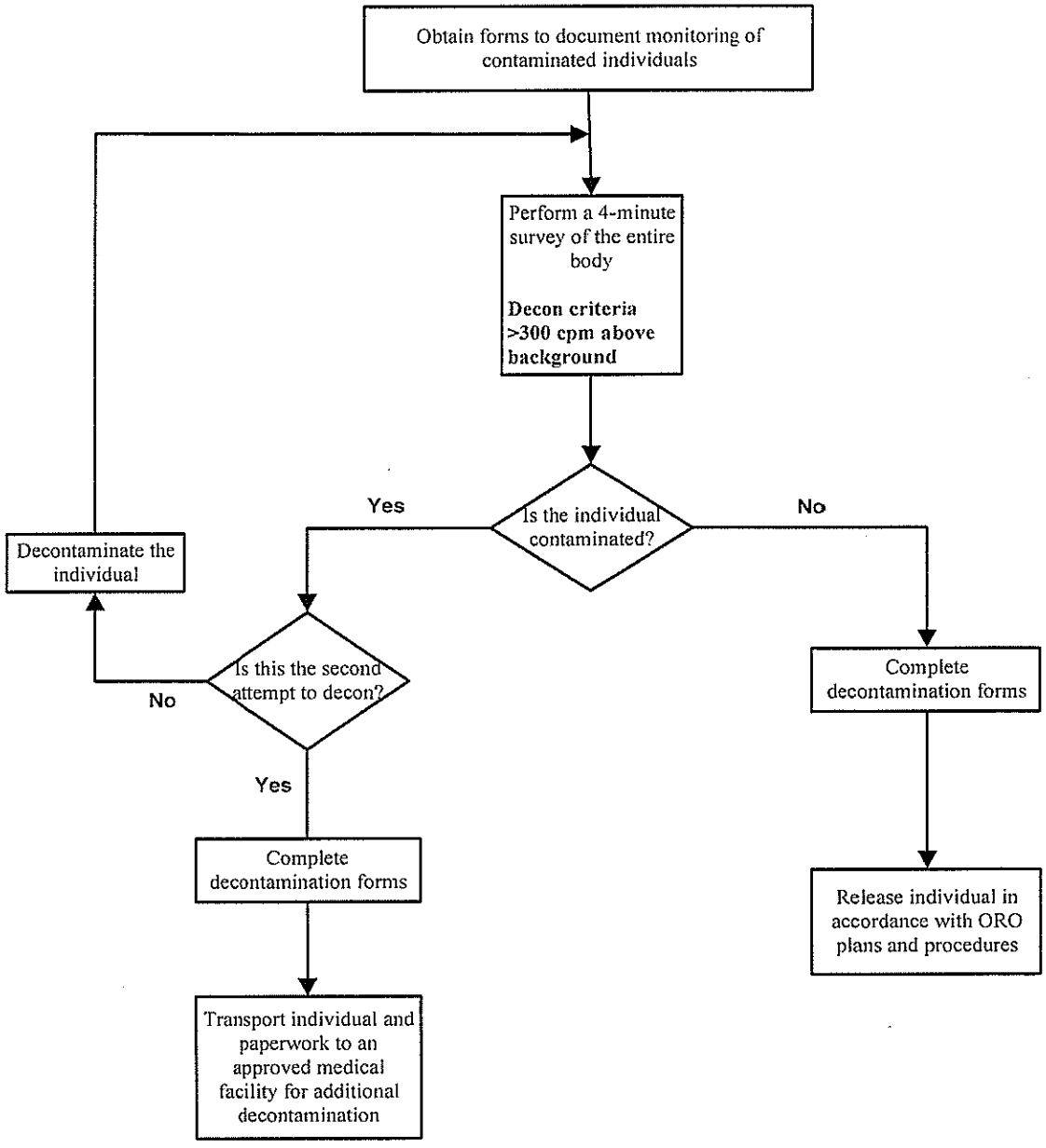
TAB 2
ATTACHMENT A

MONITORING OF EMERGENCY WORKERS USING PORTALS OR MODERN INSTRUMENTATION WITH PANCAKE PROBES



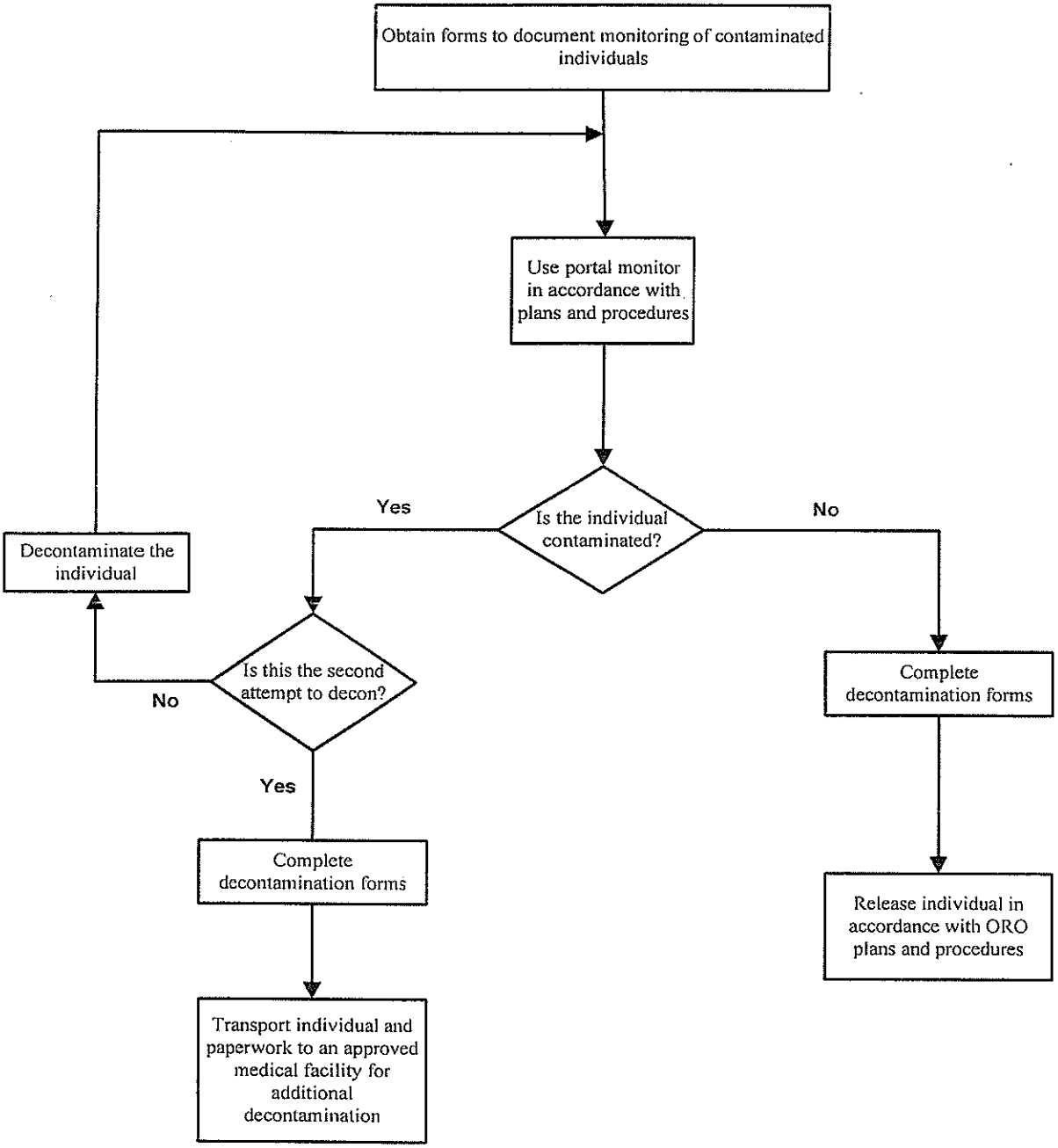
TAB 3
ATTACHMENT A

POST DECONTAMINATION MONITORING (USING MODERN INSTRUMENTATION WITH PANCAKE PROBES) OF EVACUEES FOUND TO BE CONTAMINATED



TAB 4
ATTACHMENT A

POST DECONTAMINATION MONITORING (USING PORTAL MONITORS) OF EVACUEES FOUND TO BE CONTAMINATED



ATTACHMENT B

PERSONNEL DECONTAMINATION PROCEDURES

This document provides guidelines for personnel decontamination.

A. Prerequisites

1. Each individual must be fully monitored and contamination levels documented in accordance with ORO plans and procedures prior to any decontamination.
2. Decontamination facility must be setup for contamination control.
3. Decontamination facility must have appropriate equipment ready.
4. Personnel performing monitoring must be properly trained and qualified in accordance with OROs emergency plans and procedures.

B. Precautions

1. Extreme care should be taken to prevent the spread of contamination to any skin or body opening.
2. Lukewarm or room temperature water should be used for all washing and rinsing. Hot water causes the skin pores to open, driving contamination deeper into the skin. Cold water closes the pores, trapping contamination in the skin.
3. Thorough washing with nonabrasive soap and lukewarm water is the best general method of decontamination of the hands and other parts of the body. If the contaminant is localized, it is often more practical to mask off the affected area, and cleanse with swabs, rather than risk the danger of spreading the contaminant by general washing. Special attention must be given to the areas between the fingers and around the nails. The outer edges of the hands are readily contaminated, and must not be neglected in the washing.

C. Personnel Decontamination Procedure

NOTE: In incidents with mass evacuees that are contaminated, it is acceptable to have individuals found to be contaminated to immediately decontaminate by disrobing and using shower facilities. After decontamination attempt individual should be fully monitored. The following procedure allows for spot and dry initial decontamination attempts.

1. If the identified contaminated area(s) are covered by clothing or footwear, instruct the individual to carefully remove the article of clothing or footwear while wearing exam type gloves. Have the individual place the article(s) in a bag or container along with the glove(s). Move the bag/container away from the immediate monitoring field.
2. Fully monitor the individual.

3. If the individual is found to be free of contamination, or if the readings are below the decontamination/release criteria, release the individual in accordance with ORO plans and procedures.
4. If the individual is found to have readings above the decontamination/release criteria, consider the use of "spot-decontamination" methods. These include:

    a. The removal of additional layers of clothing, if present.
    b. The use of a masking type tape to remove contaminants by carefully lifting the material(s) from the contaminated area(s).
    c. The use of an adhesive step-off pad for contaminate found on the bottoms of the shoes.
    d. The use of a damp "wash-cloth" or "paper towel" to dab or wipe the suspect area.

5. Place any used "spot-decontamination" materials in a bag or container and remove it from the immediate area. Re-monitor the individual.
6. If the individual is found to be free of contaminants, or if the readings are below the decontamination/release criteria, release the individual in accordance with ORO plans and procedures.
7. If contamination persists, follow the steps below:

    a. Contaminated persons should wash with a mild, non-abrasive soap and warm water (a thorough shower should be sufficient). Emphasis should be placed on any specific spots found to be contaminated in the monitoring process. Also, special attention should be given to the hair, hands and fingernails.
    b. After thorough cleansing and drying, the individual will be monitored again. If some contamination still remains, the individual should shower again, using a mild, non-abrasive soap. If monitoring after the second thorough cleansing indicates that the contamination is still present, the individual should be sent to the nearest medical facility capable of treating contaminated persons.
    c. Care should be taken that persons who are decontaminated do not become re-contaminated by dressing in contaminated clothing or by touching contaminated clothing or other contaminated items. If the individual does not have contamination free clothing, clothing should be issued to the individual until such time as their clothing can be decontaminated.

D. Decontamination Procedures for Wounds

Persons with contaminated wounds will be referred to an appropriate medical facility for decontamination and treatment.

E. Eye Decontamination

Any eye contamination should be directed to a physician.

F. Hair Decontamination

Decontaminate hair by repeated application of liquid soap and rinse water, using towels to keep water from running onto face and shoulders.

ATTACHMENT C

VEHICLE AND EQUIPMENT MONITORING PROCEDURES FOR MODERN INSTRUMENTS WITH PANCAKE PROBES

This document provides guidelines for monitoring vehicles for contamination in the event of an unplanned release of radioactive materials.

A. Considerations

1. Portal monitors cannot be used for vehicle monitoring.
2. Establish (one way) access and egress traffic flow patterns for incoming and outgoing vehicles.
3. Assign designated parking areas for all incoming (unmonitored) vehicles.
4. Assign (separate) designated monitoring areas for vehicles that are required to be surveyed and / or decontaminated.

B. Prerequisites

1. Vehicle occupants must be monitored prior to monitoring vehicles.
2. Privately owned vehicles and equipment whose occupants are contaminated must be surveyed prior to release.
3. All emergency response vehicles and equipment must be surveyed prior to release or reassignment to additional crews.
4. Personnel performing monitoring must be properly trained and qualified in accordance with OROs emergency plans and procedures.
5. Personnel must review Flow Chart Tabs A and B of this procedure prior to commencement of vehicle monitoring.
6. Monitoring equipment must be in good physical condition.
7. Monitoring equipment calibration must be current.
8. Monitoring equipment preoperational / source checks must be performed satisfactorily.
9. Instrument audio / speaker features (if available) should be used during monitoring.
10. Monitoring area background levels should not exceed 100 cpm.
11. Background levels must be rechecked at a minimum of every 30 minutes.
12. Appropriate ORO forms must be available for documentation of vehicles and equipment that are contaminated.

C. Precautions

1. Take precautions (e.g. wear gloves and do not brush against surfaces being surveyed) to prevent cross contamination of survey instruments and personnel performing monitoring, especially when surveying vehicle interiors.
2. Default monitoring times/distances are listed within the body of the procedure.

3. Maintain a distance of at least ten feet between vehicles that are being monitored to minimize increases in background levels from adjacent vehicles.
4. The vehicle should be parked and the engine turned off prior to surveying.
5. Use the following tables for decontamination criteria/release decision levels. Table 1 is for the initial surveys prior to decontamination.
6. Table 2 may be used only after decontamination efforts have been implemented and levels remain greater than those listed in Table 1.

Table 1 – Recommended Detection Parameters for Loose plus Fixed Widespread Contamination on Vehicles, Equipment and other Possessions

Instrument/ Detector Type	Decision Criteria	Detection Parameters	
		Maximum Probe Height (inches)	Maximum Probe Speed (inches/second)
Modern instruments w/pancake probes	300 cpm above background	1	24

NOTE: The decision criteria listed is for loose plus fixed contamination monitoring.

Table 2 – Recommended Detection Parameters for Fixed Contamination on Vehicles, Equipment and other Possessions

Instrument/ Detector Type	Decision Criteria	Detection Parameters	
		Maximum Probe Height (inches)	Maximum Probe Speed (inches/second)
Modern instruments w/pancake probes	1000 cpm above background	1	24

NOTE: The decision criteria listed is for fixed contamination monitoring.

D. Vehicle Monitoring Procedure

1. Ensure prerequisites of this procedure have been met.
2. Determine and record the background radiation level in the monitoring area.
3. Ensure proper vehicle monitoring form(s) are available in accordance with ORO plans and procedures.
4. Ensure vehicle is at least ten feet away from adjacent vehicles.
5. Place an appropriate (thin ply) plastic cover over the instrument probe.
6. Ensure that the instrument audio / speaker function is used, if available.
7. Ensure beta shield (non pancake detector) is in the open position, if applicable.

NOTE: Any contamination levels in excess of release limits should be documented on vehicle survey form(s).
Limits: 300 cpm above background with pancake detector/instrument

8. Starting at the left front wheel well, place the detector probe approximately 1 inch away with pancake detector/instrument
9. Survey wheel well, using a probe speed of approximately 24 inches per second with pancake detector/instrument.
10. Survey the left rear wheel well.
11. Survey the right rear wheel well.
12. Survey the right front wheel well.
13. Monitor any loose items located in the front portion of the vehicle interior (e.g. personal items) and bag items that are contaminated.
14. Mark bagged items in accordance with ORO plans and procedures.
15. Survey the front (driver side) seat, floor mat, hand and foot controls.
16. Monitor any loose items located in rear portion of vehicle interior (e.g. personal items) and bag items that are contaminated.
17. Mark bagged items in accordance with ORO plans and procedures.
18. Survey the rear (driver side) seat and floor mat.
19. Survey the rear (passenger side) seat and floor mat.
20. Survey the front (passenger side) seat and floor mat.
21. Decontaminate vehicle interior and exterior in accordance with ORO plans and procedures.
22. Document decontamination of vehicle interior on appropriate form(s).
23. If vehicle is still greater than 300 cpm above background after decontamination OROs, in accordance with plans and procedures, may use limits up to 1000 cpm above background. Contamination that remains in vehicle is assumed to be fixed contamination.
24. Release vehicles in accordance with ORO plans and procedures.

E. Equipment Monitoring Procedure

NOTE: Examples of equipment - air packs, turn-out gear, communication gear. Priority should be given to monitoring emergency worker equipment.

1. Ensure prerequisites of this procedure have been met.
2. Determine and record the background radiation level in the monitoring area.
3. Ensure proper survey form(s) are available in accordance with ORO plans and procedures.
4. Ensure equipment is not surveyed near other contaminated equipment.
5. Place an appropriate (thin ply) plastic cover over the instrument probe.
6. Ensure that the instrument audio / speaker function is used, if available.

NOTE: Any contamination levels in excess of release limits should be documented on equipment survey form(s).
Limits: 300 cpm above background with a pancake detector/instrument

7. Starting at closest surface, place the detector probe approximately 1 inch away.
8. Survey equipment, using a probe speed of approximately 24 inches per second.
9. Monitor remaining items surfaces and bag/wrap if found contaminated.

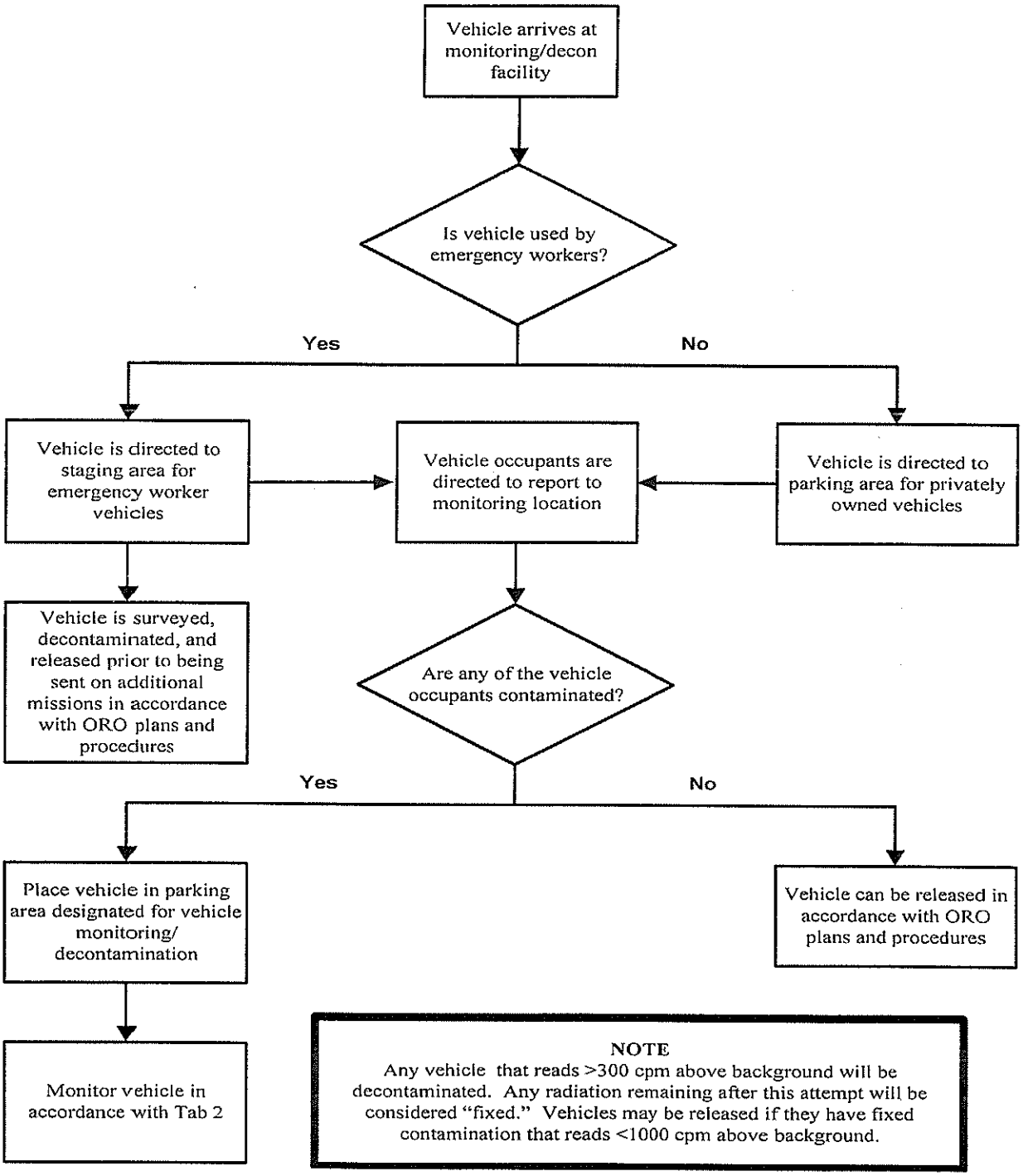
10. Mark items in accordance with ORO plans and procedures.
11. If time permits decontaminate equipment in accordance with ORO plans and procedures.
12. Document decontamination of vehicle interior on appropriate form(s).
13. If equipment is still greater than 300 cpm above background after decontamination OROs, in accordance with plans and procedures, may use limits up to 1000 cpm above background. Contamination that remains in vehicle is assumed to be fixed contamination.

NOTE: Some types of equipment, such as fans, drills, etc., may not be releasable due to internal, loose contamination. Contact BRP for further guidance.

14. Release vehicles in accordance with ORO plans and procedures.

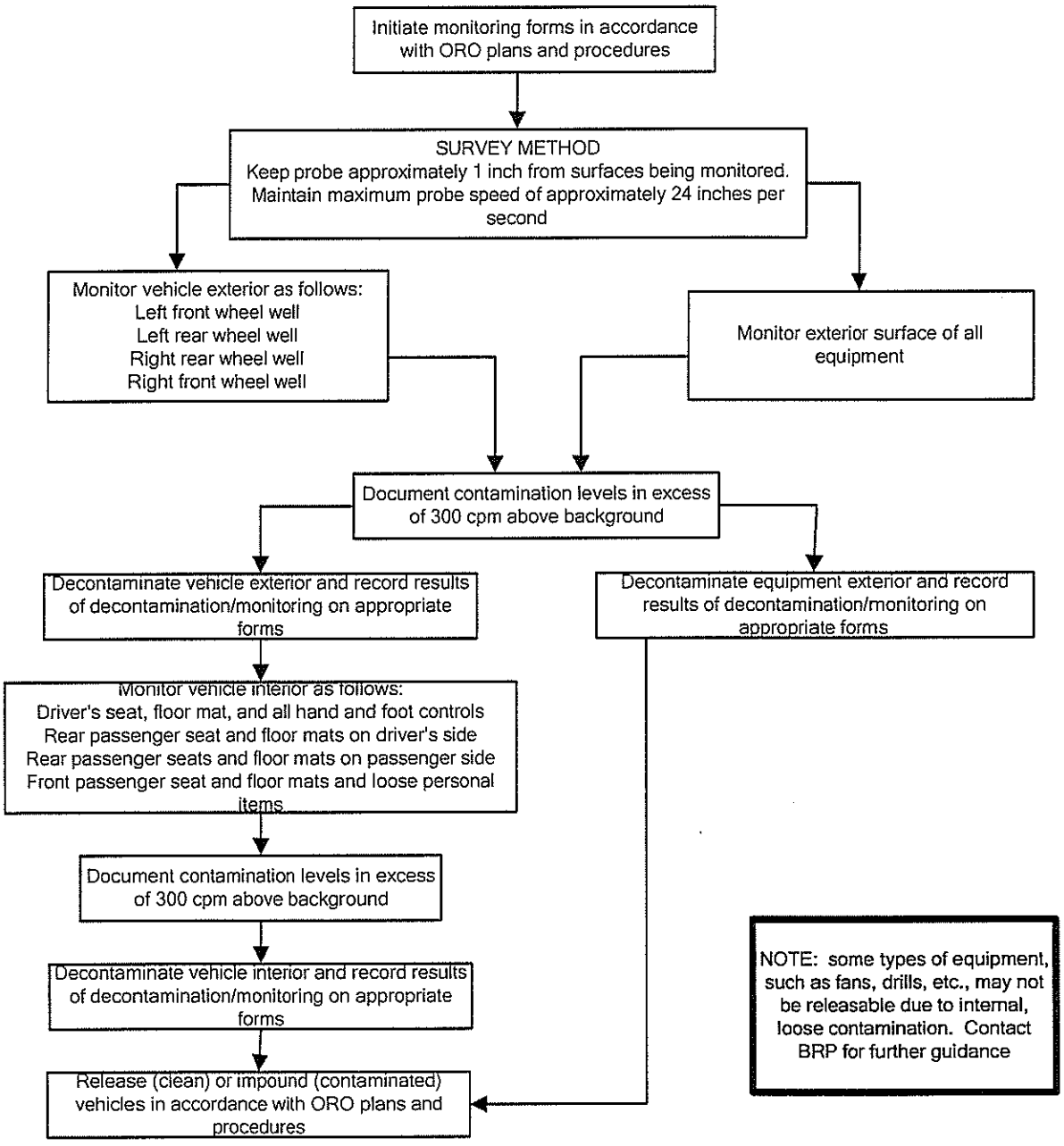
TAB 1
ATTACHMENT C

VEHICLE PROCESSING AT MONITORING/DECONTAMINATION CENTERS USING MODERN INSTRUMENTS WITH PANCAKE PROBES



TAB 2
ATTACHMENT C

VEHICLE AND EQUIPMENT MONITORING USING MODERN INSTRUMENTS WITH PANCAKE PROBES



ATTACHMENT D

CDV-700 PERSONNEL MONITORING PROCEDURES

This document provides guidelines for monitoring personnel for contamination using CDV-700s with hotdog probes or pancake probes in the event of an unplanned release of radioactive materials.

A. Considerations

Considerations include, but are not limited to the following:

1. Setting up an Incident Command Center in accordance with applicable ORO plans and procedures.
2. Establishing communications for responders.
3. Evaluating other hazards that may be present in the affected area.
4. Establishing access and egress control points.
5. Determining how many people are affected.
6. Establishing cold, warm and hot zones as appropriate.
7. Establishing decontamination and staging areas for personnel and equipment.
8. Determining which instruments will provide adequate detection capabilities for radionuclides that may be present.
9. Determining how many monitoring teams are needed.
10. Determining if outside agency (e.g. DEP / BRP or contract consultants) assistance is required and obtaining outside assistance as needed.
11. Perform thyroid monitoring on all emergency workers.

B. Prerequisites

1. Personnel performing monitoring should be properly trained and qualified in accordance with OROs' emergency plans and procedures.
2. Personnel should review Flow Chart Tabs 1, 2, and 3 of the procedure prior to commencement of monitoring
3. Monitoring equipment must be in good physical condition.
4. Monitoring equipment calibration must be current.
5. Monitoring equipment pre-operational / source checks must be performed satisfactorily.
6. Instrument audio / speaker features (if available) should be used during monitoring.
7. Monitoring area background levels should not exceed 60 cpm.
8. Background levels and monitoring floor areas must be re-checked at 30 minutes intervals and after contaminated individuals are sent to shower(s) / decontamination stations.
9. Appropriate ORO forms must be available for documentation of individuals who are contaminated.

C. Precautions

1. Default monitoring times/distances listed are within the body of the procedure. CDV- 700s WILL NOT BE USED FOR NON-REP INCIDENTS.
2. Soles of the shoes are the areas most likely to be contaminated and should be monitored last.
3. Exercise care to control the spread of contamination when sending individuals to shower(s) and decontamination stations.
4. Maintain a distance of at least ten feet between the individual being monitored and those waiting to be monitored to minimize the possibility of increasing instrument background.

NOTE: Whether the CDV-700 uses a hot dog probe or pancake probe the contamination limits and monitoring methods are the same.

D. Procedure

1. Initial Monitoring of Evacuees Using CDV-700s

a. Ensure that the prerequisites of this procedure have been met.
b. If instruments are equipped with audio / speaker capabilities, ensure this feature is turned on and used during monitoring.
c. Ensure the beta shield is open if a hot dog probe is used.
d. Place a thin plastic cover over the probe(s) to prevent it from being contaminated.
e. Determine and record the background radiation level in the monitoring area.
f. Instruct individuals to line up, single file, at least ten feet away from other individuals being monitored.
g. Instruct individuals to proceed, one at a time, through the monitoring line.
h. Perform a 4 minute survey of the individual in accordance with the steps listed below.
i. Keep the probe approximately 1/2 inch away from surface being monitored.
j. Beginning at the head, monitor for the presence of contamination in excess of 300 cpm.
k. Continue monitoring the hands, elbows, hips/buttock area where hands may have touched and knees.
l. Monitor the soles of the shoes.
m. Release non-contaminated individuals in accordance with ORO plans and procedures.
n. If individual is contaminated, take precautions to prevent the spread of contamination.
o. Ensure monitoring area is free of contamination.
p. Instruct contaminated individuals to proceed to decontamination area(s).

q. Conduct follow-up (post–decontamination) monitoring in accordance with Section 3 of this procedure.

2. Monitoring of emergency workers or follow-up monitoring of individuals found to be contaminated using CDV-700s

a. Ensure that the prerequisites of this procedure have been met.
b. If instruments are equipped with audio / speaker capabilities, ensure this feature is activated.
c. Ensure the beta shield is open if a hot dog probe is used.
d. Place a thin plastic cover over the probe(s) to prevent it from being contaminated.
e. Determine and record the background radiation level in the monitoring area.
f. Perform a 19 minute survey of the whole body of the individual in accordance with the steps listed below.
g. Keep the probe approximately 1/2 inch away from surface being monitored.

NOTE: If individuals are contaminated, initiate proper form(s), and document all areas where contamination is in excess of release limits.

h. Beginning at the head, monitor for the presence of contamination in excess of release limits.
i. After monitoring the head, instruct the individual to extend his / her arms away from the body.
j. Continue monitoring the front of the whole body (neck to feet), except for the soles of the shoes.
k. Instruct the individual to turn around and monitor the back of the whole body.
l. Monitor the soles of the shoes (leaving shoe covers on, if used).
m. If contamination is not found, remove each shoe cover (if used) and monitor the soles of each shoe again.
n. If the soles of the shoes are contaminated, take precautions to prevent the spread of contamination.
o. Instruct contaminated individuals in decontamination methods.
p. Ensure that the monitoring area is free of contamination.
q. Perform thyroid monitoring on all emergency workers.
r. Release non-contaminated individuals in accordance with ORO plans and procedures.

NOTE: Complete form(s) for individuals who are successfully decontaminated and released in accordance with ORO plans and procedures.

s. Monitor individuals who undergo decontamination attempt(s) in accordance with steps e through p of this procedure section.
t. If additional contamination is found, document on proper forms and instruct individuals to return to decontamination station(s) for a second decontamination attempt.
u. Monitor individuals who undergo a second decontamination attempt in accordance with steps e through p of this procedure section.

NOTE: Complete form(s) for individuals who are successfully decontaminated and released in accordance with ORO plans and procedures.

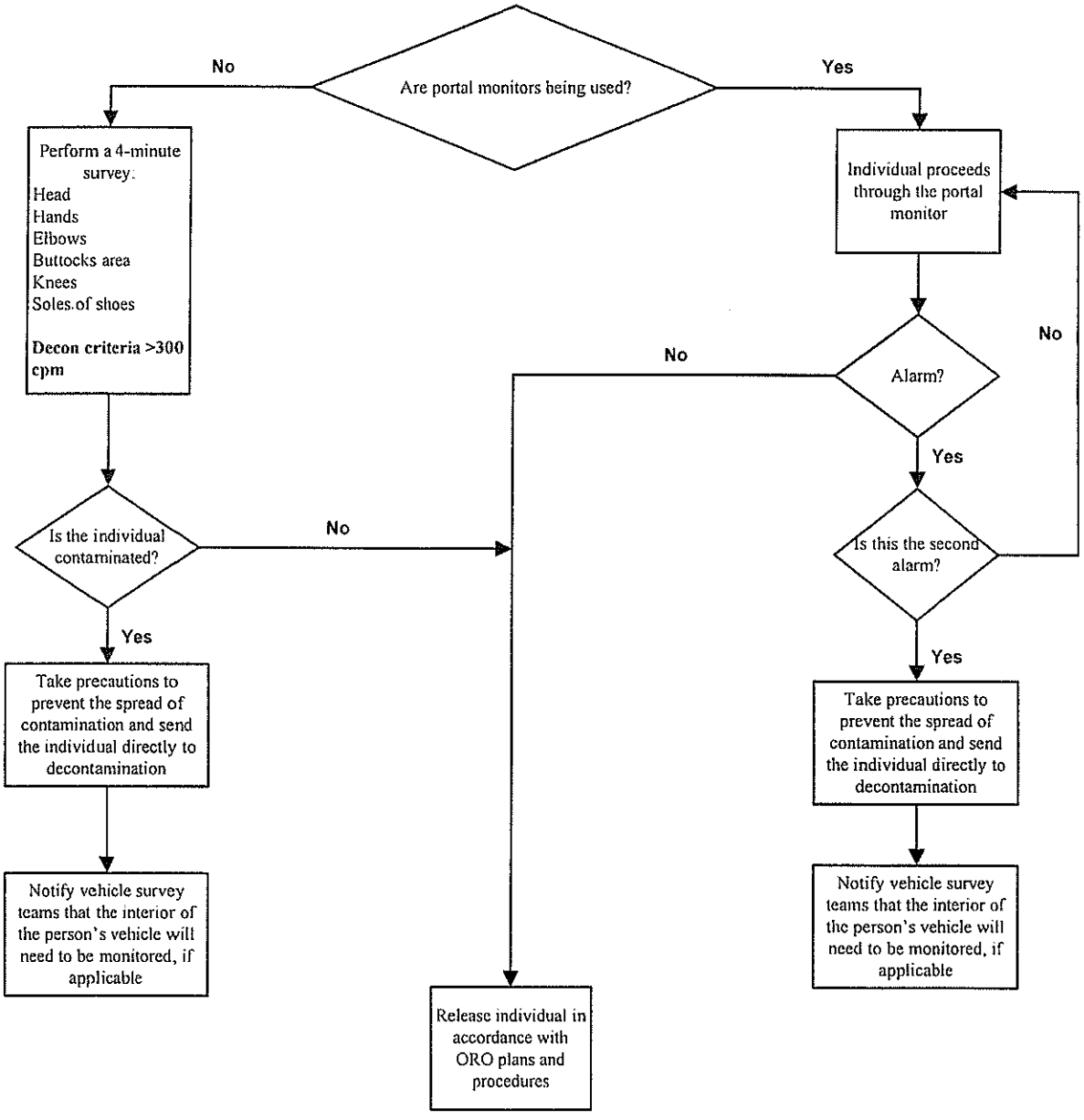
v. Refer individuals who are still contaminated after second decontamination effort to appropriate medical facility in accordance with ORO plans and procedures.

3. Emergency workers thyroid monitoring

a. Check the survey meter for operability.
b. Place the probe in a horizontal position across the front of the neck, just below the larynx. If the survey meter probe is a Geiger-Mueller Beta/Gamma tube type, ensure the beta shield is closed. If the probe is a Geiger-Mueller Beta/Gamma pancake type, turn it over completely and monitor with the back, or shielded side, of the probe instead of the front portion with the window.
c. If the reading is less than 0.1 mR/hr no further action is necessary.
d. If the reading exceeds the limits in paragraph c. above, the individual's neck area should be decontaminated using standard surface decontamination techniques.
e. Following decontamination, repeat the thyroid screening procedure. If the second reading exceeds limits, refer the individual to the appropriate medical facility for evaluation.
f. Record the data on the form in accordance with ORO plans and procedures.

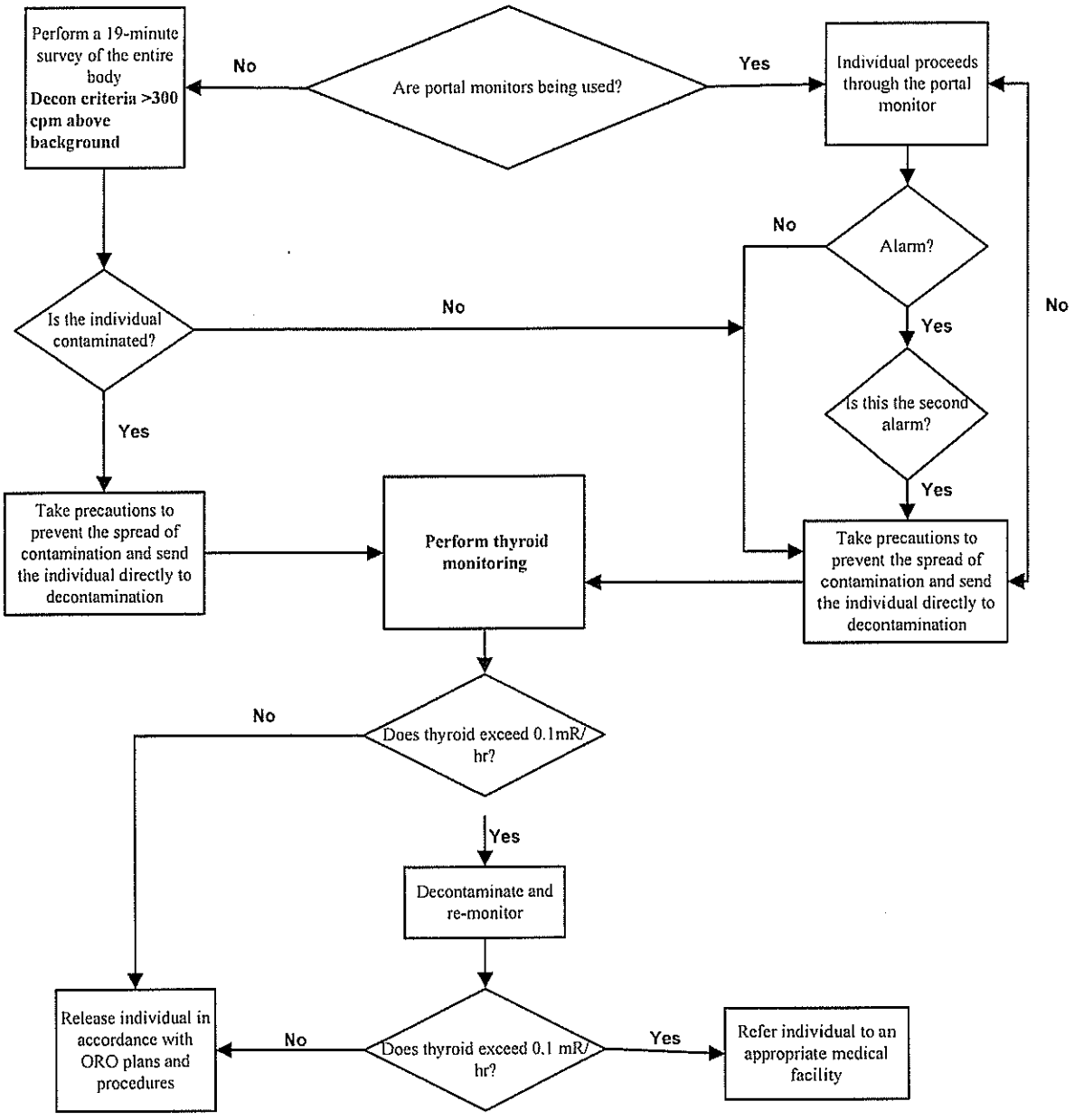
TAB 1
ATTACHMENT D

INITIAL MONITORING OF EVACUEES USING PORTALS AND CDV-700s WITH HOTDOG PROBES OR PANCAKE PROBES



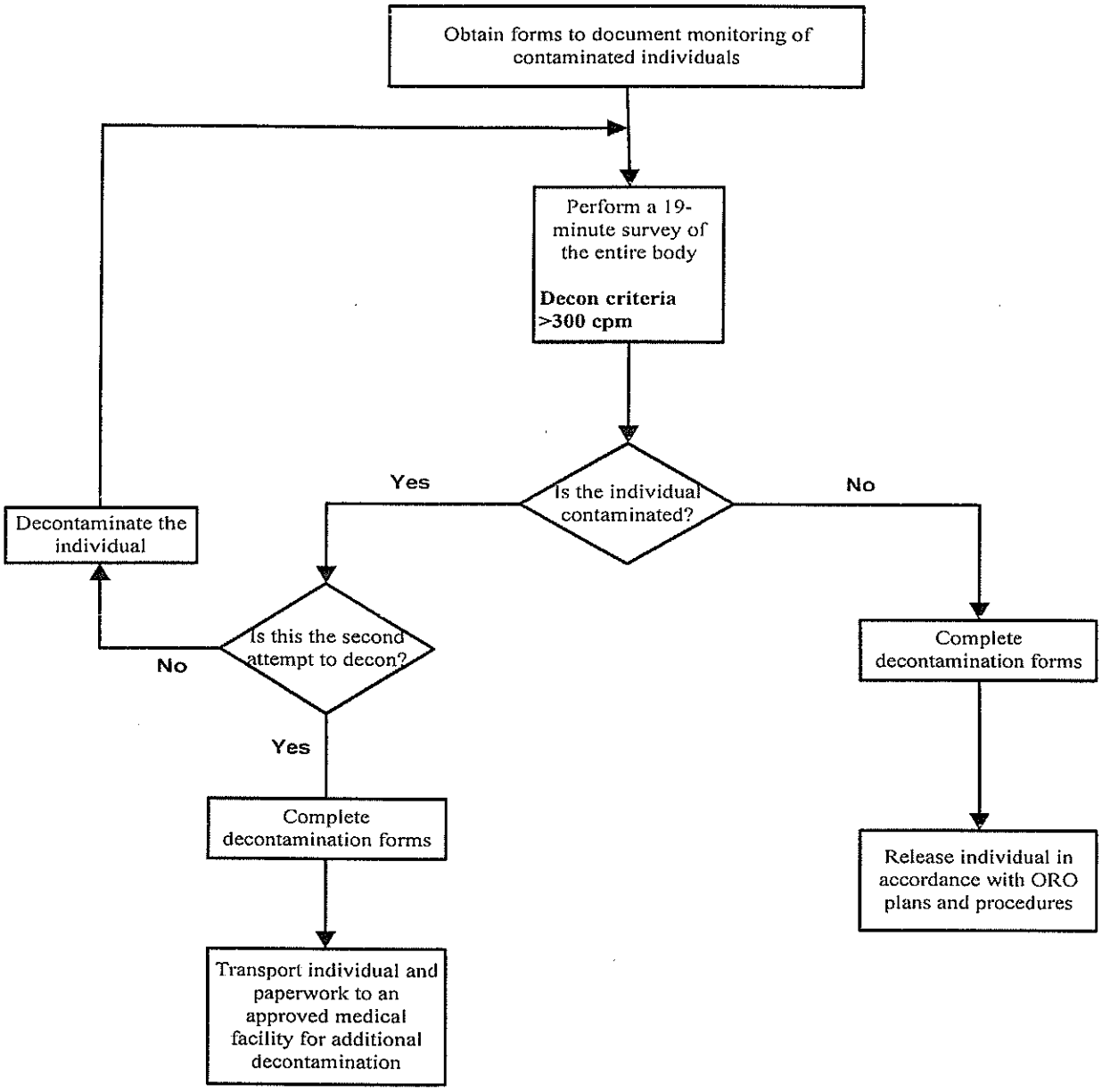
TAB 2
ATTACHMENT D

MONITORING OF EMERGENCY WORKERS USING PORTALS AND CDV-700s WITH HOTDOG PROBES OR PANCAKE PROBES



TAB 3
ATTACHMENT D

POST DECONTAMINATION MONITORING (USING CDV-700s WITH HOTDOG PROBES OR PANCAKE PROBES) OF EVACUEES FOUND TO BE CONTAMINATED



ATTACHMENT E

CDV-700 VEHICLE AND EQUIPMENT MONITORING PROCEDURES

This document provides guidelines for monitoring vehicles for contamination using CDV-700s with hotdog probes or pancake probes in the event of an unplanned release of radioactive materials.

A. Considerations

1. Portal monitors cannot be used for vehicle monitoring.
2. Establish (one way) access and egress traffic flow patterns for incoming and outgoing vehicles.
3. Assign designated parking areas for all incoming (unmonitored) vehicles.
4. Assign (separate) designated monitoring areas for vehicles that are required to be surveyed and / or decontaminated.

B. Prerequisites

1. Vehicle occupants must be monitored prior to monitoring vehicles.
2. Privately owned vehicles and equipment whose occupants are contaminated must be surveyed prior to release.
3. All emergency response vehicles and equipment must be surveyed prior to release or reassignment to additional crews.
4. Personnel performing monitoring must be properly trained and qualified in accordance with OROs emergency plans and procedures.
5. Personnel must review Flow Chart Tab 1 of this procedure prior to commencement of vehicle monitoring.
6. Monitoring equipment must be in good physical condition.
7. Monitoring equipment calibration must be current.
8. Monitoring equipment preoperational / source checks must be performed satisfactorily.
9. Instrument audio / speaker features (if available) should be used during monitoring.
10. Monitoring area background levels should not exceed 60 cpm.
11. Background levels must be rechecked at a minimum of every 30 minutes.
12. Appropriate ORO forms must be available for documentation of vehicles and equipment that are contaminated.

C. Precautions

1. Take precautions (e.g. wear gloves and do not brush against surfaces being surveyed) to prevent cross contamination of survey instruments and personnel performing monitoring, especially when surveying vehicle interiors.
2. Default monitoring times/distances are listed within the body of the procedure.

3. Maintain a distance of at least ten feet between vehicles that are being monitored to minimize increases in background levels from adjacent vehicles.

NOTE: Whether the CDV-700 uses a hot dog probe or pancake probe the contamination limits and monitoring methods are the same.

4. The vehicle should be parked and the engine turned off prior to surveying.
5. Use the following tables for decontamination criteria/release decision levels. Table 1 is for the initial surveys prior to decontamination.
6. Table 2 may be used only after decontamination efforts have been implemented and levels remain greater than those listed in Table 1.

Table 1 – Recommended Detection Parameters for Loose plus Fixed Widespread Contamination on Vehicles, Equipment and other Possessions

Instrument/ Detector Type	Decision Criteria	Detection Parameters	
		Maximum Probe Height (inches)	Maximum Probe Speed (inches/second)
CDV-700	300 cpm	1	6

NOTE: The decision criteria listed is for loose plus fixed contamination monitoring.

Table 2 – Recommended Detection Parameters for Fixed Contamination on Vehicles, Equipment and other Possessions

Instrument/ Detector Type	Decision Criteria	Detection Parameters	
		Maximum Probe Height (inches)	Maximum Probe Speed (inches/second)
CDV-700	1000 cpm	1	6

NOTE: The decision criteria listed is for fixed contamination monitoring.

D. Vehicle Monitoring Procedure

1. Ensure prerequisites of this procedure have been met.
2. Determine and record the background radiation level in the monitoring area.
3. Ensure proper vehicle monitoring form(s) are available in accordance with ORO plans and procedures.
4. Ensure vehicle is at least ten feet away from adjacent vehicles.
5. Ensure the beta shield is open if a hot dog probe is used.
6. Place an appropriate (thin ply) plastic cover over the instrument probe.

7. Ensure that the instrument audio / speaker function is used, if available.
8. Ensure beta shield (non pancake detector) is in the open position, if applicable.

NOTE: Any contamination levels in excess of release limits should be documented on vehicle survey form(s).
Limits: 300 cpm.

9. Starting at the left front wheel well, place the detector probe approximately 1 inch away.
10. Survey wheel well, using a probe speed of approximately 6 inches per second.
11. Survey the left rear wheel well.
12. Survey the right rear wheel well.
13. Survey the right front wheel well.
14. Monitor any loose items located in the front portion of the vehicle interior (e.g. personal items) and bag items that are contaminated.
15. Mark bagged items in accordance with ORO plans and procedures.
16. Survey the front (driver side) seat, floor mat, hand and foot controls.
17. Monitor any loose items located in rear portion of vehicle interior (e.g. personal items) and bag items that are contaminated.
18. Mark bagged items in accordance with ORO plans and procedures.
19. Survey the rear (driver side) seat and floor mat.
20. Survey the rear (passenger side) seat and floor mat.
21. Survey the front (passenger side) seat and floor mat.
22. Decontaminate vehicle interior and exterior in accordance with ORO plans and procedures.
23. Document decontamination of vehicle interior on appropriate form(s).
24. If vehicle is still greater 300 cpm after decontamination OROs, in accordance with plans and procedures, may use limits up to 1000 cpm. Contamination that remains in vehicle is assumed to be fixed contamination.
25. Release vehicles in accordance with ORO plans and procedures.

E. Equipment Monitoring Procedure

NOTE: Examples of equipment - air packs, turn-out gear, communication gear. Priority should be given to monitoring emergency worker equipment.

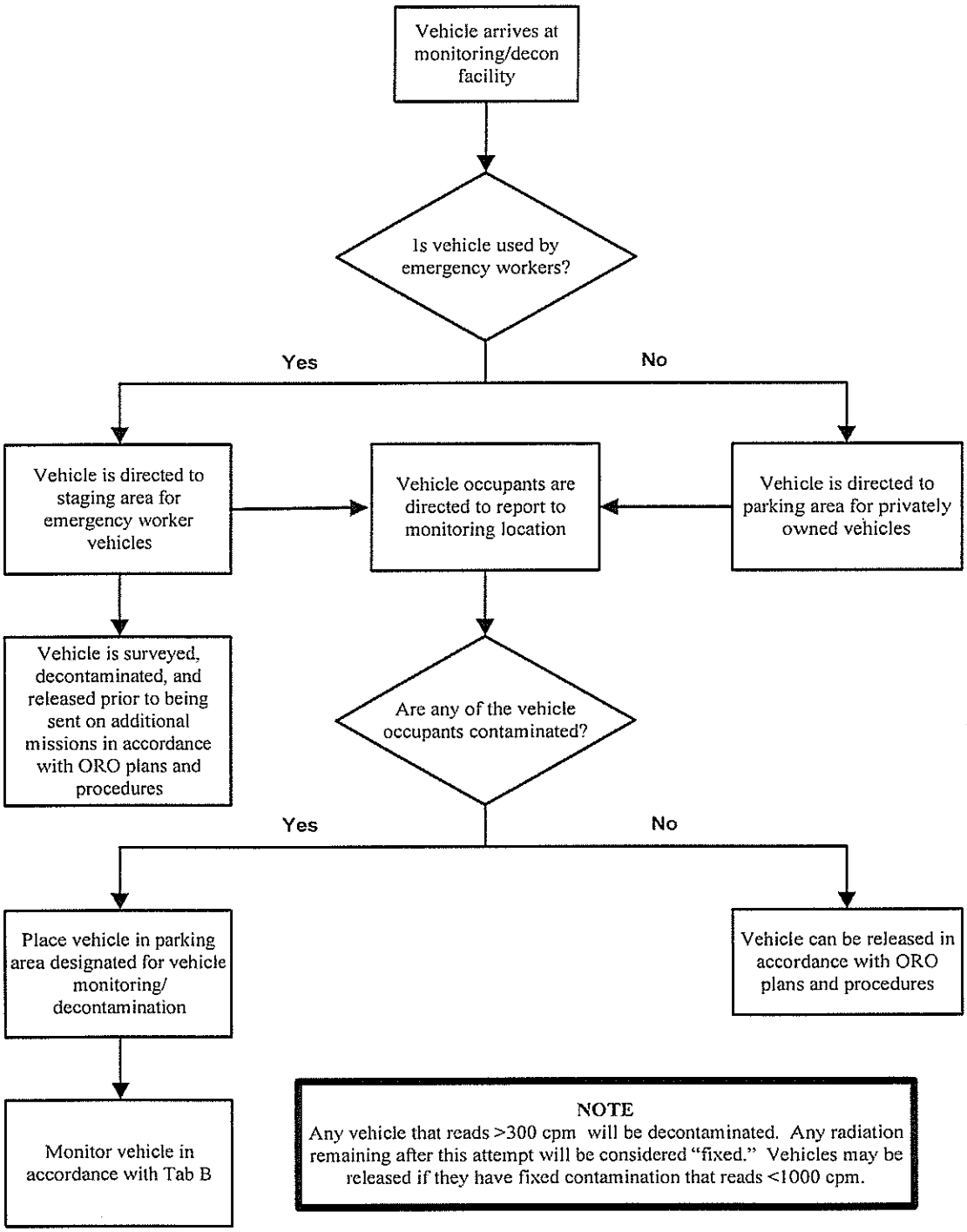
1. Ensure prerequisites of this procedure have been met.
2. Determine and record the background radiation level in the monitoring area.
3. Ensure proper survey form(s) are available in accordance with ORO plans and procedures.
4. Ensure equipment is not surveyed near other contaminated equipment.
5. Ensure the beta shield is open if a hot dog probe is used.
6. Place an appropriate (thin ply) plastic cover over the instrument probe.
7. Ensure that the instrument audio / speaker function is used, if available.
8. Ensure beta shield is in the open position, if applicable.

NOTE: Any contamination levels in excess of release limits should be documented on equipment survey form(s).
Limit: 300 cpm.

9. Starting at closest surface, place the detector probe approximately 1 inch away.
10. Survey equipment, using a probe speed of approximately 6 inches per second.
11. Monitor remaining items surfaces and bag/wrap if found contaminated.
12. Mark items in accordance with ORO plans and procedures.
13. If time permits decontaminate equipment in accordance with ORO plans and procedures.
14. Document decontamination of vehicle interior on appropriate form(s).
15. If equipment is still greater than 300 cpm after decontamination OROs, in accordance with plans and procedures, may use limits up to 1000 cpm. Contamination that remains is assumed to be fixed contamination.
16. Release vehicles in accordance with ORO plans and procedures.

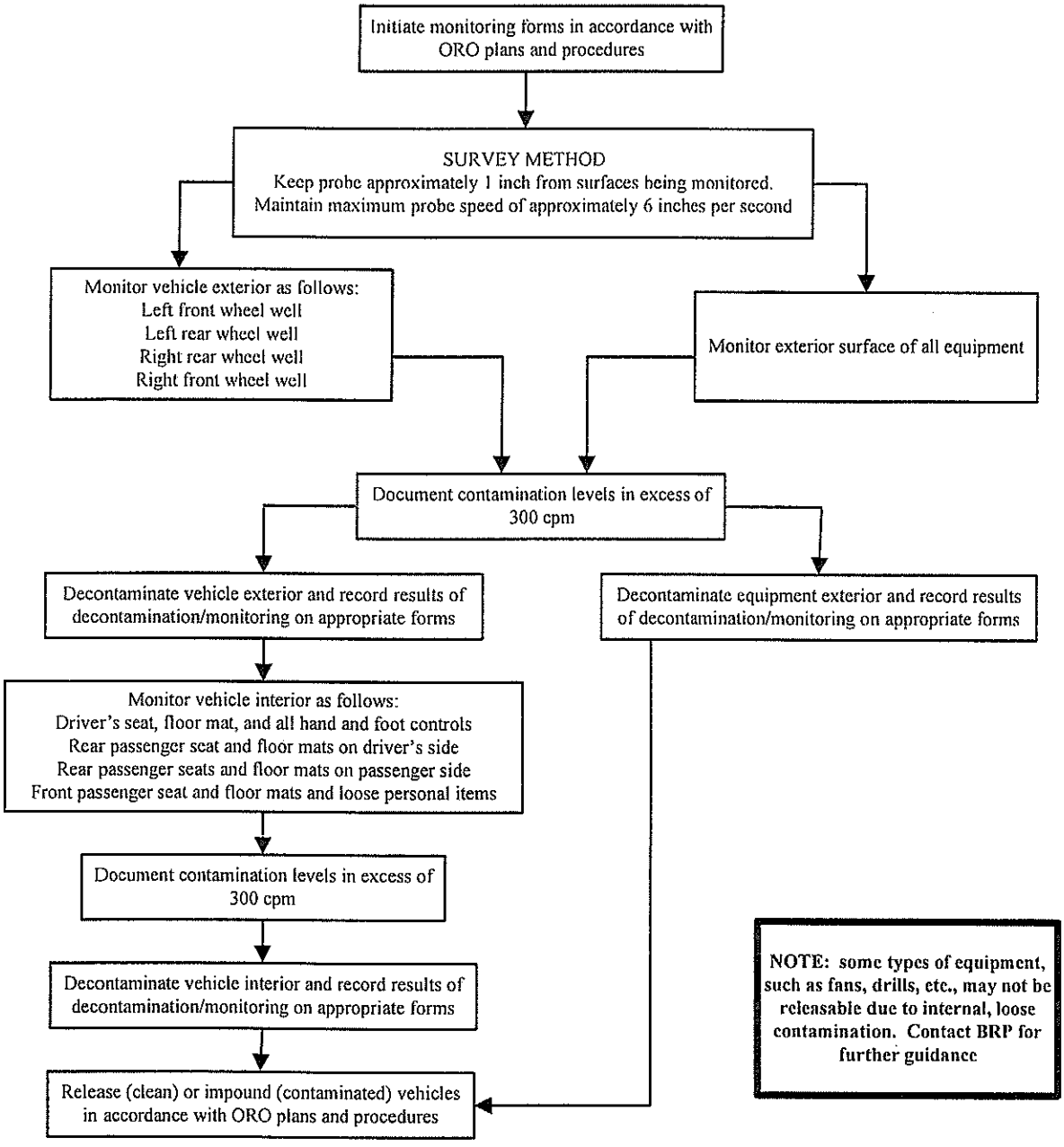
TAB 1
ATTACHMENT E

VEHICLE PROCESSING AT MONITORING/DECONTAMINATION CENTERS USING CDV-700s WITH HOTDOG PROBES AND PANCAKE PROBES



TAB 2
ATTACHMENT E

VEHICLE AND EQUIPMENT MONITORING USING CDV-700s WITH HOTDOG PROBES AND PANCAKE PROBES



ATTACHMENT F

MONITORING AND DECONTAMINATION OF PETS AND SERVICE ANIMALS

This document provides guidelines for monitoring pets and service animals in the event of an unplanned release of radioactive materials. It is recognized that most pet owners consider their pets as members of the family and many would be unwilling to be separated from them during an incident. Emergency managers should take this into consideration when prioritizing assets for monitoring and decontamination. It may be advantageous to monitor and perhaps decontaminate pets at the same time the rest of the family is done. This may prevent having to provide temporary pet kennels for families that do not intend to stay at a mass care facility. Obviously human needs of the general public will take precedence over pets and local emergency managers, in charge at the scene, will ultimately have to decide on the best use of assets and take an appropriate course of action.

It is also realized that many people have pets that do not fall into the typical dog or cat categories. This would include rodents, birds, fish, snakes, insects, etc. Should this situation be encountered it would be advisable to contact their county radiological officer or the Bureau of Radiation protection for further instruction.

Counties are encouraged to use County Animal Response Teams (CART), if available. Veterinary clinics, humane societies, and other professional or private organizations may be available if asked. Consider dosimetry needs and briefings if employing such organizations.

NOTE: This guidance does not apply to livestock or feral animals. Guidance for these types of animals will be provided once the plume phase of the incident ends.

A. Pet or service animal monitoring process

1. Types of Monitoring

a. Quick monitoring – monitoring the head, paws, joints, buttock area of pets or service animals.
b. Full monitoring – monitoring of pets or service animals the entire surface area of the animals must be monitored.

NOTE: Once an owner has passed through a portal monitor without alarming they may go back and carry a small pet through. If the portal alarms it indicates the pet is contaminated and the contaminated area should be pin-pointed using hand-held monitors. Pets too large to be comfortably carried may walk through the portal like an adult unless the portal monitor being used requires a stationary "read time." In this case a hand-held monitor must be used.

B. Four-Step Process

1. Monitoring of pets or service animals for detection and measurement of contamination with portable radiation instruments is a four-step process as follows:

a. A speaker or earphone(s) attached to the instrument is used to audibly announce the presence of contamination. With the beta window open, in accordance with procedures, the detector is passed over a potentially contaminated surface at a specified: probe speed; distance between the probe and the contaminated surface; and distance between passes of the probe (path-width).

Instrument/ Detector Combination	**Parameter Values for Detecting Spot or Widespread Contamination on Individuals**			**Calculated Time Needed for Full Monitoring of an pet or service animal (minutes)**
	Probe Speed (inches/second)	**Height of Probe (inches)**	**Path Width (inches)**	
CDV-700 with side window detector	4	0.5	0.6	5
Instruments with pancake detectors	6	1	2	2.0

b. If contamination is detected, the earphone(s) or speaker is used to find either the location of the most active spot(s) of contamination or the location of the highest concentration(s) of widespread contamination.

c. A meter reading is then taken with the detector in a fixed position at the location of the highest audible response and at the appropriate distance from the monitored surface. Visual estimation is satisfactory because small errors in this distance will be compensated by conservatism in the decontamination threshold criteria. Measurements at less than one inch will add more conservatism to decisions on the need for decontamination.

d. The meter reading is compared to the decontamination decision criteria.

C. Contamination Monitoring instrumentation capabilities and limitations

1. Hand Held Instrumentation/CDV-700

Capabilities:
Quick monitoring – 2 minutes per pet or service animal;
Full monitoring – 5 minutes per pet or service animal

Limitations: can only be used for pet or service animal monitoring in response to an accident at a nuclear power plant (REP program).

2. Modern instrumentation with pancake detectors

Capabilities:
Quick monitoring – 1 minute per pet or service animal
Full monitoring – 2 minutes per pet or service animal

Limitations: if incident involves pure alpha emitters, alpha survey equipment must be used. If responders are unable to determine if pure alpha emitters are present, PA Department of Environmental Protection/Bureau of Radiation Protection (DEP/BRP) must be contacted.

D. Decontamination or release decision criteria

1. Pet or Service Animal Decontamination or Release Decision Criteria

a. Portal Monitors – may not be used for animals.
b. Hand Held Instrumentation

1. Background – background should not exceed 60 cpm if using a CDV-700 or 100 cpm if using an instrument with pancake detector; if area in which monitoring is to be performed exceeds these background limits, monitoring should be relocated to an area below the values listed above.
2. CDV-700 – if greater than 300 cpm is detected while monitoring a pet or service animal, decontamination procedures shall be initiated.
3. Instrumentation with pancake detectors - if greater than 300 cpm above background is detected while monitoring a pet or service animal, decontamination procedures shall be initiated.

E. Procedure

NOTE: Highly recommended that a family member attend to animal while it is being monitored to avoid harm to individual doing monitoring.

1. Initial Monitoring of Pets or Service Animals Using Hand Held Instruments

a. Ensure that the prerequisites of this procedure have been met.
b. If instruments are equipped with audio / speaker capabilities, ensure this feature is turned on and used during monitoring.
c. Place a thin plastic cover over the probe(s) to prevent it from being contaminated.
d. Determine and record the background radiation level in the monitoring area.
e. Have family member line up pet, single file, at least ten feet away from other individuals or animals being monitored.

f. Instruct family member with pet to proceed, one at a time, through the monitoring line.

g. Perform a:
   - 1 minute survey with a pancake detector/instrument **OR**
   - 2 minute survey with a CDV-700 of the animal in accordance with the steps listed below.

h. Keep the probe approximately:
   - 1 inch away with a pancake detector/instrument **OR**
   - 1/2 inch away with a CDV-700 from surface being monitored.

i. Beginning at the head, monitor for the presence of contamination in excess of release limits:
   - 300 cpm above background with pancake detector/instrument **OR**
   - 300 cpm with a CDV-700.

j. Continue monitoring the joints, paws, buttock area and areas where paws may have body.

k. Release non-contaminated pets or service animals in accordance with ORO plans and procedures.

l. If pet or service animal is contaminated, take precautions to prevent the spread of contamination.

m. Ensure monitoring area is free of contamination.

n. Instruct family member that contaminated pet or service animals is in need of decontaminations.

o. Conduct follow-up (post–decontamination) monitoring in accordance with Section 2 of this procedure.

2. Follow-Up Monitoring of Pets or Service Animals Found to be Contaminated Using Hand Held Instrumentation

NOTE: Highly recommended that a family member attend to animal while it is being monitored to avoid harm to individual doing monitoring.

a. Ensure that the prerequisites of this procedure have been met.

b. If instruments are equipped with audio / speaker capabilities, ensure this feature is activated.

c. Place a thin plastic cover over the probe(s) to prevent it from being contaminated.

d. Determine and record the background radiation level in the monitoring area.

e. Perform a:
   - 2 minute survey with a pancake detector/instrument **OR**
   - 5 minute survey with a CDV-700 of the whole body of the pet or service animals in accordance with the steps listed below.

f. Keep the probe approximately:
   - 1 inch away with a pancake detector/instrument **OR**
   - 1/2 inch away with a CDV-700 from surface being monitored.

NOTE: If pet or service animal is contaminated, initiate proper form(s), and document all areas where contamination is in excess of release limits.

g. Ensure that the monitoring area is free of contamination.
h. Release non-contaminated pet or service animal in accordance with ORO plans and procedures.
i. If additional contamination is found, inform family member that the pet or service animal must undergo additional decontamination.
j. Monitor pets or service that undergoes a second decontamination attempt in accordance with steps e through i of this procedure section.
k. Refer family members of pets or service animals who are still contaminated that actions must be taken in accordance with ORO plans and procedures.

F. Pet or service animal decontamination procedure

NOTE: Highly recommended that a family member attend to animal while it is being decontaminated to avoid harm to individual doing monitoring.

1. Prerequisites

a. Each pet or service animal must be fully monitored and contamination levels documented in accordance with ORO plans and procedures prior to any decontamination.
b. Decontamination facility must be setup for contamination control.
c. Decontamination facility must have appropriate equipment ready.

2. Precautions

a. Extreme care should be taken to prevent the spread of contamination to any skin or body opening.
b. Lukewarm or room temperature water should be used for all washing and rinsing. Hot water causes the skin pores to open, driving contamination deeper into the skin. Cold water closes the pores, trapping contamination in the skin.
c. Thorough washing with shampoo soap and lukewarm water is the best general method of decontamination.

3. Decontamination Procedure

a. Contaminated pets or animals should be washed with a mild, shampoo and warm water (a thorough shower should be sufficient). Emphasis should be placed on any specific spots found to be contaminated in the monitoring process.
b. After thorough cleansing and drying, the pet or service animal will be monitored again. If some contamination still remains, consider cutting the

hair from the affected area and then wash the area again with a mild shampoo and lukewarm water. If monitoring after the second thorough cleansing indicates that the contamination is still present, additional decontamination efforts should be performed in accordance with ORO plans and procedures.

Enclosure III

PEMA
PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY

Pennsylvania Emergency Management Agency
2605 Interstate Drive
Harrisburg, Pennsylvania 17110-9364

April 2, 2009

Mr. Darrel Hammons
Chief, Radiological Emergency Preparedness
Federal Emergency Management Agency
One Independence Mall, Sixth Floor
615 Chestnut Street
Philadelphia, Pennsylvania 19106-4404

Dear Mr. Hammons:

Please accept this letter as a means to clarify the position of the Pennsylvania Emergency Management Agency with regard to the State Emergency Operations Plan dated December 2008 and the current version of "Annex-E", Radiological Emergency Response to Nuclear Power Plant Incidents (Change 4, March 2002).

The Commonwealth of Pennsylvania has transitioned to the National Response Plan format of the State Emergency Operations Plan. The State EOP was promulgated by the Governor December 23, 2008. Consistent with the National Response Framework, the State EOP identifies "Related Supporting Plans and Related Incident Specific Plans". These are published separately. One of the Incident Specific Plans is the Pennsylvania Nuclear/Radiological Incident Plan. The Pennsylvania Emergency Management Agency has been actively revising the current "Annex-E" to also conform to the National Response format.

While the current Annex E is dated March 2002, it has been undergoing review and revision since December 2004. One aspect of the existing Annex E is "Appendix 5, Radiological Exposure Control". The Commonwealth received a prior "Planning Issue" identified as 63-04-2.a.1-P-02 due to a conflict between statements in Annex-E and the Bureau of Radiation Protection Plan, BRP-ER-7.3.2.2, Rev 1, 07/04 page 5, KI Administration.

Since the issuance of the planning issue, the BRP plan has been revised and the current version is Revision 0, 03/08 (March 2008).

Since the "Planning Issue" was assessed, the Bureau of Radiation Protection has relocated its emergency assessment center to the State Emergency Operations Center

with real-time monitoring capabilities of the plant parameters. The Bureau of Radiation Protection is always consulted in all matters of radiation safety and protective actions and input from the BRP representative is used by the Commonwealth Incident Commander and the Senior State Official when making Protective Action Decisions. Therefore, the information contained in the Bureau of Radiation Protection Nuclear Power Emergency Plan pertaining to radiological dose and Potassium Iodide "trigger" points supersedes the information on page E-5-5 of Commonwealth Annex E.

Please review this information and provide same to those who will be involved with the evaluation of the April 14-15, 2009 federally evaluated Three Mile Island Exercise.

Please contact me regarding any questions at 717-651-2723.

Sincerely,

Henry C. Tamanini

Henry C. Tamanini
Bureau of Plans, Technological Hazards

cc: M. Vyenielo, Bureau of Radiation Protection
Pennsylvania REP Risk and Support Counties (26)

Enclosure 3

Risk and Support County Contact Table Indicating Their Commitment to Address Emergency Plan Changes in Support of BBNPP

Risk Counties	Coordinator	Number	Contacted	Response
Luzerne	Steve Bekanich	570-820-4400	08/14/09 Lucy Lake	LCEMA will support necessary changes to plan.
Columbia	Larry Lahiff	570-389-5720	08/14/09 Larry Lahiff	CCDPS will support necessary changes to plan.
Support Counties				
Lackawanna	Bob Flanagan	570-961-5511	08/14/09 Bob Flanagan	LCDPS will support necessary changes to plan.
Lycoming	Rich Knecht	570-433-4461	08/26/09 Rich Knecht	LCDPS will support necessary changes to plan.
Montour **	Walt Peters	570-271-3047 570-527-5983	08/14/09 Walt Peters	MCDPS will support necessary changes to plan.
Northumberland	Paul Froutz	570-286-4807	08/26/09 Paul Froutz	NCDPS will support necessary changes to plan.
Schuylkill	Art Kaplan	570-622-3739	08/17/09 Art Kaplan	SCDPS will support necessary changes to plan.
Union	Michelle Troup	570-523-3201	08/14/09 Bob Krebs	UCDPS will support necessary changes to plan.
Wyoming	Gene Dziak	570-836-2828	08/17/09 Gene Dziak	WCDPS will support necessary changes to plan.

** Montour is not actually a support county – they do have host school for schools in the 10 mile EPZ.

Discuss with each county

- Informed of pending change to plans
- Explained changes will affect both current PPL Susquehanna Plans and BBNPP Plans
- Changes would follow State Plan changes/guidance
- Changes would be made with concurrence by counties