Arkansas Nuclear One - Administrative Services
Document Control
Tuesday, October 23, 2001

Document Update Notification

COPYHOLDER NO: **103**

TO: **NRC - WASHINGTON**

ADDRESS: **OS-DOC CNTRL DESK MAIL STOP OP1-17 WASHINGTON DC 20555-DC**

DOCUMENT NO: **OP-1903.035**

TITLE: **ADMINISTRATION OF POTASSIUM IODIDE**

REVISION NO: **007-00-0**

CHANGE NO: **AP-07**

SUBJECT: **NEW REVISION**

☒ ← ***If this box is checked,*** *please sign, date, and return within 5 days.*

☐ *ANO-1 Docket 50-313*

☐ *ANO-2 Docket 50-368*

Signature Date

SIGNATURE CONFIRMS UPDATE HAS BEEN MADE

RETURN TO:

ATTN: DOCUMENT CONTROL
ARKANSAS NUCLEAR ONE
1448 SR 333
RUSSELLVILLE, AR 72801

A001

ENTERGY OPERATIONS INCORPORATED
ARKANSAS NUCLEAR ONE

TITLE: ADMINISTRATION OF POTASSIUM IODIDE	DOCUMENT NO. 1903.035	CHANGE NO. 007-00-0
	WORK PLAN EXP. DATE N/A	TC EXP. DATE N/A
SET # 103	SAFETY-RELATED ☒YES ☐NO	IPTE ☐YES ☒NO
	TEMP ALT ☐YES ☒NO	

When you see these *TRAPS*

- Time Pressure
- Distraction/Interruption
- Multiple Tasks
- Overconfidence
- Vague or Interpretive Guidance
- First Shift/Last Shift
- Peer Pressure
- Change/Off Normal
- Physical Environment
- Mental Stress (Home or Work)

Get these *TOOLS*

- Effective Communication
- Questioning Attitude
- Placekeeping
- Self Check
- Peer Check
- Knowledge
- Procedures
- Job Briefing
- Coaching
- Turnover

VERIFIED BY	DATE	TIME

FORM TITLE: VERIFICATION COVER SHEET	FORM NO. 1000.006A	CHANGE NO. 050-00-0

ENTERGY OPERATIONS INCORPORATED
ARKANSAS NUCLEAR ONE

TITLE: ADMINISTRATION OF POTASSIUM IODIDE	DOCUMENT NO. 1903.035	CHANGE NO. 007-00-0

AFFECTED UNIT: ☒ UNIT 1 ☒ UNIT 2

☒ PROCEDURE ☐ ELECTRONIC DOCUMENT
☐ WORK PLAN, EXP. DATE N/A

SAFETY-RELATED ☒ YES ☐ NO

TYPE OF CHANGE:
☐ NEW ☐ PC ☐ TC ☐ DELETION
☒ REVISION ☐ EZ EXP. DATE: N/A

DOES THIS DOCUMENT:

1. Supersede or replace another procedure? (If YES, complete 1000.006B for deleted procedure.) (0CAN058107)	☐ YES	☒ NO
2. Alter or delete an existing regulatory commitment? (If YES, coordinate with Licensing before implementing.) (0CNA128509)(0CAN049803)	☐ YES	☒ NO
3. Require a 50.59 review per LI-101? (See also 1000.006, Attachment 15) (If 50.59 evaluation, OSRC review required.)	☒ YES	☐ NO
4. Cause the MTCL to be untrue? (See Step 8.5 for details.) (If YES, complete 1000.009A) (1CAN108904, 0CAN099001, 0CNA128509, OCAN049803)	☐ YES	☒ NO
5. Create an Intent Change? (If YES, Standard Approval Process required.)	☐ YES	☒ NO
6. Implement or change IPTE requirements? (If YES, complete 1000.143A. OSRC review required.)	☐ YES	☒ NO
7. Implement or change a Temporary Alteration? (If YES, then OSRC review required.)	☐ YES	☒ NO

Was the Master Electronic File used as the source document? ☒ YES ☐ NO

INTERIM APPROVAL PROCESS

ORIGINATOR SIGNATURE: (Includes review of Att. 13) DATE:
Print and Sign name: PHONE #:

SUPERVISOR APPROVAL: N/A DATE:

SRO UNIT ONE :** DATE:

SRO UNIT TWO:** DATE:

Interim approval allowed for non-intent changes requiring no 50.59 evaluation that are stopping work in progress.

Standard Approval required for intent changes or changes requiring a 50.59 evaluation.

*If change not required to support work in progress, Department Head must sign.

**If both units are affected by change, both SRO signatures are required. (SRO signature required for safety related procedures only.)

OSRC CHAIRMAN/TECHNICAL REVIEWER: (0CNA049312) DATE:
Duane White 10-10-01

FINAL APPROVAL: Date:
R Bement 10-19-2001

REQUIRED EFFECTIVE DATE:
10/23/01

STANDARD APPROVAL PROCESS

ORIGINATOR SIGNATURE: (Includes review of Att. 13) DATE: 10/8/01
Robert L. Fowler
Print and Sign name: Robert L. Fowler PHONE #: 4993

INDEPENDENT REVIEWER: DATE: 10/9/01

ENGINEERING: N/A DATE:

QUALITY: N/A DATE:

UNIT SURVEILLANCE COORDINATOR (0CNA049803): N/A DATE:

SECTION LEADER: DATE: 10-18-01

QUALITY ASSURANCE: N/A DATE:

OTHER SECTION LEADERS: DATE: 10/16/01

OTHER SECTION LEADERS: DATE: 10/18/01

OTHER SECTION LEADERS: DATE: 10/18/01

OTHER SECTION LEADERS: DATE:

OTHER SECTION LEADERS: DATE:

OTHER SECTION LEADERS: DATE:

OTHER SECTION LEADERS: DATE:

FORM TITLE: PROCEDURE/WORK PLAN APPROVAL REQUEST	FORM NO. 1000.006B	CHANGE NO. 051-00-0

ENTERGY OPERATIONS INCORPORATED
ARKANSAS NUCLEAR ONE

TITLE:ADMINISTRATION OF POTASSIUM IODIDE	DOCUMENT NO. 1903.035	CHANGE NO. 007-00-0
☒PROCEDURE ☐WORK PLAN, EXP. DATE N/A ☐ ELECTRONIC DOCUMENT		PAGE 1 OF 1

TYPE OF CHANGE:
☐ NEW ☐ PC ☐ TC ☐ DELETION
☒ REVISION ☐ EZ EXP. DATE: N/A

AFFECTED SECTION: (Include step # if applicable)	DESCRIPTION OF CHANGE: (For each change made, include sufficient detail to describe reason for the change.)
5.1	Added "(or the Shift Manager if the RP&RW Manager is not available)".
5.3	Added "(or Shift Manage if the TSC Director is not available)".
6.1 NOTE	Re-worded note for clarity and moved note above 6.1.1.
6.1.2	Added step to allow for procedure to be used when it is not possible to determine if 25 Rem CDE will be exceeded.
6.2.1	Re-worded to indicate the method used for determination of need to issue KI.
6.2.1.A	Added step for using Attachment 1 to determine need to issue KI.
6.2..1.B	Added step for using other parameters to determine need to issue KI.
6.2.2	Changed step so that the reason for issuing KI is indicated on 1903.035A.
6.2.3	Added Shift Manager to list of personnel to report results of KI issue evaluation to.
6.2.4	Added Shift Manager to list of personnel who may authorize issue of KI.
6.3.1	Deleted step. Information is in a previous step.
6.3.2	Re-numbered to 6.3.1 and added Shift Manager to list of personnel to designate who shall receive and who shall issue KI.
6.3.3	Re-numbered to 6.3.2.
6.3.4	Re-numbered to 6.3.3.
6.4 NOTE	Added Control Room to list of storage locations for KI.
6.5	Added Shift Manager to list of personnel who may authorize issue of KI.
1903.035A	Added "Unknown, large exposure possible" to Estimated Thyroid Dose Commitment. Added Shift Manager to approval signature line.
1903.035C	Deleted question about "known allergies". Question is not necessary as iodide sensitivity is indicated by the other questions.

TABLE OF CONTENTS

1.0 PURPOSE

To provide guidance for the administration of Potassium Iodide (KI) to minimize uptake of radioiodines in the thyroid gland.

2.0 SCOPE

This procedure applies to all ANO and contractor employees prior to a planned exposure to radioiodine and after an accidental exposure.

3.0 REFERENCES

3.1 REFERENCES USED IN PROCEDURE PREPARATION:

3.1.1 EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

3.1.2 Patient Package Insert for Commercially Packaged Potassium Iodide

3.1.3 ANO Emergency Plan

3.2 REFERENCES USED IN CONJUNCTION WITH THIS PROCEDURE:

3.2.1 1903.033, "Protective Action Guidelines for Rescue/Repair and Damage Control Teams"

3.2.2 1903.065, "Emergency Response Facility - Technical Support Center (TSC)

3.2.3 1903.067, "Emergency Response Facility - Emergency Operations Facility (EOF)

3.3 RELATED ANO PROCEDURES:

1903.060, "Emergency Supplies and Equipment"

3.4 REGULATORY CORRESPONDENCE CONTAINING NRC COMMITMENTS WHICH ARE IMPLEMENTED IN THIS PROCEDURE: Commitments noted in **[BOLD]**

3.4.1 Letter 0CNA049709 Inspection report 97-10, 6.4 NOTE

4.0 DEFINITIONS

None

5.0 RESPONSIBILITY AND AUTHORITY

5.1 The Radiation Protection and Radwaste (RP&RW) Manager (or the Shift Manager if the RP&RW Manager is not available) is responsible for the implementation of this procedure for on-site emergency response personnel.

5.2 The Radiological Environmental Assessment Manager (REAM) is responsible for the implementation of this procedure for off-site emergency response personnel.

5.3 The TSC Director (or Shift Manager if the TSC Director is not available) is responsible for authorizing the administration of KI for on-site emergency response personnel.

5.4 The EOF Director is responsible for authorizing the administration of KI for offsite emergency response personnel.

6.0 INSTRUCTIONS

6.1 INITIATING CONDITIONS

NOTE

Parameters other than air sample results (for example, RDACS, failed fuel monitor, etc.) that indicate the presence (or potential presence) of significant amounts of radioactive iodine may be used when making the decision to administer KI.

6.1.1 This procedure shall be initiated whenever a dose commitment of 25 Rem CDE or greater for the thyroid is likely to be received by an individual.

6.1.2 This procedure shall be initiated whenever exposure to large amounts of radioactive airborne iodine is possible and it is not possible to determine if 25 Rem CDE will be exceeded.

6.2 ASSESSING THE NEED TO ISSUE KI

6.2.1 Determine the need to issue KI by either of the following methods:

A. Using Attachment 1, "Thyroid Committed Dose Equivalent Graph", estimate the dose commitment for the thyroid.

B. Using other parameters (RDACS, failed fuel monitor, etc.), determine if exposure to significant levels of radioactive iodine is possible.

6.2.2 Indicate the reason for issuing KI on Form 1903.035A, Potassium Iodide Administration Form.

6.2.3 Report the results to the Shift Manager, TSC Director, or EOF Director and advise him or her of the need to issue KI.

6.2.4 The Shift Manager, TSC Director, or EOF Director may approve the issuance of KI via telecom.

6.3 KI ISSUANCE REQUIREMENTS

6.3.1 The Shift Manager, TSC Director, or EOF Director shall designate the individuals who will receive KI and the individuals to administer KI.

6.3.2 The individual(s) to receive KI shall voluntarily elect to take KI.

6.3.3 The individual(s) to receive KI shall read Attachment 2, Potassium Iodide Precaution Leaflet, and complete the appropriate sections of Form 1903.035A, "Potassium Iodide Administration Form", and Form 1903.035C, "ANO Medical Questionnaire: Iodine Sensitivity".

6.4 DISTRIBUTION OF KI

[NOTE

KI is stored in the following locations:

A. TSC Emergency Kit
B. Onsite Radiological Monitoring Kit (located in the OSC)
C. EOF Emergency Kit
D. Field Monitoring Kits (located in the EOF)
E. Control Room Emergency Kit]

6.4.1 Assemble the individuals who were designated to receive KI and the individuals to administer the KI.

6.4.2 Provide the individuals designated to receive KI with copies of:

A. Form 1903.035A, "Potassium Iodide Administration Form"

B. Attachment 2, "Potassium Iodide Precaution Leaflet"

C. Form 1903.035C, "ANO Medical Questionnaire: Iodine Sensitivity"

6.4.3 The individuals designated to administer KI should obtain copies of Form 1903.035B, "KI Issue Record".

6.4.4 Ensure personnel read and/or complete the appropriate sections of the Forms and Attachments provided in Step 6.4.2.

6.5 GUIDELINES FOR THE ADMINISTRATION OF KI

The Shift Manager, TSC Director, or EOF Director can approve the administration of KI in the field after the Field Monitoring Team members have complied with the guidelines of this procedure. Approval may be obtained via telecom.

6.5.1 If possible, KI should be administered approximately one-half hour before exposure for maximum blockage.

6.5.2 Final uptake is halved if KI is administered within 3-4 hours after exposure.

6.5.3 Little benefit is gained with KI administration 10-12 hours after exposure.

6.5.4 Once the KI is taken and the Iodine concentration is verified or the calculated dose determined, the tablets should be issued for a minimum of six (6) to a maximum of ten (10) consecutive days. One tablet is issued each day.

6.5.5 In all cases where airborne contamination is anticipated, the use of proper respiratory equipment shall be considered.

6.5.6 Verify that each individual receiving KI has completed and signed Forms 1903.035A and 1903.035C.

6.5.7 Verify that there are no "YES" blocks checked on Form 1903.035C, "ANO Medical Questionnaire: Iodine Sensitivity".

6.5.8 Individuals who have answered "YES" to any question on 1903.035C, "ANO Medical Questionnaire: Iodine Sensitivity", will initially be considered to be iodine sensitive and must be treated as follows:

A. The individuals will be relocated or replaced to eliminate or minimize the uptake of radioiodine in the thyroid gland, or

B. The individuals WILL NOT receive KI without the RP&RW Manager's/REAM's authorization (after evaluation of the "YES" answer and the TSC Director's/EOF Director's concurrence).

6.5.9 Issue each individual designated to receive KI one (1) 130-mg KI tablet.

6.5.10 Record the issuance on Form 1903.035B, "KI Issue Record".

6.5.11 Forward all completed paperwork to the RP&RW Manager/REAM.

6.5.12 Individuals listed on Form 1903.035B, "KI Issue Record", should have a whole body count and/or bioassay analysis at the earliest opportunity.

6.5.13 Where possible, whole body counts and/or bioassay analysis should be given on a regular basis throughout the KI issue period to verify the effectiveness of the KI and to estimate dose commitment.

6.6 FINAL CONDITIONS

6.6.1 Each individual whose estimated exposure to radioiodine was equal to or exceeded 25 Rem has been identified and administered KI, as appropriate.

6.6.2 All necessary forms are completed and reviewed by the RP&RW Manager/REAM and the TSC Director/EOF Director.

6.6.3 Completed documentation collected and assembled by the RP&RW Manager and/or REAM for post-event assessments and records.

6.6.4 Each individual who was exposed to radioactive iodine has been scheduled for bioassay analysis.

7.0 ATTACHMENTS AND FORMS

7.1 ATTACHMENTS

7.1.1 Attachment 1 - Thyroid Committed Dose Equivalent Graph

7.1.2 Attachment 2 - Potassium Iodide Precaution Leaflet

7.2 FORMS

7.2.1 Form 1903.035A - Potassium Iodide Administration

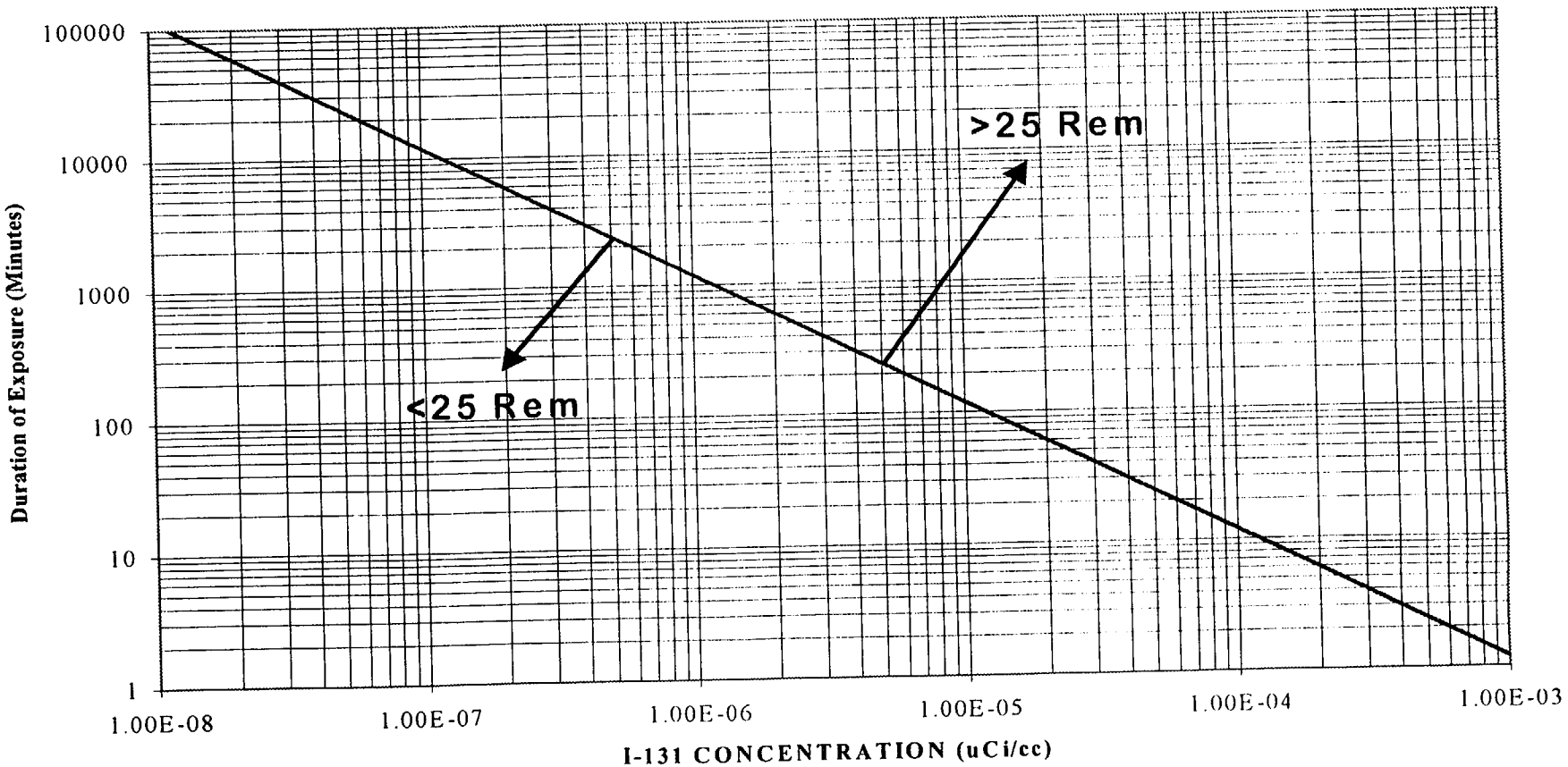
7.2.2 Form 1903.035B - KI Issue Record

7.2.3 Form 1903.035C - ANO Medical Questionnaire: Iodine Sensitivity

ATTACHMENT 1

THYROID COMMITTED DOSE EQUIVALENT GRAPH

THYROID COMMITTED DOSE EQUIVALENT GRAPH



ATTACHMENT 1

THYROID COMMITTED DOSE EQUIVALENT GRAPH

Instructions for Use:

1. Determine the estimated or actual I-131 airborne concentration in the area(s) of interest. Divide this by the protection factor of the equipment used (if unknown, use 1). Locate this number on the horizontal axis.

2. Locate the duration of exposure in minutes on the vertical axis. Find the point at which this value intersects with the number form step 1.

3. If the point of intersection is located below the line, then the thyroid CDE is less than 25 Rem.

4. If the point of intersection is located on or above the line, then the thyroid CDE is equal to or greater than 25 Rem.

ATTACHMENT 2

POTASSIUM IODIDE PRECAUTION LEAFLET

THYROID BLOCKING AGENT INSTRUCTION SHEET

THYRO-BLOCK
TABLETS
(POTASSIUM IODIDE TABLETS, USP)

(pronounced pos-TASS-e-um EYE-oh-dyed)
(abbreviated: KI)

TAKE POTASSIUM IODIDE ONLY WHEN AUTHORIZED. 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 in the event of a radiation emergency.

DOSE
Tablets: One (1) tablet once a day.

Take for 10 days unless directed otherwise by the Emergency Director or Offsite Emergency Coordinator.

Store at controlled room temperature between 15° and 30°C (59° to 86° F). Keep container tightly closed and protect from light.

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.

DESCRIPTION
Each THYRO-BLOCK TABLET contains 130 mg of potassium iodide. Other ingredients: magnesium stearate, microcrystalline cellulose, silica gel, sodium thiosulfate.

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.

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 may also take this drug.

HOW AND WHEN TO TAKE POTASSIUM IODIDE
Potassium iodide should be taken as soon as possible after authorization. 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 ten 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
THYRO-BLOCK TABLETS (Potassium Iodide Tablets. USP) bottles of 14 tablets (NDC 0037-0472-20). Each white, round, scored tablet contains 130 mg potassium iodide.

Potassium Iodide (KI) Administration Form

Name of Exposed Individual: _____ , _____ , _____
Last First Middle

Social Security Number: _____ Badge Number: _____

Duration of Exposure: _____ I-131 Concentration: _____
Minutes µCi/cc in air

Estimated Thyroid Dose Commitment: ☐ < 25 Rem ☐ ≥ 25 Rem
☐ Unknown, large exposure possible

Date of Exposure: _____

Respiratory Protection Worn During Exposure: ☐ Yes ☐ No

Respirator Protection Factor: _____

Known Iodide Allergy/Previous Allergic Reaction to iodide: ☐ Yes ☐ No

CAUTION
If the above box is checked yes, then do not administer KI.

I verify that I have read and understand the precaution leaflet and I understand that taking thyroid blocking agent (KI) is strictly voluntary.

I ☐ choose ☐ do not choose to take KI.

_____ _____
Signature of Exposed Individual Date

Approved: _____ _____
Shift Manager/EOF Director/TSC Director Date
☐ Check if approval is via telecom.

KI Issued By: _____ _____
Signature Date

Notes: _____

_____

_____

FORM TITLE:	CHANGE:	REV.
POTASSIUM IODIDE ADMINISTRATION	1903.035A	007-00-0

KI ISSUE RECORD

Person Receiving KI	KI ADMINISTRATION										
		Init. Dose	Dose 2	Dose 3	Dose 4	Dose 5	Dose 6	Dose 7	Dose 8	Dose 9	Dose 10
Name:	Date										
SS No:	Init.										
Name:	Date										
SS No:	Init.										
Name:	Date										
SS No:	Init.										
Name:	Date										
SS No:	Init.										
Name:	Date										
SS No:	Init.										

Instruction for Use:

1. Print the name and social security number of the individual(s) to whom KI is being administered in the blocks of the left-hand side of the form.

2. The individual assigned to administer KI will date and initial the blocks under the column corresponding to the day of issuance (for example: use column 1 for the initial issue: column 2 on the second day: etc.)

3. Forward completed attachment to the RP&RW Manager or REAM.

MEDICAL QUESTIONAIRE: IODINE SENSITIVITY

Name: _____ , _____ , _____ SS No: _____
LAST FIRST MIDDLE

Badge Number: _____ Company: _____ Dept: _____

Please answer the following questions. Mark the appropriate box.

NO.	QUESTION		
1.	When eating seafood or shellfish, do you suffer from symptoms of stomach or bowel upset or skin eruption? If so, explain below.	☐ Yes	☐ No
2.	Has any physician told you that you have sensitivity to iodine?	☐ Yes	☐ No
3.	Have you ever had a gallbladder dye test, kidney x-ray requiring dye injection or a thyroid isotope scan?	☐ Yes	☐ No
	If so, any reactions?	☐ Yes	☐ No

Please explain any yes answers: _____

_____

_____

_____

_____

Signature: _____ Date: _____