

# ENVIRONS RADIOLOGICAL MONITORING RECORD rev. 9/15/2004

\*\*REPORT NUMBERED ITEMS ONLY\*\*

**Legend: (6)**  
 Plume Data  
 E = Edge  
 C = Centerline  
 U = Unknown

**Survey Instruments: (7),(11)**  
 GMSM = GM Survey Meter  
 ISM = Ionization Survey Meter  
 NAIS = NaI Scintillation mR Meter  
 μR = Micro R meter

TEAM	LOCATION		RELATIVE PLUME POSITION (6)	TIME TAKEN (5)	EXPOSURE RATE DATA										
	SAMPLE POINT (2)	DISTANCE Miles from plant (3)			DIRECTION Degrees from plant (4)	1 METER (waist high)				NEAR CONTACT					
						Instr. (7)	w/c mR/h (8)	w/o mR/h (9)	μR (10)	Instr. (11)	w/c mR/h (12)	w/o mR/h (13)	μR (14)		

TEAM	LOCATION		RELATIVE PLUME POSITION (6)	TIME TAKEN (5)	AIR SAMPLE DATA						TRITIUM μCi/cc (19)	SAMPLE TYPE AND SAMPLE IDENTIFICATION (20)			
	SAMPLE POINT (2)	DISTANCE Miles from plant (3)			DIRECTION Degrees from plant (4)	SAMPLE VOLUME (L) (15)	I-131 μCi/ml (16)	PARTICULATE		NET CPM (18)					
								μCi/ml (17)	(17)						

**Sample Types: (20)**  
 P = Particulate Filter  
 RW = Rain Water  
 M = Milk  
 HP = Heavy Particulate  
 TLD = Env. TLD  
 S = Soil  
 SN = Snow  
 DWSS = Drinking Water Surface Source  
 V = Vegetation  
 T = Tritium  
 Other (Please Specify)

PERSON OR TEAM	PERSONNEL DOSIMETRY					TIME KI TAKEN
	TIME READ (22)	Direct Reading Dosimeter (mR) (23)	TOTAL EXPOSURE Rate * Time (mR) (24)	TEDE ESTIMATE "as corrected" (mrem)	KI TAKEN yes/no (25)	

\*\* Calculations are now on back of sheet.

Comments (26):

## DRH Operational Limits

Any time there is the possibility of a release, DRH personnel in the field should take KI unless directed otherwise by the RMCC or the person in charge.

WHEN IN THIS SITUATION:	DO THIS:
1a. GSM readings > 200 mR/hr.	1a. Evacuate radiation area unless directed otherwise by the RMCC.
1b. Ion chamber readings > 2.5 R/hr.	1b. Evacuation of radiation area is mandatory, contact RMCC.
2a. Your total dose has reached 100 mR.	2a. Contact RMCC and advise.
2b. Your total dose has reached 200 mR.	2b. Evacuate radiation area unless directed otherwise by the RMCC.
2c. Your total dose is 2.5 R (2,500 mR).	2c. Evacuation of radiation area is mandatory, contact RMCC.
3a. Open window reading is higher than closed window reading.	3a. Evacuate radiation area unless directed otherwise by the RMCC.
3b. Particulate air activity > 4E-8 $\mu\text{Ci/cc}$ (13 DACs)	3b. Evacuation of the area is mandatory.

## SAMPLE CALCULATIONS

(For additional SAMPLE CALCULATIONS FORMS see "FORMS" section of the SOP)

SAMPLE IDENTIFICATION	(20)	
<b>AIR SAMPLE CALCULATION:</b>		
Sample Volume (L) = Flow time (minutes) * Flow rate ( L /minute)		
FLOW TIME	(A)	(minutes)
FLOW RATE	(B)	(liters/min)
SAMPLE VOLUME (A) * (B)	(15)	(liters)
<b>IODINE SAMPLE CALCULATION:</b>		
Iodine 131 Activity ( $\mu\text{Ci/ml}$ ) = $\frac{[\text{Zeolite Canister Gross Rate (cpm)} - \text{Ludlum12 (NaI) Bkgd Rate (cpm)}] * [\text{Iodine 131 Calibration Factor}(\mu\text{Ci}/\text{cpm})]}{\text{Sample Volume (L)} * 1000 \text{ (ml / L)}}$		
Iodine 131 Calibration Factor (see instrument)	(K)	( $\mu\text{Ci}/\text{cpm}$ )
Ludlum 2241-3 (NaI) Bkgd. Rate	(C)	(cpm)
Zeolite Canister Gross Rate	(D)	(cpm)
NET SAMPLE COUNT RATE (D) -(C)	(E)	(cpm)
(E) * (K)	(F)	( $\mu\text{Ci}$ )
(15) * 1000	(G)	(ml)
IODINE 131 ACTIVITY = (F)/(G)	(16)	( $\mu\text{Ci}/\text{ml}$ )
<b>PARTICULATE SAMPLE CALCULATION:</b>		
Particulate Activity ( $\mu\text{Ci}/\text{ml}$ ) = $\frac{[\frac{\text{Net Filter Count rate (cpm)}}{10 \% \text{ Efficiency (cpm/dpm)}}] * [ \frac{4.5 * 10^{-7} \mu\text{Ci}}{\text{dpm}} ]}{\text{Sample Volume (L)} * 1000 \text{ (ml / L)}}$		
Ludlum 2241-3 (Pancake) Bkgd. Rate	(H)	(cpm)
Filter Paper Gross Rate	(I)	(cpm)
NET FILTER COUNT RATE (I) - (H)	(18)	(cpm)
(18) / 0.10	(J)	(dpm)
(J) * (4.50 x 10 <sup>-7</sup> )	(M)	( $\mu\text{Ci}$ )
PARTICULATE ACTIVITY = (M) / (G)	(17)	( $\mu\text{Ci}/\text{ml}$ )