CHAPTER 1

NBC Warning and Reporting System

The NBCWRS consists of standard NBC Reports and Strike Warnings. This system is broken down into the following areas:

- NBC threat status
- NBC warning and reporting system (NBCWRS)
- Friendly strike warnings
- NBC weather and wind messages

NBC Threat Status (STANAG 2984)

a. Serial O (none).

The opposing force does not possess any NBC defense equipment, is not trained in NBC defense or employment, and does not possess the capability to employ NBC warfare agents or systems.

b. Serial 1 (low).

The opposing force has an offensive NBC capability, has received training in defense and employment techniques, but there is no indication of the use of NBC weapons in the immediate future.

c. Serial 2 (medium).

The opposing force is equipped and trained in NBC defense and employment techniques. NBC weapons and employment systems are readily available. NBC weapons may have been employed in other areas of the theater.

Employment of NBC weapons is considered probable. Indicators would be:

- NBC munitions deployed to field storage sites.
- Enemy troops wearing or carrying protective equipment.
- NBC reccon elements observed with conventional recon units.
- NBC decon elements moved forward.

d. Serial 3 (high).

The opposing force possesses NBC warfare agents and delivery systems. NBC defense equipment is available and training status is considered at par or better than that of the United States. NBC weapons have already been employed in the theater and attack is considered probable in the immediate future. Indicators are:

- NBC attack in progress but not in area of operation.
- NBC warnings/signals to enemy troops.

- NBC munitions delivered to firing units within range of friendly forces.
 Movement of surface-to-surface missiles to a launch site.

The threat status can be used for any size or type unit. It is possible to have a CB (chemical-biological) status of three and a nuclear status of zero.

Vulnerability Analysis To assist field commanders in developing the NBC threat status, refer to tables 1-1, 1-2, and 1-3.

For more detailed discussion of chemical agents, see FM 3-3, Chapter 1 or FM 3-4, Chapter 3.

Table 1-1. CB threat status matrix	1				
Condition	Serial Number				
		1	2	3	
 Enemy force information: Training status NBC equipment availability Wearing overgarments In collective protection shelters, in positions with overhead cover, or exposed? 					
CB weapon systems: • Availability of CB weapons • CB weapons moved to firing units or launch sites? • Weather radars queued? • Decon/recon assets forward?					
 Enemy CB policy and capabilities: What is enemy's stated policy on CB weapons employment? Can enemy produce CB agents? Has industrial output increased or changed for production of CB munitions or protective equipment? 					
Current Situation: • have CB weapons been used in theater? • Is weather favorable for CB attack? • Is terrain favorable for CB attack?					
Totals (circle current status)					
Use Xs to mark applicable boxes or degree of threat. Total number of and use serial number with largest number as current threat status.	Xs in	each	colum	۱N,	

Table 1-2. Nuclear threat status ma	Table 1-2. Nuclear threat status matrix.						
Condition	Serial Number						
Contaition		1	2	3			
Enemy force information: • Training status • NBC equipment availability • In collective protection shelters, in positions with overhead cover, or exposed							
Nuclear weapons systems: • Availability of nuclear weapons • Nuclear weapons moved forward to firing units or launch sites? • Weather radars queued? • Decon/recon assets forward?							
Enemy nuclear policy and capabilities: • What is enemy's stated policy on nuclear weapons employment? • Can enemy produce nuclear weapons? • Has industrial output increased or changed for production of nuclear munitions or protective equipment							
Current situation: • Have nuclear weapons been used in theater? • Is weather favorable for nuclear attack? • Is terrain favorable for nuclear attack?							
Totals (circle current status)							
Use Xs to mark applicable boxes or degree of threat. Tota serial number with largest number as current threat status		umn	s and	use			

	-	[I	Percent Ca	asualties	*
Type Munition	Target Radii (Meters)	Nonpersistent		Persistent	
		Nerve	Blood	Nerve	Blister
Bursting	150	40	10	25	10
-	500	30	5	20	5
	1,000	15	2	15	2
Spray	150			45	10
• •	500			30	5
	1,000			20	2

Table 1-4. Chemical agent persistency in hours on chemical agent resistant coated painted surfaces.

Temperature		Agents				
C°	F°	GA/GF ¹	GB2, 3	GD2, 3	HD1	VX 2, 3
-30	-22	*	110.34	436.69	* *	* * *
-20	-4	*	45.26	145.63	**	***
-10	14	*	20.09	54.11	* *	***
0	32	*	9.44	22.07	* *	***
10	50	1.42	4.70	9.78	12	1776
20	68	0.71	2.45	4.64	6.33	634
30	86	0.33	1.35	2.36	2.8	241
40	104	0.25	0.76	1.25	2	102
50	122	0.25	0.44	0.70	1	44
55	131	0.25	0.34	0.51	1	25

NOTES:

For grassy terrain, multiply the number in the chart by 0.4. 1

2 For grassy terrain, multiply the number in the chart by 1.75.

3 For sandy terrain, multiply the number in the chart by 4.5.

* Agent persistency time is more than 1.42.

** Agent is in a frozen state and will not evaporate or decay.

*** Agent persistency time exceeds 2,000 hours.

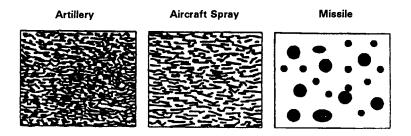


Figure 1-1. Heavy liquid contamination on M9 paper.

Artillery

Aircraft Spray

Missile

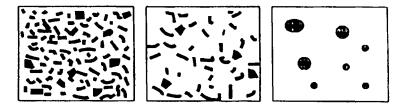


Figure 1-2. Moderate liquid contamination on M9 paper (1 gram/square meter).

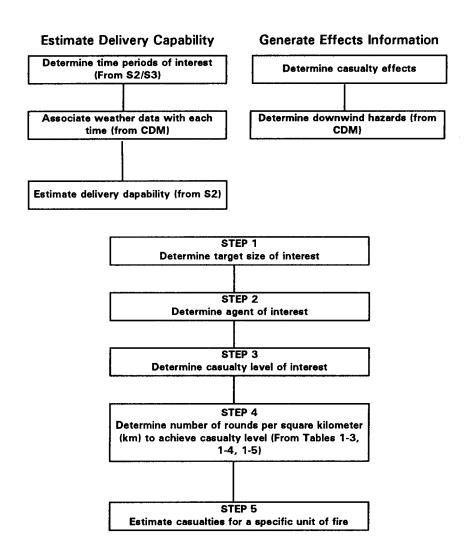


Figure 1-3. Chemical Vulnerability and Assessment and Force Protection

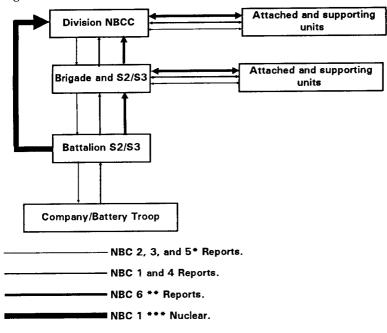
Rounds per 100m or .1 km				Temperature °F			
BM-21/.1 km ²	152mm/.1 km ²	122mm/.1 km ²	10	32	50	68	
1	2	4	10%	16%	24%	33%	
2	4	7	14%	22%	30%	40%	
3	6	10	19%	27%	37%	47%	
4	8	14	25%	34%	43%	54%	
5	10	17	31%	40%	50%	60%	

Ta	Table 1-6. TGD or VX nerve agent casualties.						
	Rounds			1	ſemper	ature °	F
Msl/ 10km ²	Msl/ 1.5km ²	Bombs/ 10km ²	Bombs/ 1.5 km ²	10	32	50	68
6	1	26	4	5%	14%	20%	21%
9	2	40	6	8%	18%	25%	25%
12	2	54	8	12%	24%	31%	31%
15	2	68	10	16%	28%	36%	36%
18	3	80	12	19%	32%	40%	41%
21	3	94	14	21%	35%	42%	43%
24	3	106	16	23%	37%	44%	45%
	L	I	L	Ca	sualty F	Percent	age

Table 1-7. THD blister agent casualties.			
Munitions in Rounds		Protective Posture	
152 mm/100m ²	122 mm/100m ²	MOPP Zero	MOPP 1
4	7	17%	13%
7	14	24%	18%
11	20	34%	23%
14	27	43%	28%
18	33	51%	32%
21	40	57%	36%
	· · · · ·	Casualty P	ercentage

Flow of NBC Reports

NBC reports 1 through 6 move between units and higher headquarters as shown in Figure 1-4.



* Best sent as an overlay.

** Sent only when requested.

*** For nuclear attacks, only designated observer units will submit reports to division NBCCs (NBC centers). All other units will be prepared to send the information, if requested.

Figure 1-4. Flow of NBC Reports.

LINE	NUCLEAR	CHEMICAL & BIOLOGICAL	REMARKS
A	Strike serial number	Strike serial number	Assigned by NBC center
В	Position of observer	Position of observer	Use grid coordinates (UTM or place).
С	Direction of attack from observer to include unit of measure	Direction of attack from observer	Nuclear: Deg magnetic north (DMN) or mills (MMN). Deg true north (DTN) or mils (MTN). Deg grid north (DGN) or mils (MGN). Chemical: Direction measured clockwise from grid north or magnetic north (state which) in degrees or mils (state which).
D	Date-time group of detonation	DTG os start of attack	Nuclear: Use Zulu time. Chemical: Designate time zone used.
E	N/A	DTG of end of attack	Designate time zone used.
F	Location of area attacked	Location of area attacked	Use grid coordinates (or place). State whether location is actual or estimated.
G	Suspected or observed event and means of delivery or kind of attack	Kind of attack	State whether attack was by artillery, mortars, rockets, missiles, bombs, or spray.
Н	Type of burst	Type of agent/type of burst; P (persistent), NP (nonpersistent)	Nuclear: Specify air, surface, or subsurface. Chemical: State whether air, ground, or spray attack.

Figure 1-5. Meaning of line items in NBC reports.

LINE	NUCLEAR	CHEMICAL & BIOLOGICAL	REMARKS
1	N/A	Number of munitions or aircraft	lf known
J	Flash-to-bang time	N/A	Use seconds
к	Crater present or absent and diameter	Description of terrain and vegetation	Nuclear: Send in meters Chemical: Send in NBC 6
L	Cloud width at H + 5 minutes	N/A	State whether measured in degrees or mils
M	Stabilized cloud top or cloud bottom angle or cloud top or bottom height at H + 10 min	N/A	Nuclear: State whether angle is cloud top or cloud bottom and whether measured in degrees or mils. Chemical: State whether height is cloud top or cloud bottom and whether measured in meters or feet.
N	Estimated yield	N/A	Send as KT
ο	Reference date-time for estimated contour line when not H + 1	N/A	Use when contours are not plotted at H + 1.
Р	Radar purposes only	N/A	
РА	N/A	Predicted hazard area (coordinates)	If wind speed is 10 kmph or less, this item is 010 (the radius of the hazard area in kilometers).
PAR	Coordinates of external contours of radioactive cloud	N/A	Six-digit coordinates. Letter R identifies RADAR set.

Figure 1-5. Meaning of line items in NBC reports (Continued).

LINE	NUCLEAR	CHEMICAL & BIOLOGICAL	REMARKS
РВ	N/A	Duration of hazard in the attack and hazard area	In days, hours, minutes, etcetera.
PBR	Downwind direction of radioactive cloud and unit of measure	N/A	Deg magnetic north (DGM) or mils (MLM). Deg true north (DGT) or mils (MLT). Deg grid north (DGG) or mils (MLG). Letter R identifies RADAR set.
٩	Location of reading	Location of sampling and type of sample	Nuclear: UTM or place. Chemical: UTM or place. State whether test was air or liquid.
R	Dose rate or actual value of decay exponent	N/A	State dose rate in cGyph. See sample NBC4 for terms associated with this line.
s	Date-time group of reading	Date-time group contamination detected	State time initial identification test sample or reading was taken.
т	H + 1 date-time group	Date-time group of latest contamination survey of the area	NBC 5 and NBC 6 reports only.
U	1,000-cGyph contour line	N/A	Plot in red.
v	300-cGyph contour line	N/A	Plot in green.
w	100-cGyph contour line	N/A	Plot in blue.

Figure 1-5. Meaning of line items in NBC reports (Continued).

LINE	NUCLEAR	CHEMICAL & BIOLOGICAL	REMARKS
x	20-cGyph contour line; (30-cGyph contour line is used by other NATO forces)	Area of actual contamination	Nuclear: Plot in black. Chemical: Plot in yellow.
¥	Direction of left and right radial lines	Downwind direction of hazard and wind speed	Nuclear: Direction measured clockwise from GN to the left and then right rradial lines (degrees or mils, state which), 4 digits each. Chemical: Direction: 4 digits (degrees or mils). Wind speed: 3 digits (kmph).
Z	Effective wind speed Downwind distance of Zone I Cloud radius (Include unit of measure for each category)	N/A	3 digits—effective wind speed (kmph). 3 digits—Downwind distance of zone 1 (km or nautical miles) 2 digits—cloud radius (km or nautical miles). If wind speed is less than 8 kmph, this line contains only 3-digit radius of zone 1 (km).
ZA	N/A	Significant weather phenomena	Air stability (2 digits). Temperature in centigrade (2 digits). Humidity (1 digit). Significant weather phenomena (1 digit). Cloud cover (1 digit).
ZB	Used to transmit correlation factors or transmission factors	Remarks	Include any additional information.

Figure 1-5. Meaning of line items in NBC reports (Continued).

NBC 1 Observers' Initial Report.

This report is used by the observing unit to give basic initial and follow-up data about an NBC attack. It is sent by platoons and companies to battalion headquarters. Battalion and higher elements must consolidate reports and decide which NBC 1 to forward. The NBC 1 report following the first use of NBC weapons is sent with a FLASH precedence. Subsequent reports are sent with a precedence of IMMEDIATE. Only observers specifically designated by the division NBC center send NBC 1 (nuclear) reports.

Line	Nuclear	Biological (suspected)	Chemical			
В	NB062634	LB206300	LB200300			
С	90 deg Grid					
D	201405Z Mar 93	200410Z Mar 93	201405Z Mar 93			
E		200414Z Mar 93	201412Z Mar 93			
F		LB206300 Act	LB200300 Est			
G	Artillery	Aerial spray	Bomblets			
н	Surface	Unknown	Nerve, P, ground			
J	60 Sec					
к						
L	15 Deg					
м						
NOTES	 NOTES: 1. Line items B, D, H, and either C or F should always be reported; other line items may be used if the information is known. Transmit line item MIKE (nuclear) only when data for line item LIMA cannot be obtained. 2. Biological attacks are considered to be "suspected" until 					
	confirmed by laborator					

Figure 1-6. NBC 1 Report.

NBC 2 Evaluated Data Report.

The NBC 2 report is based on two or more NBC 1 reports. It is used to pass evaluated data to units. Division is usually the lowest level to prepare an NBC 2 report. However, a brigade or battalion might do so, especially during independent operations.

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Line	Nuclear	Biological (suspected)	Chemical
Α	11D024	B001	C002
D	201405Z Mar 93	200410Z Mar 93	201405Z Mar 93
F	NB107186 Est LB206300 Act		LB200300 Act
G	Artillery	Aerial spray	Bomblets
н	Surface	Unknown	Nerve, P, ground
N	50		
Y		0270 015	0270 015
ZA		518640	518640
NOTES:	includes an attack loc detonation, an evalua 2. Refer to the chemica cover, significant wea	a downwind message to deter ather phenomena, and air stat potains the 6-digit code from t	clear mine cloud ility.

Figure 1-7. NBC 2 Report.

NBC 3 Warning of Predicted Contamination Report.

The NBCC uses NBC 1 reports and wind information to predict downwind hazard areas. This is disseminated as an NBC 3 report. Each unit evaluates the NBC 3 report, determines which of its subordinate units may be affected, and disseminates the report as required. This report warns commanders when they may be within a downwind hazard area so they may take protective measures.

NBC 4 Reconnaissance, Monitoring and Survey Report.

When a unit detects NBC hazards through monitoring, survey, or reconnaissance, this information is reported as an NBC 4 report. Reports from various units are plotted on the NBCC situation map to show where hazards exist. These reports are prepared and submitted by company-level organizations.

NBC 5 Actual Contaminated Areas Report.

Once the NBC 4 reports are posted on the situation map, an NBC 5 report is prepared showing the contaminated area. NBC 5 reports usually are prepared by division. The preferred method of dissemination is by map overlay.

NBC 6 Detailed Information on Chemical/Biological Attack Report.

This report, summarizing information concerning a chemical or biological attack, is prepared at battalion. It is submitted to higher headquarters only when requested. If desired, it can be sent from higher to lower for information purposes.

STRIKWARN (Friendly Nuclear Strike)

Line	Nuclear	Chemical		
Α	11D024	C002		
D	201405Z Mar 93	201405Z Mar 93		
F	NB107186 Est	LB200300 Act		
н	Surface	Nerve, P, ground		
N	50			
PA				
		LB190300		
		LB200312		
		LB200300		
PB		In attack area 2-4 days.		
		In warning area 1-2 days.		
Y	02720312 deg	0270 deg, 015 kmph		
z	01902505			
ZB				
NOTES	NBC 3 nuclear report consists Zone I.	less than 8 kmph, line ZULU of the of three digits for the radius of		
		10 kmph, line PAPA ALFA of the (the radius of the hazard area km).		
	3. NBC 3 nuclear is used for part			
	predicted radiological contamination from friendly bursts. 4. Use other line items if information is known.			

Figure 1-8. NBC 3 Report.

Line	Nuclear	Biological	Chemical		
н	NB123987	Unknown Agent	Nerve, P		
Q	35	NB211603	LB200300, liquid		
R	201535Z Mar 93	201605Z Mar 93	01430Z Mar 93		
s					
 NOTES: 1. Line items HOTEL, QUEBEC, ROMEO, and SIERRA may be repeated as often as necessary. 2. Radiation dose rates are measured in the open with the instrument 1 meter above the ground. 3. In line ROMEO, descriptive words such as "initial," "peak," "special," "series," "verification," "contact," or "summary" may be added. 4. If readings are taken inside a vehicle or shelter, also give the correlation factor with line item ZULU BRAVO. 					

Figure 1-9. NBC 4 Report.

Line	Nuclear	Chemical		
А	11D024	C002		
D	201405Z Mar 93	201405Z Mar 93		
н	Surface	Nerve, P, ground		
S	201535Z Mar 93	201430Z Mar 93		
т	201505Z Mar 93	201500Z Mar 93		
υ				
v	NB105690			
	NB108685			
	NB105680			
w	NB104694			
	NB111685			
	NB093683			
X	NB103698	LB200300		
	NB114686	LB191291		
	NB091680	LB190300		
 NOTES: 1. This report is best sent as an overlay if time and the tactical situation permit. 2. When contamination arises from a single burst, the dose rate always refers to H + 1 hour, and the line item TANGO is used. When several detonations at different times or on different days and no single H + 1 hour is possible, then dose rates are reported as at a specified time, using line item OSCAR. Therefore, line items OSCAR and TANGO cannot both be used in the same report. 				

3. Contour lines are to be annotated with dose rates.

Figure 1-10. NBC 5 Report

Line	Multiple	Single
Α	Hot Candle	AC002
D	162025Z-162155Z	072220Z—072310Z
F1		011 NB706101
F2		025
F3	PA490650	042
	PA511671	
	PA531174	
	PA527650	
	PA575650	
н	Surface 3	
1	22	

report should be prepared for separate transmission.

Figure 1-12. STRIKWARN message.

Line	Chemical or Biological		
A	C002		
D	201405Z Mar 93		
Ε	201412E Mar 93		
F	LB200300, Act		
G	Bomblets		
н	Nerve, P, Airburst		
1	Unknown		
К	Mostly small houses and barns, elevation 600 meters		
м	Attack received as counterfire, from aircraft, enemy bypassed on right flank of atttack area.		
α	Liquid ground sample taken by detection team in attack area		
S	201430Z Mar 93		
T	201500Z Mar 93		
Х	As per overlay		
Y	Downwind direction 0270 degrees, wind speed 015 kmph.		
ZB	This is the second chemical attack in our area to date.		
 NOTES: 1. This report is designed to be presented at battalion level and above and is to be submitted only when requested. 2. This report is completed by battalion and higher NBC personnel. It is in narrative form, giving as much detailed information as possible for each line 			
	item. 3. This report is also suitable for accompanying samples sent for analysis.		

Figure 1-11. NBC 6 Report.

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Line Item	Meaning			
A	Target number of "nickname:			
*D	a. Multiple burst. Date-time attack (pulse) will start, followed by			
	date-time attack (pulse) will end (ZULU time).			
	b. Single burst: Date-time of attack followed by date-time after which attack will be cancelled (ZULU time).			
•F1	a. Multiple. UTM grid coordinatesof MSD 1 box.			
	b. Single. MSD in hundreds of meters followed by UTM grid			
	coordinates of GZ or DGZ. (If more than one MSD is included, GZ or			
	DGZ will be included only in the first FOXTROT line sent).			
F2	a. Multiple. UTM grid coordinates of MSD 2 box.			
	b. Single: MSD2 in hundreds of meters (followed by UTM grid coordinates of GZ or DGZ, if only one FOXTROT sent).			
F3	a. Multiple, UTM arid coordinates of MSD 3 box.			
	b. Single. MSD 3 in hundreds of meters (followed by UTM grid			
	coordinates of GZ or DGZ if only one FOXTROT sent).			
н	If one or more bursts has less than 99% assurance of being an			
	airburst, or if it is a scheduled surface or subsurface burst, indicate			
	"surface," preceded by the total number of surface and/or			
	subsurface bursts. If only one burst is surface, number need not be			
	sent. If all bursts are airbursts, do not transmit. Number of bursts in multiple attack. If single burst, do not transmit.			
L				
* Line s	hould be encoded.			
Cancella	ation occurs when:			
1. Auth	enticated message consisting of Line ALPHA and word "cancelled".			
	e burst detonates. Multiple burst window ends.			
3. After	strike window ends.			

Figure 1-13. STRIKWARN format.

Radius	Corresponding to	Zone	Requirements	
< MSD ¹	Limit of negligible risk to warned and protected personnel (see note 5)	1	Evacuate all personnel (see note 4).	
> MSD ¹ < MSD ²	Limit of negligible risk to warned and exposed personnel.	2	Maximum protection (see note 6) to remain.	
> MSD ¹ < MSD ²	Limit of negligible risk to unwarned and exposed risk.	3	Minimum protection (see note 7) to remain.	
More than MSD ³			No protection measures except against dazzle and pulse EMP.	

NOTE 1, MSD means minimum safe distance.

NOTE 2. When surface bursts are used, or an intended airburst has less than a 99% assurance of no militarily significant fallout, the fallout hazard will be considered. Details will be transmitted in a subsequent NBC 3 nuclear report if fallout will be a hazard to friendly units.

NOTE 3. Commanders will be guided to safety criteria as stated in FM 101-31-1. **NOTE 4.** If a unit commander is unable to evacuate Zone I, he will immediately assume the best protection possible and report through his next higher headquarters to the releasing/executing commander.

NOTE 5. Negligible risk should not normally be exceeded unless significant advantages will be gained.

NOTE 6. Maximum protection for ground forces denotes that personnel are in "closed up" tanks or sheltered in foxholes with overhead shielding, or the equivalent.

NOTE 7. Minimum protection for ground forces denotes that personnel are prone on open ground with all skin areas covered and with an overall thermal protection at least equal to that provided by a two-layer uniform.

NOTE 8. Since the least separation distance (LSD) for light aircraft is exceeded by MSD 3, aircraft remaining beyond MSD 3 will avoid significant degrdation of the airframe or pilot performance (exxcept against dazzle)severe enough to prevent mission accomplishment.

Figure 1-14. Protection requirements for friendly nuclear strike.

NBC WEATHER AND WIND MESSAGES

Effective Downwind Message (EDM)

ZULU	DDTTTT	Date-Time Group Winds Were Measured (ZULU)
ALFA	dddsss	Over 0 thru 2 KT
BRAVO	dddsss	Over 2 thru 5 KT
CHARLIE	dddsss	Over 5 thru 30 KT
DELTA	dddsss	Over 30 thru 100 KT
ECHO	dddsss	Over 100 thru 300 KT
FOXTROT	dddsss	Over 300 thru 1 MT
GOLF	dddsss	Over 1 thru 3 MT

1. The first three digits (ddd) give the effective wind direction, in degrees, from grid north.

2. The second three digits (sss) give the effective wind speed in kilometers per hour.

3. The last three digits (---) give the expanded angle in degrees (in NATO use 7th digit as follows:

4 = 40 degree angle	0 = 100 degree angle
5 = 50 degree angle	1 = 110 degree angle
6 = 60 degree angle	2 = 120 degree angle
7 = 70 degree angle	3 = more than 120 degree angle
8 = 80 degree angle	

9 = 90 degree angle

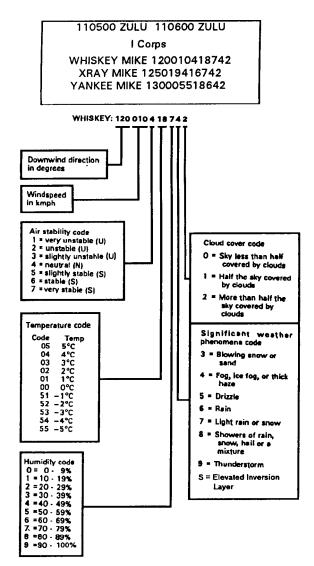
4. If wind speed is less than $8~{\rm kmph}$, the preselected yield group line will contain only the 3-digit radius of Zone I.

Each EDM is valid for 12 hours. It is used in conjunction with the NBC 2 Nuclear Report to form a simplified fallout prediction (discussed in Chapter 2).

Chemical Downwind Message

1. Each chemical downwind message (CDM) is valid for only 6 hours.

2. The area affected may be a map sheet number or an area, such as I Corps.



* NOTE: Unknown weather data is represented by a dash (-).

Figure 1-15. How to read weather information in a chemical downwind message.

3. Lines WHISKEY MIKE, XRAY MIKE, and YANKEE MIKE each contain coded weather information. Line WHISKEY MIKE is valid for only the first 2 hours; line XRAY MIKE for the next 2 hours; and line YANKEE MIKE for the last 2 hours of the six covered.

Strike Serial Number (A)	Date/Time of Attack (ZULU) (D)	GZ Coordinates (Act/Est) (F)	Kind of Attck (G)	Type of Agent (H)	Remarks
C001	200945Z	LB200300 Est	Artillery	Nerve (NP) Air	
·····					
·····					

Figure 1-16. Suggested format for a chemical/biological strike serial log