

Operations

NUCLEAR BIOLOGICAL CHEMICAL WARNING AND REPORTING SYSTEM

This instruction implements the Joint Strategic Capability Plan and details how all levels of command will collect, record, report, evaluate, and pass information on nuclear detonations, biological, and or chemical events, and any contamination resulting from those events. It supports Commander in Chief North American Aerospace Defense Command (CINCNORAD) CONPLAN 3310-96(S) and is directive on all forces and commands in the NORAD Nuclear Biological Chemical Warning and Reporting System (NBCWRS). It applies to HQ North American Aerospace Defense Command (NORAD), Canadian NORAD Region (CANR), Alaskan NORAD Region (ANR), Continental United States Region (CONR), NORAD sectors, and NORAD reporting activities (RA). This instruction applies to Air Force Reserve and Air National Guard units. NORAD regions and sectors will supplement this instruction and send the finished publication to HQ NORAD/J3OBN 250 S. Peterson Blvd, STE 116, Peterson AFB CO 80914-3260. The reporting requirements in this directive are exempt from licensing in accordance with paragraph 2.11.10. of AFI37-124, The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Informations Collections.

SUMMARY OF REVISIONS

Changes include an update to plain language addresses and office symbols throughout the instruction, the changes to NORAD Region and sector configuration, the deletion of the Canadian Forces Warning and Reporting System (CFWRS), an update to the FEMA Civil Defense Warning System, changes to the list of reporting activities (RA), updated distribution list and glossary of terms.

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Chapter 1

NORAD NUCLEAR BIOLOGICAL CHEMICAL WARNING AND REPORTING SYSTEM (NBCWRS)

1.1. General:

1.1.1. CINCNORAD has established the NORAD NBCWRS. HQ NORAD operates and coordinates this system directly with all agencies concerned and has tasked Alaska (ANR), Canada (CANR), and Continental United States (CONR) NORAD Regions, along with subordinate sectors, to execute the NBCWRS in their geographical area.

1.1.2. The Canadian Chief of the Defence Staff (CDS) may modify procedures in this instruction to fit Canadian Forces policy, organization, and equipment.

1.2. Glossary of Terms: Terms used in this instruction are at Attachment 1.

1.3. Concept. The NBCWRS is based upon the existing NORAD geographical configuration illustrated in Figure 1.2. It uses the NORAD Computer System for the correlation, processing, display, and automated FORWARD TELL of attack information to the National Command Authorities (NCA) of the United States and Canada, major military commands, and federal agencies. The NBCWRS also consists of NORAD Forward Automated Reporting System (NFARS), NORAD Automated Forward Tell Output to Canada (NAFTOC), NUDET and Damage Information Summary (NUDIS) subscribers, and the Forward Tell of NBC event information from the R/SAOCs. This nuclear, biological, and chemical (NBC) information is then used by military and federal authorities to assess damage. Additionally, military authorities assess combat degradation and the ability to reconstitute resources and conduct continental air defense operations.

1.4 . Objectives. The objectives of the NBCWRS is to provide an accurate time and location on each nuclear, biological, or chemical event to the NORAD Command Center (NCC) and to the NCAs. The NBCWRS also provides a standardized system of reporting nuclear battle damage (GLASSEYE, CARDA, RADMON Reports), and chemical or biological agent induced degradation (environmental hazard reports) to major commands and federal agencies. This results in the building of a large scale strategic picture of NBC conditions throughout the continent which impact air operations and reconstitution efforts.

1.5. Components:

1.5.1. Sensor Systems. Satellite sensor systems are the primary source for the detection of nuclear detonations (NUDET).

1.5.2. Reporting Activities (RA):

1.5.2.1. Reporting Activities are a vital source for confirmation of nuclear, biological, and chemical attack and damage information and are used as a back-up method for detection of nuclear detonations. The criteria for selecting a RA is different for nuclear, biological and chemical considerations. For nuclear events, a RA must be capable of detecting, collecting and reporting information from available resources. For chemical and biological events, a RA need only be capable of collecting and reporting information. A RA can be any type of military or civilian agency.

1.5.2.2. The area of responsibility (AOR) and duties assigned to a RA is detailed by the region or sector supplement to this instruction. The region or sector supplement also contains a listing of installations and units which have been selected as RAs. The authority for designation of an RA is contained in JCS Publication 1-03.6. A RA may also be selected due to its' location in regard to an area of interest target as detailed in the Nuclear Detonation Data Point (NUDAP) catalog. This catalog is used to simplify nuclear attack reporting by using a series of points that have been selected throughout the North

American Continent which are areas of interest targets for possible nuclear attack. The NORAD NUDAP catalog lists these points, including the designated NUDAP number, Area of Interest (AOI) number, place name, latitude and longitude coordinates, radius, target class, and attack characterization codes. Figure 1.1. details the HQ NORAD/Region/Sector/RA NBCWRS relationship.

1.5.2.3. HQ NORAD designates each NORAD RA through its parent command for tasking on behalf of the region and or sector. If a facility with an reporting mission is not required or no longer exists, the region and or sector sends a recommendation to this effect to HQ NORAD/J3OBN. HQ NORAD/J3OBN then directs the parent command to take action to release the facility from its NBCWRS responsibilities.

Figure 1.1. HQ NORAD/Region/Sector/RA NBCWRS Relationship.

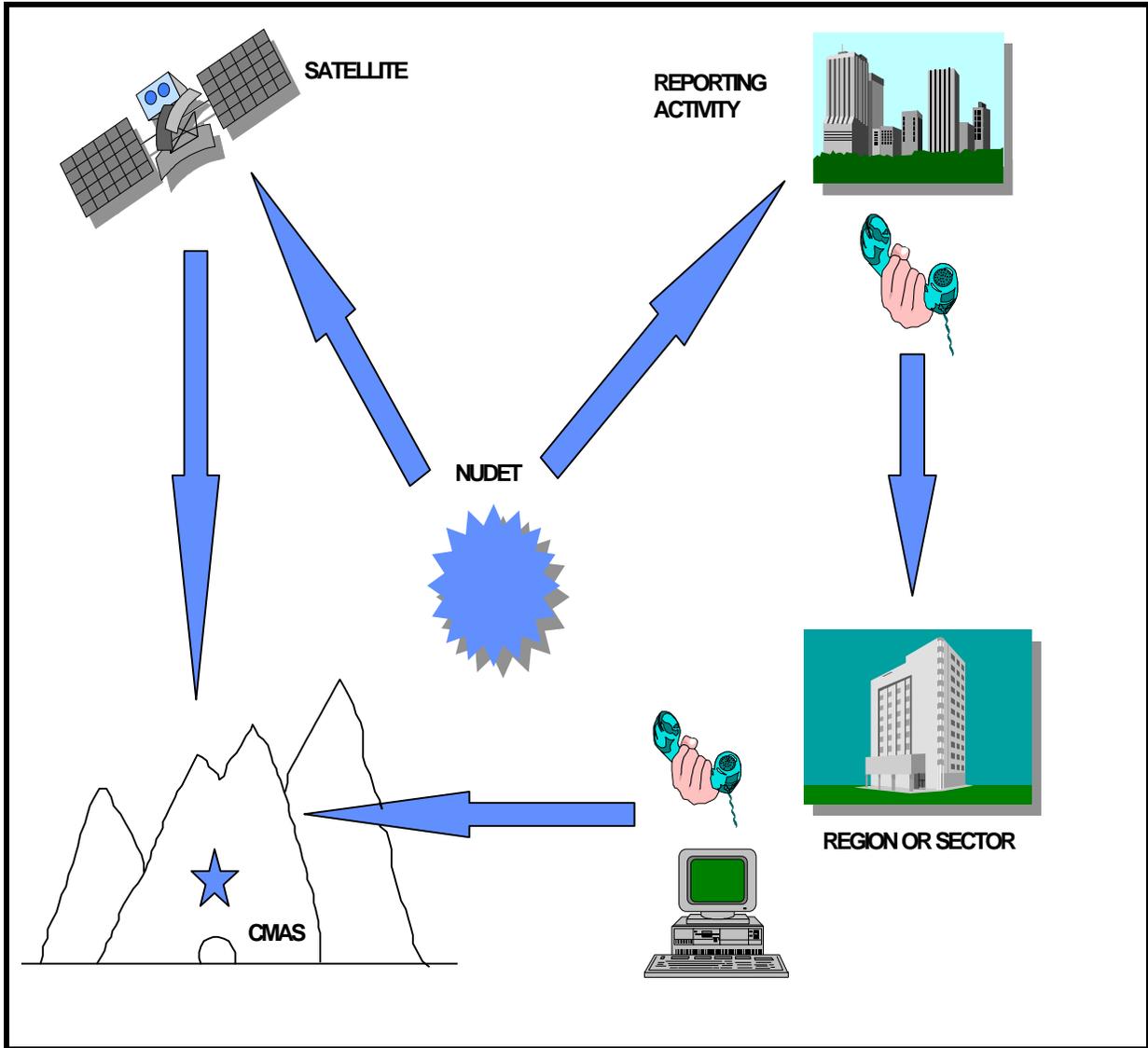
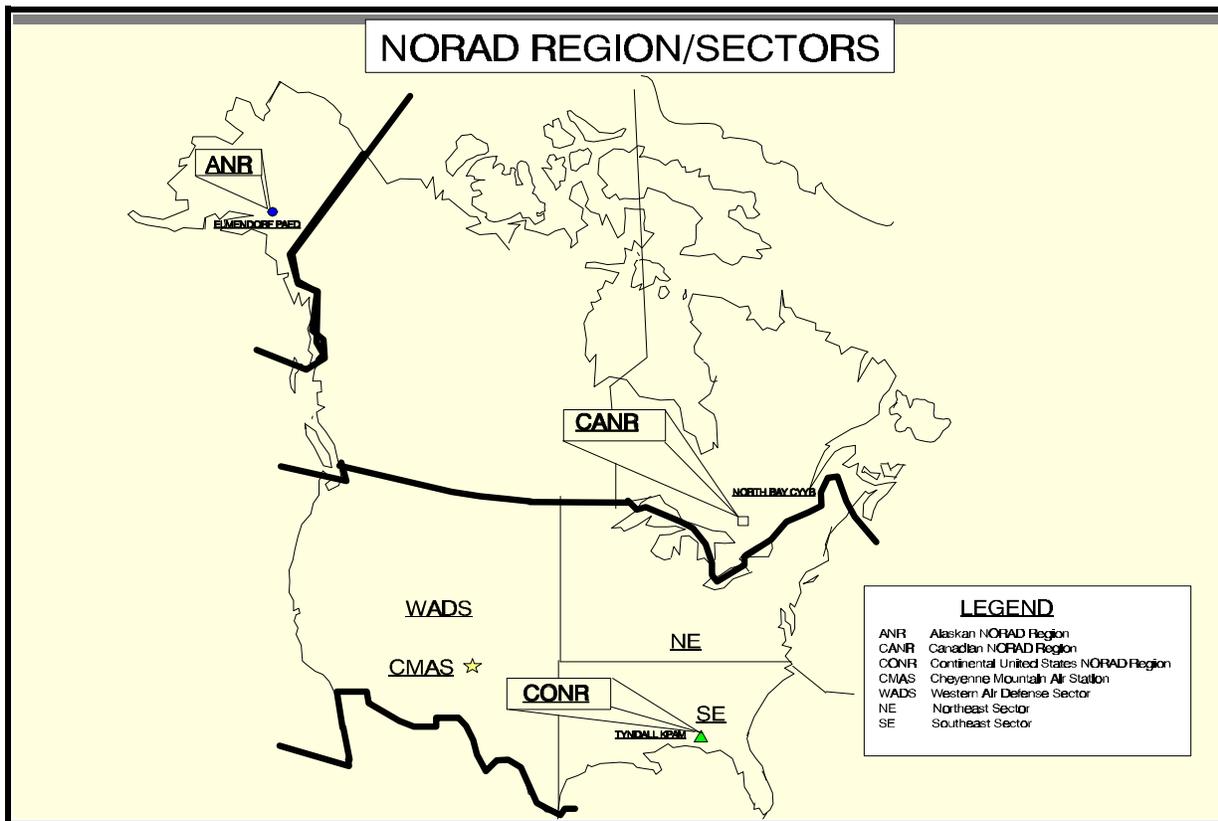


Figure 1.2. NORAD Region/Sector Configuration.



1.5.3. Subcollection Center (SCC). A SCC is any region and or sector designated activity with the capability and communications to transmit and receive NBC reports. The SCC collects, screens, and sends reports on any NBC event to their region or sector nuclear, biological, chemical operations cell (NBCOC). The SCCs' main purpose is to reduce the volume of telephone traffic, and to filter out erroneous data reported by RAs. Not all regions and sectors will require SCCs. An SCC may be an RA.

1.5.4. NORAD Region and or Sector NBCOC. The region and or sector NBCOC is a functional NORAD element in the region or sector Battle Staff Support Center (BSSC) which collects and reports to the HQ NORAD NBCOC all NBC events in their region or sector. CONR will monitor rather than report events sent to HQ NORAD NBCOC by CONUS air defense sectors.

1.5.5. HQ NORAD NBCOC. HQ NORAD NBCOC is responsible for accomplishing the taskings as described in paragraph 1.1.

1.6. Responsibilities:

1.6.1. Sensor System. Report nuclear events automatically to NORAD Forward Automated Reporting System (NFARS), NORAD Automated Forward Tell Output to Canada (NAFTOC), and all autodin NUDET and Damage Information Summary (NUDIS) subscribers.

1.6.2. Reporting Activities:

1.6.2.1. Observe and or report on nuclear, biological, and chemical events including radioactive fallout arrival times and radiation levels.

1.6.2.2. Record available event data as required using the appropriate NORAD report form (see Attachments 2, 3, and 4).

1.6.2.3. Transmit available data on all NUDETs observed within its area of observation to the region, sector, or the SCC in which the RA is located except for the FLASH NUDET, which is reported as noted in paragraph 2.2.2.

1.6.2.4. Transmit available data on all biological and or chemical events occurring within the installation or immediate area to the region, sector or SCC in which the RA is located.

1.6.3. SCC. Performs functions as directed by the region or sector NBCOC.

1.6.4. NORAD Region and Sector NBCOCs:

1.6.4.1. Receive SCC/RA reports.

1.6.4.2. Screen NBC reports for errors, completeness, and correct format.

1.6.4.3. Transmit NBC, Continental Airborne Reconnaissance for Damage Assessment (CARDA) reports to the HQ NORAD NBCOC via region operations control center (ROCC) or sector operations control center (SOCC) FORWARD TELL circuit or by telephone. Defense Switched Network (DSN) is 268-3992/3993 or NORAD Tactical Autovon System (NTAS) 310-268-3992/3993. CONUS sectors FORWARD TELL information copies to CONR.

1.6.4.4. If a region or sector assumes overall control of NORAD forces, it FORWARD TELLS NBC data to user commands and agencies in accordance with NORAD CONPLAN 3310-96(S). NORAD region and or sector supplements cover this in detail.

1.6.4.5. Provide initial training to newly appointed RAs.

1.6.4.6. Conduct staff visits (SV) to RAs as needed.

1.6.4.7. Provide region and or sector Commander with analysis, recommendations, and displays of NBC events.

1.6.4.8. Conduct other operations as directed.

1.6.5. HQ NORAD NBCOC:

1.6.5.1. Provides CINCNORAD with analysis and recommendations on NBC events.

1.6.5.2. Monitors NBC related events.

1.6.5.3. Corrects region and or sector error messages and inserts corrected data into the NORAD Computer System.

1.6.5.4. FORWARD TELLS appropriate NBC data to user commands and agencies.

1.6.5.5. Passes GLASSEYE (Attachment 4) and CARDA (Attachment 5) reports through the NBCWRS in accordance with USAF OPLAN 2-84 (S), Continental United States Airborne Reconnaissance for Damage Assessment (CARDA) Operations Plan.

1.6.5.6. Conducts SVs to the regions and or sectors as required.

1.6.6. HQ NORAD Alternate Command Element (ACE). The Mobile Consolidated Command Center (MCCC) is a mobile survivable command center for NORAD and United States Space Command (USSPACECOM). Should the NCC and USSPACECOM Command Centers become nonfunctional, the MCCC assumes NCC and HQ NORAD Battle Staff responsibilities for survival, recovery, and reconstitution of NORAD forces and continuity of operations of NORAD missions. At that time, region and or sector ACEs and other surviving elements of the NBCWRS attempt to FORWARD TELL NBC data to the MCCC via any means available.

1.6.7. Service Chiefs of Staff, CINCs, and Major Commands:

1.6.7.1. Provide trained personnel, logistical resources, and administrative support.

1.6.7.2. Integrate installations and units to make them responsive to the NBCWRS by participating in periodic NORAD exercises to gain and maintain familiarity with the formats and procedures of the reporting system.

1.6.7.3. Issue directives to support the NORAD NBCWRS and coordinate the tasking of their installations as RAs.

1.6.7.4. Provide support and initial training to their RAs.

1.6.7.5. Support NORAD by incorporating NORAD policies and regulations into their appropriate Service command evaluation process.

1.7. Communications. DSN voice circuits are the normal transmission medium between RAs and their region and or sector NBCOCs. The region and or sector NBCOCs FORWARD TELL events to the HQ NORAD NBCOC via the ROCC or SOCC FORWARD TELL circuits. Back-up to the ROCC or SOCC FORWARD TELL lines is provided by DSN voice. FORWARD TELL from HQ NORAD to the subscriber commands and agencies is via encrypted and dedicated teletype circuits. During exercises or real-world events, regions/sectors shall establish secure voice communications with HQ NORAD and adjacent regions/sectors. The modulated automated conference arranger (MACA) system (DSN voice) provides a conference bridge back-up between HQ NORAD and the end users.

1.8. System Activation. The NORAD NBCWRS is activated in accordance with CINCNORAD CONPLAN 3310-96(S), or when directed by CINCNORAD. Individual region or sector commanders may activate their portion of the NBCWRS if a threat is assessed to exist within their area of responsibility.

1.9. Training. Each NORAD and non-NORAD unit assigned an RA function participates in:

1.9.1. When possible, NORAD-wide, national JCS exercises and or one region and or sector evaluation exercise every 18 months.

1.9.2. Local region and or sector NBC reporting exercises when directed by the NORAD region and or sector headquarters.

1.10. Procedures for Supplementing or Submitting Recommended Changes:

1.10.1. Submit recommended changes to this instruction through normal channels to HQ NORAD /J3OBN. State the problem, recommended change, and justification. HQ NORAD reviews and incorporates approved changes.

1.10.2. NORAD regions and sectors will supplement this instruction with detailed instructions to subordinate units and RAs in the following areas:

1.10.2.1. Reporting instructions.

1.10.2.2. Fallout prediction.

1.10.2.3. Radiological monitoring instructions.

1.10.2.4. Training requirements.

1.10.2.5. Standard operating procedures (SOPs) and checklists.

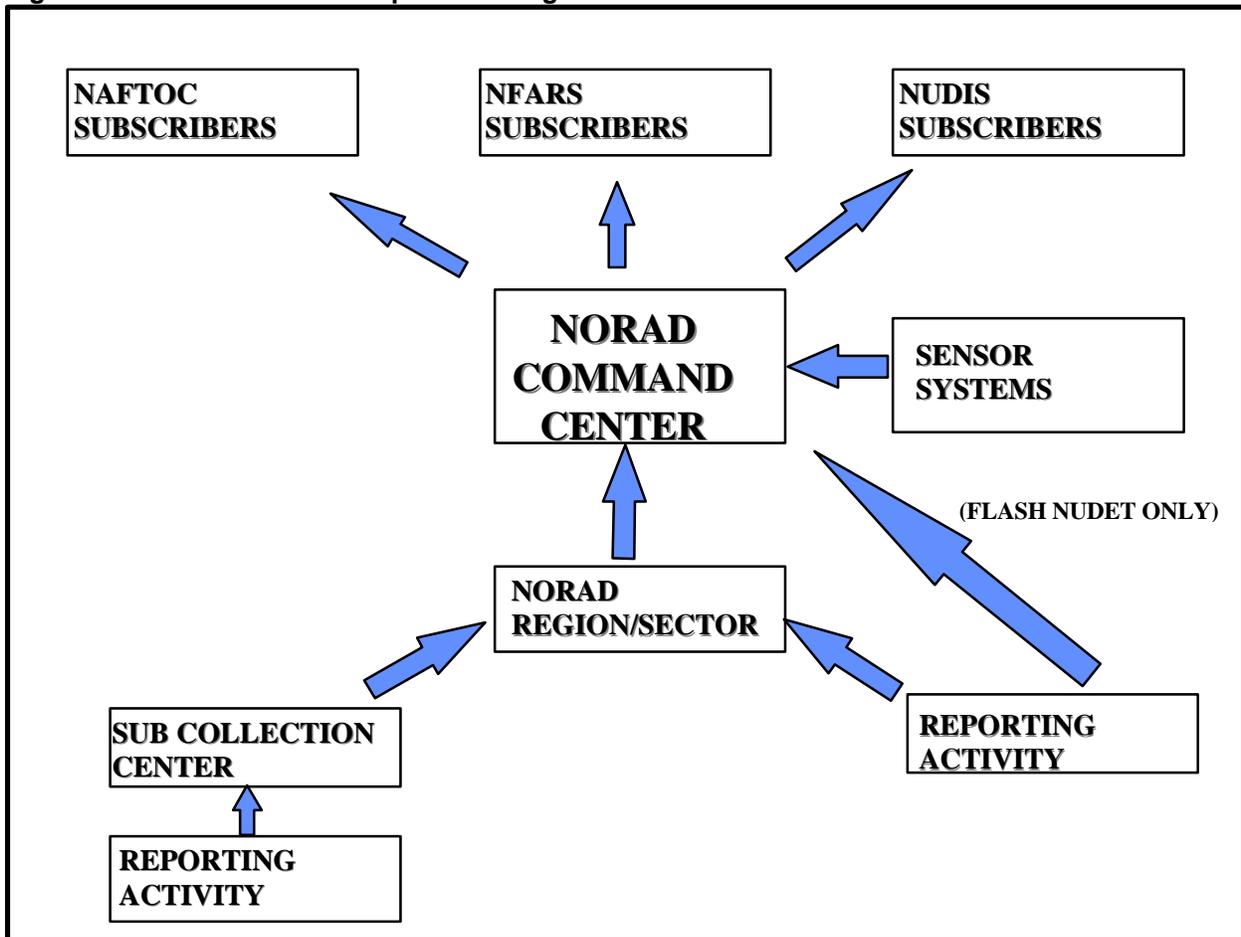
1.10.3. Send copies of region and or sector supplements to HQ NORAD/J3OBN (2 cys)/ J3Z (1cy) and HQ NORAD/SSPACECOM/IG (1 cy).

1.10.4. Send changes in distribution addresses for this instruction to the NORAD region and or sector NBC officer in which the requesting unit is located. Major commands send changes in their distribution addresses to HQ NORAD/J3OBN.

**Chapter 2
NBCWRS REPORTING**

2.1. General. NBCWRS FORWARD TELLS accurate and timely information on all NBC events to the NCAs of the United States and Canada. Confirmation and immediate reporting of the **first NUDET** in the NORAD area of responsibility is of primary importance. Data on BC events and radiological monitoring are of vital but secondary importance. Post-attack damage reporting is an essential part of the NBCWRS and becomes important in the latter phases of the conflict and during reconstitution. The flow of NBC reporting through the NBCWRS is illustrated in Figure 2.1.

Figure 2.1. Flow of NUDET Reports Through The NBCWRS.



2.2. NUDET Reporting:

2.2.1. General. Nuclear related reports are either sent to HQ NORAD by various sources or are generated by HQ NORAD and are laterally and FORWARD TOLD to all NFARS, NAFTOC, and NUDIS Autodin subscribers.

2.2.1.1. Nuclear Detonation Data Point (NUDAP). This is a method used to simplify nuclear attack reporting. An explanation of NUDAP selection and designation is contained in paragraph 1.5.

2.2.1.2. NUDET. This is an unclassified report of a nuclear detonation sent in latitude (lat) and longitude (long) on NORAD Form 46 (NUDET Report), from RAs to regions, sectors or SCCs, and from regions and or sectors to HQ NORAD/NBCOC. Sectors may authorize RAs and or SCCs to use NATO standard

NBCWRS (STANAG 2103/ATP-45) NBC-1, NBC-2, and NBC-4 Report formats; however, NORAD NBCOC must receive all NUDET reports in NORAD Form 46 format. (See Attachment 2).

2.2.1.3. Azimuth Report. This unclassified report gives the direction to the NUDET in degrees as seen by the observer at the RA, (included in the remarks if available). Azimuth reports are not FORWARD TOLD beyond region and or sector level except for the FLASH NUDET. RAs use azimuth reports to determine the Ground Zero (GZ) of the NUDET.

2.2.2. FLASH NUDET Reporting. The **first NUDET** of each laydown observed by an RA is a **FLASH NUDET**. The report is unclassified. A FLASH NUDET advises CINCNORAD that a NUDET has been detected visually or by radar within the North American Continent. The FLASH NUDET is brief and must not be delayed awaiting additional information while being sent to CINCNORAD. It is transmitted from the RA through the NBCWRS **directly** to HQ NORAD/NBCOC by voice with FLASH or highest available precedence. Report only unit identification, location of detonation, and time of detonation. After the FLASH NUDET has been passed, the RA then completes and passes the NUDET report (NORAD Form 46) to its parent region or sector. Examples of an RA reported FLASH NUDET are as follows:

2.2.2.1. "THIS IS SCOTT AFB WITH A **FLASH NUDET**. WE'VE JUST OBSERVED A NUDET IN THE VICINITY OF ST LOUIS. TIME OF 2123Z. DID YOU COPY, OVER?"

2.2.2.2. THIS IS CFB COLD LAKE WITH A **FLASH NUDET**. WE'VE JUST DETECTED A NUDET AT 095 DEGREES TRUE FROM US AT TWENTY MILES, TIME OF 2126Z. DID YOU COPY, OVER?"

NOTE: Sectors transmit information required by NORAD Form 46 through the NBCWRS on all observed/detected NUDETS. The NORAD Computer System does the elimination of duplicate NUDET reports so region and or sector NBCOCs need not correlate NUDET reports unless region and or sector NBCOCs are notified that the NCS is nonoperational and or the remote access terminal (RAT) operator has a backlog of reports.

2.3. Radiological Reporting:

2.3.1. RAs send radiological data in centigrays per hour (cGy/hr) to regions, sectors, or SCCs when:

2.3.1.1. The outside dose rate reaches 5 cGy/hr (increasing or decreasing).

2.3.1.2. The outside dose rate reaches 50 cGy/hr (increasing or decreasing).

2.3.1.3. The outside dose rate reaches 100 cGy/hr and every whole 100 cGy/hr (increasing or decreasing) thereafter.

2.3.1.4. The dose rate peaks.

2.3.2. Regions and or sectors report radiological data through the NBCWRS to HQ NORAD NBCOC or the MCCC when:

2.3.2.1. The initial outside dose rate reaches 5 cGy/hr.

2.3.2.2. The dose rate peaks.

2.3.2.3. Other readings that are considered significant by region/sector NBC officers.

NOTE: The above dose rates given are minimums. Regions and or sectors may adjust as required.

2.3.3. Regions and or sectors send radiological data required via NORAD Form 45, Environmental Hazard Report, through the NBCWRS as quickly as possible (see Attachment 3).

2.4. Biological and Chemical (BC) Reporting:

2.4.1. General. BC events have been categorized into three attack postures: suspected, probable, and confirmed. The HQ NORAD NBCOC collects, collates, and evaluates all BC data and recommends to CINCNORAD, for declaration, what type of attack North America is under.

2.4.2. Biological Event Detection:

2.4.2.1. The possibility of a biological attack must be considered when unusual or unexplained events are reported or observed. These may include, but are not limited to:

2.4.2.1.1. Occurrence of patients or casualties in an area exhibiting symptoms of diseases not common to that area.

2.4.2.1.2. An increase in the numbers of disease-carrying vectors such as biting insects or rodents.

2.4.2.1.3. An increased number of sick or dead animals.

2.4.2.1.4. Finding dissemination devices which may include those used to carry and release vectors or aerosols.

2.4.2.1.5. Foreign substances contaminating the environment.

2.4.2.1.6. Unidentified or enemy aircraft spraying material or releasing munitions, regardless of whether or not an immediate effect is observed.

2.4.2.1.7. The appearance of crop mutation or wide-spread crop disease.

2.4.2.2. The first sign of a biological event would probably be the appearance of unusual and unexplained numbers of casualties having similar symptoms.

2.4.2.3. Clinical analysis of samples from patients and from soil, water, and surface samples is required to identify a biological agent. This determination may take days or weeks of analysis.

2.4.3. Chemical Event Detection:

2.4.3.1. The possibility of a chemical event occurring should be considered when one or more of these conditions exists:

2.4.3.1.1. Personnel symptoms:

2.4.3.1.1.1. Choking or tightness in the chest.

2.4.3.1.1.2. Dimming of vision or difficulty in focusing the eyes on close objects.

2.4.3.1.1.3. Unexplained runny nose.

2.4.3.1.1.4. Irritation of the eyes.

2.4.3.1.1.5. Difficulty in or increased rate of breathing.

2.4.3.1.1.6. Unexplained skin irritations or burning.

2.4.3.1.2. Unusual substances, either liquid or solid, on the ground or on vegetation.

2.4.3.1.3. Unexplained or unusual rotted clothing, bleached vegetation, or corroded metals.

2.4.3.1.4. An unidentifiable or unexplained odor.

2.4.3.1.5. Smoke or mist from an unknown source.

2.4.3.2. Chemical agents may be employed covertly or overtly as primary weapons against a target. Chemical agents may be in the form of colorless liquids, aerosols, or vapors and may or may not have a distinctive odor or taste.

2.4.3.3. Detection and identification of chemical agents can be determined by noting unusual or unexplained symptoms in affected personnel or through the use of detection equipment. Such equipment ranges from simple detector paper to elaborate detector and monitoring kits.

2.4.4. BC Evaluation Criteria:

2.4.4.1. Suspected BC Attack:

2.4.4.1.1. There is sufficient basis to believe that casualties have occurred "above the normal".

2.4.4.1.2. There is also sufficient information available that this "above the normal" situation is the result of a possible aggressive act(s) against an area(s) on the North American Continent.

2.4.4.2. Probable BC attack. The criteria for a suspected BC attack is satisfied and:

2.4.4.2.1. Casualties are a result of a BC agent.

2.4.4.2.2. The BC agent has been identified.

2.4.4.2.3. The aggressive act has been committed and at least a part of the act involved the employment of the casualty causing agent.

2.4.4.3. Confirmed BC attack. Satisfies the criteria for a probable attack and the source of the aggressive act is known.

2.4.5. Report of Initial BC Event Data. Regions/Sectors report using NORAD Form 45, Environmental Hazard Report (see Attachment 3). The region and or sector NBCOC FORWARD TELLS data on all the BC events in their region and or sector to the HQ NORAD NBCOC using **IMMEDIATE** precedence.

2.4.6. BC Attack Reporting by HQ NORAD and surviving RAOC/SAOC.

2.4.6.1. Once CINCNORAD has selected and declared a biological or chemical attack option (suspected, probable, or confirmed) on the North American Continent, the HQ NORAD NBCOC (or senior surviving NORAD region or sector NBCOC) prepares a SECRET OPREP 3/PINNACLE/FRONT BURNER Report in accordance with NI10-19 Aerospace Reporting System.

NOTE: AFP 102-2, Volume I, Joint User Handbook for Message Text Format, gives direction on how to write and read the OPREP 3/PINNACLE/FRONT BURNER Report. This message summarizes the biological or chemical events which lead up to the declaration and concludes with a declaration statement. Addresses are Joint Chiefs of Staff (JCS) National Military Command Center (NMCC),

Washington, DC; JCS NMCC, Site R, Ft Ritchie, Maryland; National Defense Operations Center (NDOC), Ottawa, Canada; and NORAD regions and or sectors (AIG 7061).

2.5. Damage Reporting:

2.5.1. General. Nuclear damage reporting is performed by CONUS military and other government agency aircraft under the provisions of the USAF CARDA OPLAN. Damage reports submitted by aircraft are in narrative form on NORAD Form 60, GLASSEYE Report. Once a GLASSEYE Report (Attachment 4), has been received, it is converted at the RAOCs and SAOCs to a NORAD Form 56, CARDA Report (see Attachment 5), and transmitted through the HQ NORAD NBCWRS to the NCAs, major military commands, and federal agencies over the FORWARD TELL TTY circuit. The HQ NORAD NBCOC telephone numbers for GLASSEYE or CARDA reports are DSN 268-3392/3393 or NTAS 310-268-3392/3393.

2.5.2. Air-to-Ground Reporting. As soon as an airborne damage observation has been made, the aircraft will transmit a GLASSEYE report to any NORAD radar or air defense control facility using the call sign "AIR DEFENSE RADAR" on UHF 364.2 MHz. Aircraft may call any federal aviation administration (FAA) or military communications facility and request that they relay the report to any NORAD radar or control facility. United States Strategic Command (USSTRATCOM) Post-Attack Command and Control System (PACCS) aircraft will VOICE TELL damage reports from aircraft direct to HQ NORAD via air-to-ground communications links using the GLASSEYE report format.

2.6. LATERAL TELL. The LATERAL TELL of NBC events between adjacent region and or sector NBCOCs is coordinated as part of NBC reporting procedures. LATERAL TELL of NUDETS between NORAD regions, sectors and FEMA regions is authorized. Regions and sectors **should not** LATERAL TELL BC event information to FEMA regions until CINCNORAD has made a biological or chemical attack declaration.

Chapter 3 FORWARD TELL OF NBCWRS INFORMATION

3.1. General. The FORWARD TELL of NBCWRS information to the NCAs, major military commands, and federal agencies is achieved through three separate teletype (TTY) systems:

3.1.1. NORAD Forward Automated Reporting System (NFARS) is an automated, dedicated TTY system over which FORWARD TELL Summary Reports, Negate NUDET Reports, Retell NUDETS, NUDET Target Place Name Reports, NUDET messages, CARDA Reports, Environmental Hazard Reports, and line checks are transmitted to US subscribers. These messages are generated by the NORAD Computer System. For a listing of NFARS subscribers, see Attachment 6.

3.1.2. NORAD Automated Forward Tell Output to Canada (NAFTOC) is an automated, dedicated TTY system over which missile warning information, surveillance data, Negate NUDET, Environmental Hazard Reports, Retell NUDET Report, Canadian NCA Target Tactical Warning Messages, NUDET messages, and line checks are transmitted to Canadian subscribers. These messages are generated by the NCS. For a listing of the NAFTOC subscribers, see Attachment 7.

3.1.3. NUDET and Damage Information Summary (NUDIS) is a SECRET FLASH (exercise precedence, IMMEDIATE) teletype message which, except for missile warning information and Environmental Hazard Reports, contains the same data transmitted by NFARS. It is transmitted over the AUTODIN network to a predesignated list of addressees (see Attachment 8).

3.2. NFARS Back-up VOICE TELL System. If the NCS and or the NFARS TTY circuit fails, the NFARS Back-up VOICE TELL system is activated. The NFARS Back-up VOICE TELL system is also activated if the NAFTOC TTY circuit fails. This back-up system uses two conference patterns which enable a caller to automatically or manually establish a conference among a variable number of subscribers (see Attachment 9).

Chapter 4 CALCULATING ARRIVAL TIME OF RADIOACTIVE FALLOUT

4.1. General. This chapter describes the manual method of predicting the location and arrival time of radioactive fallout from surface burst NUDETs. US Army Field Manual (FM) 3-3, Fallout Prediction, US Army Field Manual (FM) 3-3-1, B-GS-316-014/FP-001, and NATO ATP 45 provides details on additional calculation methods.

4.1.1. Terms:

4.1.1.1. Effective downwind message (EDM) (see attachment 10). EDMs provide wind direction in degrees true and wind speed in knots for base locations within CONUS, Alaska, and Canada. An EDM, with the location of each surface NUDET, is required to make a reliable radioactive fallout prediction.

4.1.1.2. Surface burst NUDET. A surface burst NUDET is one whose fireball touches the earth's surface. The resultant debris generated creates militarily significant radioactive fallout.

4.1.1.3. Fallout prediction. Fallout prediction is the forecasting of areas expected to receive radioactive fallout from surface burst NUDETs. Personnel notified of predicted fallout should seek shelter locally. The evacuation of personnel or equipment based solely on a fallout prediction is generally unwarranted.

4.1.2. US Air Force Global Weather Center. This activity is located at Offutt AFB, NE. It provides HQ NORAD, regions, and sectors 12-hour and 24-hour EDM forecasts as listed below:

4.1.2.1. Automatically, twice daily to NORAD addressees via Autodin teletype.

4.1.2.2. On request via the CONUS Meteorological Data System (COMEDS).

NOTE: Region and or sector NBCOCs maintain current EDMs in their workcenters and can manually calculate fallout arrival for their areas as needed.

4.2. Calculation Method. When a fallout prediction is required, use factors under column "C" (1 MT) from the most current EDM.

4.3. Calculation Procedure:

4.3.1. To make a fallout prediction use:

4.3.1.1. Current Effective Downwind Message (EDM).

4.3.1.2. Location of Ground Zero (GZ).

4.3.1.3. Time (ZULU) of detonation.

4.3.1.4. Yield. A 1- megaton (MT) yield is assumed for surface bursts.

4.3.1.5. Zone I Downwind Distance. The table in Figure 4.1. provides downwind distances in nautical miles and varying effective wind speeds in knots for 1 MT weapons. Use the table in Figure 4.2. when the yield is known to be 0.5 MT or less.

Figure 4.1. Effective Downwind Speed/Downwind Distance Table for a 1 MT NUDET Burst.

| 1 MEGATON BURST CHARACTERISTICS | | | | | | | |
|--|-----------|------------|-----------|------------|-----------|------------|-----------|
| CLOUD TOP HEIGHT - 71,000 ft (21,640 m) | | | | | | | |
| CLOUD BOTTOM HEIGHT - 44,000 ft (13,410 m) | | | | | | | |
| CLOUD RADIUS - 9.5 nm (18 km) | | | | | | | |
| TIME OF FALL - 3.5 hours | | | | | | | |
| RATE OF FALL - 210 ft/min | | | | | | | |
| FIREBALL - 5700 ft diameter at MSL | | | | | | | |
| <u>EDS</u> | <u>DD</u> | <u>EDS</u> | <u>DD</u> | <u>EDS</u> | <u>DD</u> | <u>EDS</u> | <u>DD</u> |
| 4 | 48 | 29 | 125 | 53 | 168 | 77 | 203 |
| 5 | 51 | 30 | 127 | 54 | 170 | 78 | 204 |
| 6 | 56 | 31 | 129 | 55 | 172 | 79 | 206 |
| 7 | 59 | 32 | 130 | 56 | 174 | 80 | 208 |
| 8 | 63 | 33 | 132 | 57 | 175 | 81 | 208 |
| 9 | 70 | 34 | 134 | 58 | 176 | 82 | 209 |
| 10 | 73 | 35 | 137 | 59 | 179 | 83 | 211 |
| 11 | 76 | 36 | 139 | 60 | 180 | 84 | 213 |
| 12 | 79 | 37 | 141 | 61 | 181 | 85 | 214 |
| 13 | 82 | 38 | 142 | 62 | 182 | 86 | 214 |
| 14 | 88 | 39 | 143 | 63 | 184 | 87 | 217 |
| 15 | 90 | 40 | 145 | 64 | 185 | 88 | 218 |
| 16 | 93 | 41 | 148 | 65 | 187 | 89 | 219 |
| 17 | 96 | 42 | 150 | 66 | 188 | 90 | 221 |
| 18 | 97 | 43 | 152 | 67 | 190 | 91 | 221 |
| 19 | 100 | 44 | 153 | 68 | 191 | 92 | 222 |
| 20 | 102 | 45 | 155 | 69 | 193 | 93 | 224 |
| 21 | 107 | 46 | 156 | 70 | 194 | 94 | 225 |
| 22 | 109 | 47 | 159 | 71 | 195 | 95 | 227 |
| 23 | 111 | 48 | 161 | 72 | 196 | 96 | 228 |
| 24 | 113 | 49 | 162 | 73 | 198 | 97 | 228 |
| 25 | 115 | 50 | 163 | 74 | 199 | 98 | 229 |
| 26 | 117 | 51 | 165 | 75 | 201 | 99 | 232 |
| 27 | 121 | 52 | 167 | 76 | 202 | 100 | 233 |
| 28 | 122 | | | | | | |

NOTE: All distances are in nautical miles and speeds in knots.

EDS: Effective downwind speed.
DD: Downwind distance.

Figure 4.2. Effective Downwind Speed/Downwind Distance Table For a 0.5 Megaton NUDET Burst.

| 0.5 MEGATON BURST CHARACTERISTICS | | | | | | | |
|--|-----------|------------|-----------|------------|-----------|------------|-----------|
| CLOUD TOP HEIGHT - 63,000 ft (19,200 m) | | | | | | | |
| CLOUD BOTTOM HEIGHT - 39,000 ft (12,000 m) | | | | | | | |
| CLOUD RADIUS - 8.45 nm (15.3 km) | | | | | | | |
| TIME OF FALL - 3.2 hours | | | | | | | |
| <u>EDS</u> | <u>DD</u> | <u>EDS</u> | <u>DD</u> | <u>EDS</u> | <u>DD</u> | <u>EDS</u> | <u>DD</u> |
| 5 | 40 | 12 | 62 | 30 | 98 | 65 | 142 |
| 6 | 44 | 14 | 66 | 35 | 108 | 70 | 150 |
| 7 | 47 | 16 | 72 | 40 | 110 | 80 | 160 |
| 8 | 50 | 18 | 76 | 45 | 120 | 90 | 170 |
| 9 | 53 | 20 | 80 | 50 | 130 | 100 | 180 |
| 10 | 56 | 25 | 90 | 60 | 135 | | |

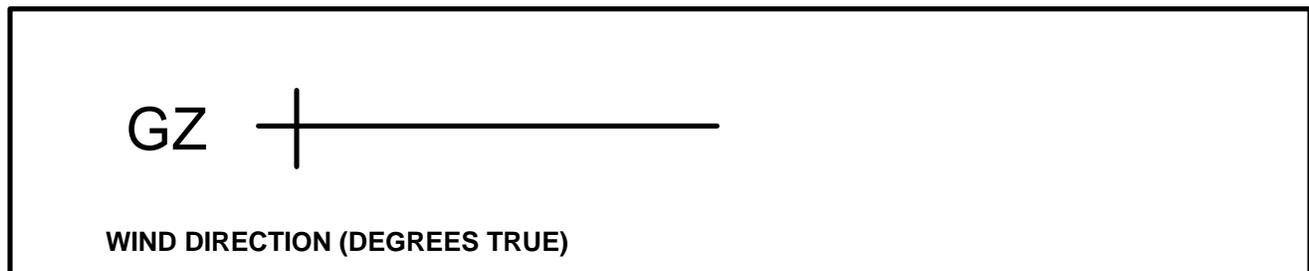
NOTE: All distances are in nautical miles and speeds in knots.

EDS: Effective downwind distance.
DD: Downwind distance.

4.3.2. Step 1. Follow these procedures for making a fallout prediction:

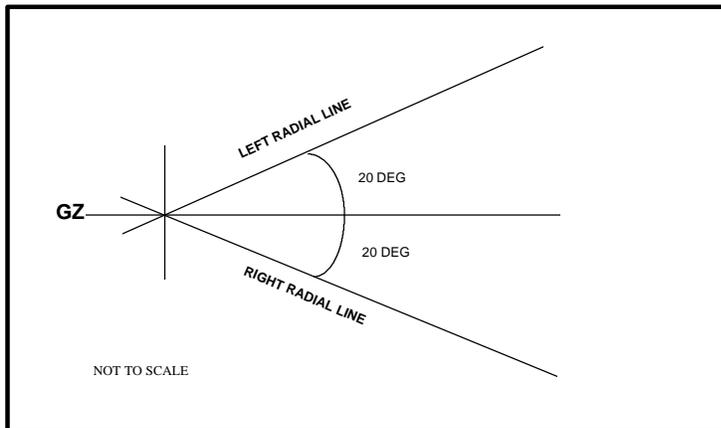
4.3.2.1. Plot the NUDET (GZ) on a map.

4.3.2.2. Draw a line from GZ on the map to correspond to the direction, in degrees true, as obtained from the EDM (see Figure 4.3.).

Figure 4.3. Location of GZ and Wind Direction for a Nuclear Fallout Prediction.

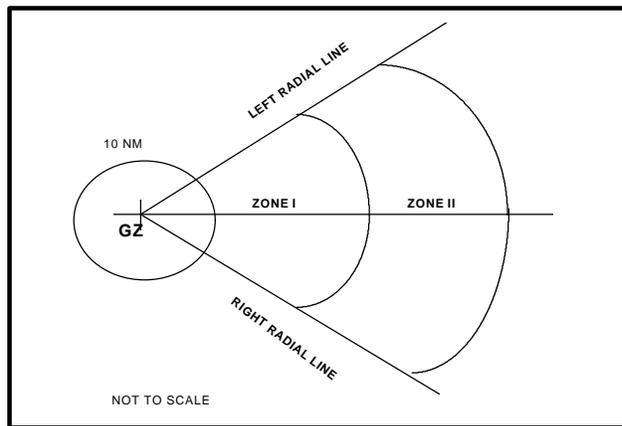
4.3.3. Step 2. Draw two radial lines from GZ; one 20 degrees to the right, the other 20 degrees to the left of the downwind distance (see Figure 4.4.).

Figure 4.4. Construction of Left and Right Radial Lines for a Nuclear Fallout Prediction.



4.3.4. Step 3. Draw a circle with a radius equivalent to 10 nautical miles (radius of stabilized nuclear cloud for 1 MT NUDET on the upwind side of GZ, use GZ as the center of the circle). Between the left and right radial lines, strike an arc from GZ with a radius equal to the Zone I downwind distance (see Figure 4.1. or 4.2.). Double the Zone I downwind distance and strike a second arc from GZ. This second arc represents Zone II (see Figure 4.5.).

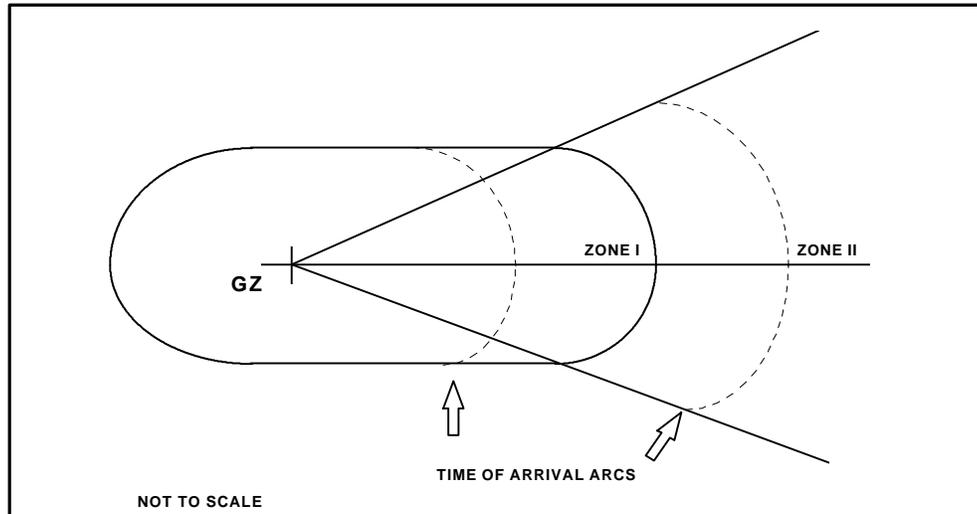
Figure 4.5. Construction of Cloud Radius, Zone I and II for a Nuclear Fallout Prediction.



4.3.5. Step 4. Draw two tangent lines from the cloud radius circle to the points of intersection of the left and right radial lines with the Zone I arc. Time of arrival arcs are entered on the prediction using dashed lines (see Figure 4.6.). To determine time of arrival at a specific point, use the formula:

$$\text{Time of arrival (hour)} = \frac{\text{Distance form GZ (NM)}}{\text{Effective Wind Speed (knots)}}$$

Figure 4.6. Construction of Tangent Lines and Time of Arrival Arcs for a Nuclear Fallout Prediction.



4.4. Very Low Winds. An occasion may arise when the effective wind speed is below 8 Kmph (4.4 knots). When this occurs, the winds are considered to be light and variable. For such cases, fallout may occur at almost any location around GZ. The predicted area of hazard for low winds is always around GZ. To prepare a fallout prediction under these circumstances, plot GZ and construct a circle using a downwind distance radius of 48 nautical miles (see figure 4.1). The area inside the circle is Zone I. Double this distance to outline Zone II. Time of arrival arcs are not used when constructing fallout predictions with very low winds.

4.5. Significance of Fallout Inside The Predicted Zones:

4.5.1. The predicted zones define those areas in which exposed, unprotected personnel may receive militarily significant total doses of radiation (50 cGys or greater) within 4 hours after actual arrival of fallout.

4.5.1.1. Zone I gives the area of primary hazard and is defined as a zone in which exposed, unprotected personnel may receive doses of 150 cGys or greater in 4 hours after actual arrival of fallout.

4.5.1.2. Zone II gives the area of secondary hazard and is defined as a zone in which the total dose received by exposed, unprotected personnel is not expected to reach 150 cGys within a period of 4 hours after the actual arrival of fallout. Exposed, unprotected personnel may receive a total dose of 50 cGys or greater within this area over a period of 24 hours after the arrival of fallout.

4.5.2. Outside the Predicted Area. In the vicinity of, but outside Zones I and II, exposed, unprotected personnel may receive a total dose that does not reach 50 cGys in the first 24 hours after the

actual arrival of fallout. Periodic monitoring along with routine radiological defensive measures normally provides adequate protection.

NOTE: Construct a simplified fallout predictor template on transparent material as described in paragraphs 4.3.2. through 4.3.5. This template can then be placed over GZ on a map and orientated quickly to provide an indication of the fallout hazard.

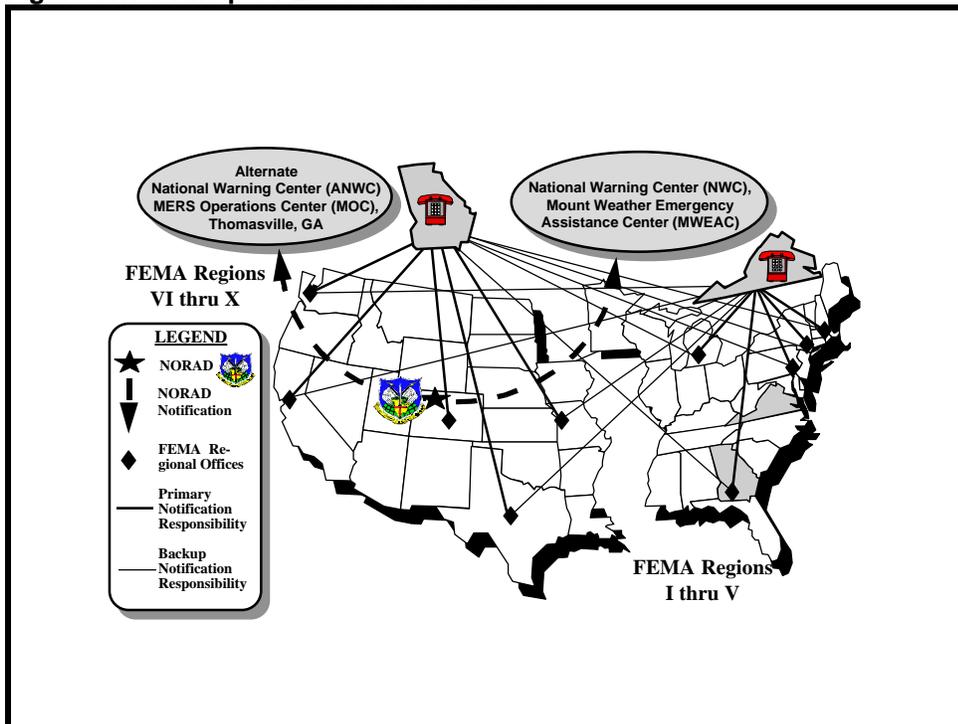
Chapter 5 FEMA NATIONAL WARNING SYSTEM (NAWAS)

5.1. General:

5.1.1. Funded, operated and controlled by the Federal Emergency Management Agency (FEMA), NAWAS provides the capability to warn Federal, State and local governments of impending disasters. These organizations in turn disseminate warning information to the civilian population through the use of the local Emergency Alert System (EAS). Originally developed to support warning dissemination of a nuclear attack or accidental missile launch, the NAWAS currently supports FEMA's all-hazard approach to emergency management.

5.1.2. Until early 1996, the National Warning Center (NWC) was collocated with the NORAD Command Center at Cheyenne Mountain, Colorado. The Alternate National Warning Center (ANWC) was collocated with the National Emergency Coordination Center (NECC) at the Mount Weather Emergency Assistance Center (MWEAC). After intensive study of the most cost effective and operationally efficient location for the NWC in a post Cold War environment, the Director of FEMA decided to move the NWC and its staff to the NECC. Backup to the relocated NWC is now provided by the Mobile Emergency Response Support (MERS) Detachment at Thomasville, Georgia through the MERS Operations Center (MOC). Like the NWC, the MOC is staffed 24 hours a day. The principle links of the NAWAS are shown in Figure 5.1.

Figure 5.1. Principle FEMA NAWAS Links.



5.1.3. The change in location of the NWC has not diminished its operational responsiveness. As in the past, the NWC receives real time warning information from NORAD and provides the interface for disseminating an Attack Warning and accidental missile launch warnings over the NAWAS. It is the activation element for approximately 2,200 warning points who have a warning responsibility and/or the capability to activate existing outdoor warning systems. The warning information is further disseminated by the NAWAS warning points over local government communication resources to local jurisdictions and the Emergency Alert System (EAS), formerly known as the Emergency Broadcast System, for warning the civilian population.

5.2. Types of Civil Emergency Warning:

5.2.1. There are three types of warning that are supported by the NAWAS:

5.2.1.1. Peacetime Emergency Warning. A warning of a natural disaster or emergency; i.e., hazardous chemical spill, hurricane, tornado, storm, flood, high water, wind driven water, tidal wave, tsunami, earthquake, volcano eruption, landslide, mudslide, drought, snowstorm, fire, explosion, aircraft crash, nuclear accidents or other potential or actual hazard to the public's health, safety and property.

5.2.1.2. Attack Warning. A warning meaning that an impending or actual attack or an accidental missile launch against the United States has been detected and that protective action should be taken immediately.

5.2.1.3. Fallout Warning. A warning of radiation hazards resulting from nuclear detonations or accidental mishaps.

5.3. Sources of Warning:

5.3.1. Natural Disasters. Warnings of civil emergencies that may pose a threat to the public's health, safety, and property originate from many sources. The National Weather Service provides short and long-range weather forecasts. The Service can originate severe weather warnings and watches from any of approximately 300 offices throughout the United States. The majority of these forecast offices have direct access to the NAWAS and will further disseminate the attack warning over their NOAA Weather Radio System. The National Hurricane Center, Miami, Florida provides hurricane and tropical depression information for the Atlantic, Caribbean and gulf of Mexico. The Pacific and Alaska Tsunami Warning Centers located in Honolulu, Hawaii and Palmer, Alaska respectively provides alerts concerning cyclones, hurricanes and tsunamis in the Pacific Ocean. The National Earthquake Information center, US Geological Survey, Department of the Interior, provides earthquake information.

5.3.2. Enemy Attack. Warning of enemy attack upon the United States is declared and disseminated by the NWC over the NAWAS. Warnings are based on tactical and strategic intelligence data gathered and evaluated by NORAD, under its responsibility for the aerospace defense of North America.

5.3.3. Accidental Missile Launch. An agreement between the United States and Russia exists for the purpose of reducing the risk of nuclear war because of an accidental, unauthorized, or any other unexplained incident involving a possible detonation of a nuclear weapon. In the unlikely event of such an incident which would threaten the United States with a possible nuclear detonation, the accidental launch warning message would be disseminated over the NAWAS.

5.3.4. Radioactive Fallout. Information on nuclear detonation is disseminated to enable authorities to forecast radioactive fallout arrival times and provide information on the radiation hazard. States disseminate fallout information to political subdivisions. Local governments disseminate fallout warnings and instructions to the public based on local observations and information received from the State.

5.4. Other Emergency Information Communicated by NORAD:

5.4.1. Processing Possible Fire Reports (PFR). NORAD heat sensors have the capability to detect fires or other unusual heat sources throughout the 50 States. This information can provide the initial warning to local authorities of a natural or technological disaster. Confirmation of the reports is of benefit to both local authorities and the NORAD Command Center. Upon receipt of State Warning Point confirmation and/or information relating to the PFR, the NWC provides additional data to the NORAD Command Center.

5.4.2. Atmospheric Space Debris Reentry. USSPACECOM provides the NWC with current information on predicted reentry of space debris. This debris includes rocket bodies, satellites, platforms, or other objects launched by any country. Most debris burns up upon reentry, but some objects, owing to their size and structure, survive reentry and can impact the earth's surface. When this occurs, there may be sightings and soundings associated with the reentry.

5.5. Interface Between FEMA and NORAD/USSPACECOM Elements:

5.5.1. NORAD/USSPACECOM and FEMA are in the process of updating a Memorandum of Understanding (MOU) on the exchange of emergency information which is currently dated August 1989. The purpose of this MOU is to identify and update by agreement the responsibilities of NORAD/USSPACECOM and FEMA to ensure that the civilian national security mission is accomplished by providing for the timely exchange of critical emergency operational information between the military and civilian organizations.

5.5.2. Key elements of this MOU which impact this Instruction are:

5.5.2.1. Provide FEMA by display and/or other means, which are an integral part of the combined NORAD/USSPACECOM Command Center, information if available, regarding Air Defense Warnings, Missile Warning and declaration or termination of nuclear, biological or chemical attacks.

5.5.2.2. Provide for automatic dissemination of nuclear detonation (NUDET) information. The information will be provided to the FEMA National Warning Center over the NORAD Forward Automated Reporting System (NFARS).

5.5.2.3. Provide the FEMA MWEAC Liaison Officer with publications concerning NORAD Nuclear, Biological, Chemical Warning and Reporting procedures that will aid in accomplishing the emergency preparedness mission of FEMA.

5.5.2.4. Provide HQ NORAD/USSPACECOM Command Center information, if available, regarding reports concerning chemical, biological and nuclear events as a result of commercial, industrial or terrorist accidents/incidents.

5.5.2.5. Point of Contacts (POC) will be established to facilitate the exchange of information to the five FEMA MERS Operations Centers from the appropriate Continental United States (CONUS) NORAD Region, Alaskan NORAD Region (ANR) or Sector Air Operations Centers (SAOC) via the Defense Switched Network (DSN) or other appropriate communications systems in accordance with the requirements of Separate Agency Notification List as published in CINCNORAD CONPLAN 3310-96.

5.6. In addition to the direct communication authorized between NORAD/USSPACECOM and FEMA elements, the following communications/warning systems/circuits have been provided to FEMA to facilitate the exchange of information:

5.6.1. The NORAD Command Center Operations Loop (primary/backup).

5.6.2. The NORAD Alert System (NAS).

- 5.6.3. Interconnectivity to the CMOC Red Switch.
- 5.6.4. Processing and Display System (PDS).
- 5.6.5. Launch Correlation Unit (LCU) conference.
- 5.6.6. NORAD Forward Automated Reporting System (NFARS)
- 5.6.7. Hotline phone circuit between the Command Center Missile officer and the NWC.

G. KEITH MCDONALD, Major-General, CF
Director of Operations

DISTRIBUTION: X

NORAD ORGANIZATIONS

| | |
|--|-----|
| ANR/DO/Region NBC Officer (for distribution to ANR Reporting Activities and subordinate units) 5800 G Street STE 130A, Elmendorf AFB, AK 99506-2130..... | 60 |
| FG/CANR HQ, Hornell Heights, Ontario, Canada, P0H 1P0 | 150 |
| (SSO NBC for distribution to CANR Reporting Activities and subordinate units) | |
| HQ CONR, 501 Illinois Ave, STE 2, Tyndall AFB, FL 32403-5010 | 10 |
| NE ADS/DO/DOCN (Sector NBC Officer) 4 Otis Street, Griffiss AFB, NY 13441-4712 | 60 |
| (for distribution to NE ADS Reporting Activities and subordinate units) | |
| WADS/DO/DOCN (Sector NBC Officer) 852 Lincoln Blvd, McChord AFB, WA 98438-1317 ... | 100 |
| (for distribution to WADS Reporting Activities and subordinate units) | |
| SE ADS/DO/DOCN (Sector NBC Officer) 164 Alabama Ave, Tyndall AFB, FL 32403-5015.... | 75 |
| (for distribution to SEADS reporting activities and subordinate units) | |

OTHER UNITS/AGENCIES

| | |
|---|----|
| AFCOS/XOOOBD (for XOO files), Ft Ritchie MD 21719-5010 | 2 |
| CHIEF NMCC, Site R, Ft Ritchie MD 21719 | 4 |
| Commandant, US Army Chemical School/ATZN-CM-NR, Ft McClellan AL 36205 | 1 |
| Commandant (GREP), US Coast Guard, 2100 2nd St SW, Washington DC 20593-0001..... | 20 |
| Commander, Defense General Supply Center, Richmond VA 23297-5000 | 2 |
| Commander, First Coast Guard District/REI, 408 Atlantic Ave, Boston MA 02210-2209..... | 2 |
| Commander, Fifth Coast Guard District, 431 Crawford St, Portsmouth VA 23705..... | 2 |
| Commander, Eighth Coast Guard District, 501 Magazine St, New Orleans LA 70130-3396 | 1 |
| Commander, Eleventh Coast Guard District (RE), 400 Oceangate Blvd, Long Beach | 1 |
| CA 90822-5399 | |
| Commander, Thirteenth Coast Guard District, 915 2nd Ave, Seattle WA 98417 | 1 |
| Commander Forces Command, Ft McPherson GA 30330-6000..... | 3 |
| Commander Naval Base (N3), Bldg 6, Rm 207, Philadelphia PA 19112 | 1 |
| Commander Naval Base (N3D), Charleston SC 294408-5100 | 1 |
| Commander Naval Base Code 3, 937 North Harbor Dr, San Diego CA 92132-5100 | 1 |
| Commander Naval Training Center, Bldg 1, Code N12, Great Lake IL 60088-5000 | 1 |
| Commander Sierra Army Depot, ATTN: SDSSI-MPT, Herlong CA 96113..... | 1 |
| Commander US Army Training and Doctrine Command/ATBO-JOE, Ft Monroe VA 23561 | 3 |
| Commander US Maritime Defense Zone Pacific (N-5), Coast Guard Island, Alameda | 2 |
| CA 94501-5100 | |

| | |
|--|---|
| Defense Nuclear Agency, ATTN: OCOP (JNACC), Washington DC 20305-1000 | 2 |
| FAA Records Center, ADA-2OA, PO Box 437, Martinsburg WVA 25401 | 6 |
| FEMA MWEAC, ATTN: PT-MW-PS, PO Box 129, Berryville VA 22611..... | 8 |
| General Telephone Company, DSN Supervisor, 711 Poplar St, Terre Haute IN 47808 | 1 |
| CF NDHQ/NDOC, 12 CBS MGen George R. Pearkes Bldg, Ottawa, ON Canada K1A 0K2 | 4 |
| HQ ARNG/NGB-ARD, 111 S George Mason Dr, Arlington VA 22204-1382..... | 2 |
| HQ DA/DAMO/ODM, Pentagon BF 746, Washington DC 20310-0440 | 1 |
| HQ First US Army, ATTN: AFKA-RT-UN, Fort George G Meade MD 20755-7000 | 2 |
| HQ Fifth US Army/AFKB-TR-N, Ft Sam Houston TX 78234-7000..... | 4 |
| HQ USAF/XOORB, Washington DC 20330-5054..... | 1 |
| HQ 8AF/DOTS, Barksdale AFB LA 71110-5002 | 2 |
| HQ 14AF/DW, Dobbins AFB GA 30069-5002 | 1 |
| HQ 22AF/DOXS, Travis AFB CA 94535-5002..... | 1 |
| The MITRE Corporation/TRC/D 130 Burlington Rd, Bedford MA 01730 | 1 |
| Martin Lockheed, 225 Research Pkwy, Colorado Springs CO 80920..... | 1 |
| OJCS/J3/STRAT DES, Washington DC20301 | 1 |
| USSOCOM/SOJ3-O, MacDill AFB FL 33608-6001 | 2 |
| US Army War College, ATTN: AWCM-P/COB, Carlisle Barracks PA 17013-5050 | 2 |
| USARDAISA, ATTN: ASND-SR Caller Service 4, Radford VA 24141-0296 | 2 |
| USCINCLANT ABNCP GND, Norfolk VA 23511-5100..... | 5 |
| USCINCLANT/J33B, Norfolk VA 23511-5100 | 5 |
| USCINCPAC/J332, PO Box 13, Camp H.M. Smith HI 96861-5025 | 1 |

GLOSSARY OF TERMS

| | |
|--------------|---|
| ACE | Alternate Command Element |
| ACOC | Air Command Operations Centre (Canadian) |
| AFGWC | US Air Force Global Weather Central |
| AIG | Address Indicator Group |
| AIRCOM | Canadian Forces Air Command |
| ALCM | Air Launched Cruise Missile |
| ANR | Alaskan NORAD Region |
| ANWC | Alternate National Warning Center |
| ARTCC | Air Route Traffic Control Center |
| AUTODIN | Automatic Digital Network |
| BC | Biological and Chemical (BIO/CHEM) |
| BMEWS | Ballistic Missile Early Warning System |
| BSSC | Battle Staff Support Center (NORAD region and or sectors) |
| CANR | Canadian NORAD Region |
| CARDA | Continental Airborne Reconnaissance for Damage Assessment |
| CD | Command Director |
| CDS | Chief of the Defence Staff (Canadian) |
| CDWS | Civilian Defense Warning System |
| CF | Canadian Forces |
| cGy | Centigray (unit of absorbed dose of radiation equal to a rad) |
| CINCFOR | Commander in Chief Forces Command |
| CINCNORAD | Commander in Chief NORAD |
| CMAS | Cheyenne Mountain Air Station |
| CONR | Continental United States NORAD Region |
| CONUS | Continental United States |
| COMEDS | CONUS Meteorological Data Systems |
| DEFCON | Defense Readiness Condition |
| DSN | Defense Switching Network - formerly AUTOVON (in Canada, GP AUTOVON) |
| DT&E | Development, Test and Evaluation |
| ECM | Electronic Countermeasures |
| EDM | Effective Downwind Fallout Message (Federal Emergency Management Agency) |
| FAA | Federal Aviation Administration |
| FAS | Fallout Assessment System |
| FEMA | Federal Emergency Management Agency |
| FLASH NUDET | First nuclear detonation observed and reported using abbreviated format and highest telephone precedence available |
| FM | Field Manual |
| FORWARD TELL | Voice or teletype CCTS for upline reporting |
| GZ | Ground Zero |
| ICBM | Inter-continental Ballistic Missile |
| LERTCON | Alert Condition |
| MACA | Modular Automatic Conference Arranger |
| MCCC | Mobile Consolidated Command Center |
| MOA | Memorandum of Agreement |
| MOU | Memorandum of Understanding |
| MT | Megaton |
| NAFTOC | NORAD Automated FORWARD TELL Output to Canada |
| NAS | NORAD Alerting System |
| NAWAS | National Warning System |
| NBC | Nuclear, Biological, Chemical |
| NBCOC | Nuclear, Biological, Chemical Operations Cell |
| NBCWRS | Nuclear, Biological, Chemical Warning and Reporting System |
| NCA | National Command Authority |
| NCC | NORAD Command Center |
| NCS | NORAD Computer System |
| NEADS | Northeast Air Defense Sector |
| NDHQ | National Defence Headquarters (Canadian) |
| NDOC | National Defence Operations Centre (Canadian) |
| NFARS | NORAD Forward Automated Reporting System |
| NM | Nautical Miles |
| NMCC | National Military Command Center |
| NMWD | NORAD Missile Warning Data |
| NORAD | North American Aerospace Defense |

| | |
|------------|--|
| NOTGT | No-Target Nuclear Detonation |
| NTAS | NORAD Tactical Autovon System |
| NUDAP | Nuclear Detonation Data Point |
| NUDET | Nuclear Detonation |
| NUDIS | NUDET and Damage Information Summary |
| NWC | National Warning Center |
| NWT | Northwest Territories |
| OPREP | Operation Report |
| PACCS | Post Attack Command and Control System |
| POC | Point of Contact |
| RA | Reporting Activity |
| RADMON | Radiation Monitor |
| RAT | Remote Access Terminal |
| RDAISA | Research, Development, and Acquisition Information Systems Agency (Federal Emergency Management Agency) |
| RAOC | Region Air Operations Center |
| SATCOM | Satellite Command Systems |
| SAOC | Sector Air Operations Center |
| SCC | Sub Collection Center |
| SEADS | Southeast Air Defense Sector |
| SFD | Special Facility Division (Federal Emergency Management Agency) |
| SIDAC | Single Integrated Damage Analysis Capability |
| SLBM | Sea-Launched Ballistic Missile |
| SOCC | Sector Operations Control Center |
| SLCM | Sea Launched Cruise Missile |
| SV | Staff Visits |
| TOR | Terms of Reference |
| TTY | Teletype |
| TTY CCT | Teletype Circuit |
| USSPACECOM | United States Space Command |
| USSOCOM | United States Special Operations Command |
| USSTRATCOM | United States Strategic Command |
| VCSL | Voice Call Sign List |
| VECTORS | An insect or other organism that transmits a pathogenic fungus, virus, or bacterium. |
| WADS | Western Air Defense Sector |

**SAMPLE NUDET REPORT AND DIRECTIONS FOR COMPLETION
(NORAD FORM 46)**

| NUDET REPORT | | | |
|---------------------|--|--|--|
| 1 | FIELD (1) _____ N _____ N MESSAGE IDENTIFIER A - ACTUAL X - EXERCISE | (2) _____ REPORTING REGION/SITE IDENTIFIER | (3) _____ REPORT CATEGORY NUDAP - aannn (nudap #) NUDET - NN000 AZIMUTH - ZZnnn (RA Only) |
| 2 | FIELD (4) _____ LATITUDE | (5) _____ W/E LONGITUDE | |
| 3 | FIELD (6) _____ DATE - TIME (Zulu) OF EVENT | (7) _____ REPORT TYPE 0 - SINGLE AIR 3 - MULTIPLE AIR 1 - NEGATE 4 - MULTIPLE AIR SURFACE 2 - SINGLE SURFACE 5 - UNKNOWN 6 - HIGH ALTITUDE EXOATMOSPHERIC NUDET | |
| REMARKS | | | |
| | | REPORTING FACILITY: | RECEIVED BY: |
| | | TRANSMITTED BY: | |

NORAD Form 46, SEP 91 PREVIOUS EDITION IS OBSOLETE

A2.1. General. NORAD Form 46 is the format used within the NBCWRS to report nuclear detonations to selected forward and lateral subscribers (NFARS, NAFTOC, and NUDIS).

A2.2. Basic Information:

| | Field | Range of Values | Amplifying Data |
|---|----------------------|------------------------|------------------------|
| 1 | Message Identifier | ANN | Actual NUDET Report. |
| | | XNN | Exercise NUDET Report. |
| 2 | Reporting Identifier | Z | ANR. |
| | | W | CANR(W). |
| | | S | CANR(E). |
| | | C | SE Sector. |
| | | B | NE Sector. |
| | | R | WAD Sector. |
| | | O | ICE ROCC. |

NOTE: NORAD regions and sectors may have their RAs report their unit identification in Field 2. NORAD region and or sector supplements tell how those units identify themselves.

| | | | |
|---|-----------------|-------|----------------|
| 3 | Report Category | aann | NUDAP NUDET. |
| | | NN000 | NUDET. |
| | | ZZnnn | Azimuth NUDET. |

NOTE: The azimuth NUDET is reported by RAs to the "parent" NORAD region and or sector, but is not normally FORWARD TOLD above that level, it will be converted to a NUDET report by the region or sector. The three "n" characters in Field 3 are the direction of the burst from the observer in degrees True North. Fields 4 and 5 are blank in the azimuth NUDET.

| | | | |
|---|------------------------|----------|--|
| 4 | Latitude of Burst | nnnnN | North latitude in degrees and minutes. |
| 5 | Longitude of Burst | nnnnnE/W | East or West Longitude in degrees and minutes. NOTE: When the NUDAP number and the latitude and longitude are on the same report it is to be classified "SECRET". |
| 6 | Date-Time (Z) of Burst | ddhhmm | |
| 7 | Report Type | 0 | Single air burst. One NUDET on a location. |

| Field | Range of Values | Amplifying Data |
|-------|-----------------|--|
| | 1 | Negate. This is used if previously submitted NUDET report is found to be erroneous. Data reported in all fields must be the same as in the original report except this field. |
| | 2 | Single surface burst. |
| | 3 | Multiple air bursts. More than one air burst occurring within 5 minutes and 10 nautical miles distance of one another. Multiple bursts can only be reported by the RA which reported the first burst. Rationale: RAs do not know where NUDAPS are located. |
| | 4 | Multiple burst, at least one of which is surface. Same criteria as 3 above. |
| | 5 | Unknown. Used when the burst type is unknown since the cloud could not be observed. Treat such bursts as surface bursts for the purpose of fallout prediction. |
| | 6 | High altitude. This is an exoatmospheric sensor-reported NUDET. Reported by HQ NORAD. |

A2.3. Additional Information. Determination of ground zero using flash-to-bang time. If the range to a NUDET cannot be measured directly, that is by radar, then use the true azimuth and flash-to-bang time to determine the NUDET ground zero.

A2.4. Procedures:

A2.4.1. Plot location of observer on a map.

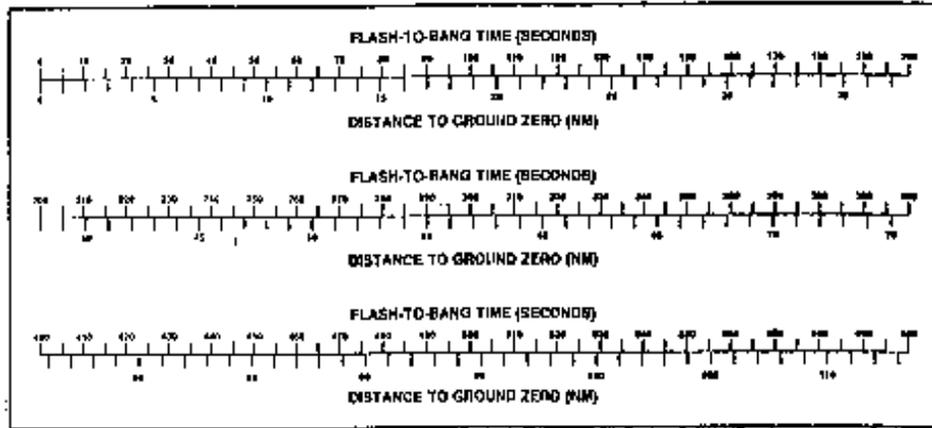
A2.4.2. Draw a line from the observer location on the map in the direction of the NUDET.

A2.4.3. Determine the distance in NM to the NUDET by entering the flash-to-bang time in seconds in Figure A3.1.

A2.4.4. Mark off this distance on the azimuth line from the observer location.

A2.4.5. The resulting coordinates are the NUDET location.

Figure A2.1. Determination Of Ground Zero Using Flash-To-Bang Time.



**SAMPLE ENVIRONMENTAL HAZARD REPORT AND DIRECTIONS FOR COMPLETION
(NORAD FORM 45)**

| ENVIRONMENTAL HAZARD REPORT | | | | |
|------------------------------------|--|--|---|-----------------------------------|
| 1 | FIELD (1) _____ N _____ MESSAGE IDENTIFIER A - ACTUAL C - CHEM X - EXERCISE B - BIO R - RAD | (2) _____ N _____ LATITUDE | (3) _____ W _____ LONGITUDE | |
| 2 | FIELD (4) _____ REPORTING REGION IDENTIFIER | REPORT TYPE I - INITIAL A - AMENDING N - NEGATE | (5) _____ DATE - TIME (Zulu) OF EVENT/READING | (6) _____ INJURED |
| 3 | FIELD (7) _____ DEATHS/DOSE RATE (outside) | (8) _____ CHM/BIO/RAD DESCRIPTOR | (9) _____ SYMPTOMS | (10) _____ BASIS FOR REPORT |
| REMARKS | | | | |
| | | REPORTING FACILITY: | RECEIVED BY: | TRANSMITTED BY: |

A3.1. General. NORAD Form 45 is the format used within the NBCWRS to report biological or chemical events and radiological readings to select forward subscribers (NFARS or NAFTOC).

A3.2. Basic Information:

| Field | Range of Values | Amplifying Data |
|-------|---|--|
| 1 | Message Identifier | ANB ANC ANR XNB XNC XNR Actual Biological Report Actual Chemical Report Actual Radiological Report Exercise Biological Report Exercise Chemical Report Exercise Radiological Report |
| 2 | Latitude of Event | nnnnN North Latitude in Degrees and Minutes |
| 3 | Longitude of Event | nnnnnW/E West or East longitude in Degrees and Minutes |
| 4 | Reporting Region Identifier/Report Type | aa First Character is: Z ANR W CANR(W) S CANR(E) C SE Sector B NE Sector R WAD Sector O ICE ROCC G Thule Greenland Second Character is: I Initial Report A Amending Report Amending BC reports should indicate the same date-time group in field 5 as initially reported. Amending reports are not used to correct erroneous data, negate that report and forward a new initial report with the correct data. There are no amending RADMON reports. |
| 5 | Date-Time Group (Z) Event/Reading | ddhhmm |
| 6 | Injured | nnnn Casualties EXCLUDING DEATHS resulting from BC events or radiation. |
| 7 | Deaths/Dose Rate | nnnn For BC reports this is resulting deaths; for radiological reports this is the OUTSIDE dose rate. |
| 8 | BIO/CHEM/RAD | naa Use the following descriptor Descriptor codes: <u>BIO Descriptors:</u> 2BA Unknown agent 3BA Water contamination |

| Field | Range of Values | Amplifying Data |
|------------|------------------|---|
| | 4BA | Food contamination |
| | 5BA | Unusual disease |
| | 5BB | Unusual frequency of disease |
| | 6BA | Unusual insect concentration |
| | 6BB | Unusual substances on the ground or vegetation |
| | 7BA | Increased number of sick or dead animals |
| | 7BB | Appearance of shrunken or diseased crops |
| | 8BA | Unusual devices for dissemination of insects or small animals |
| | 8BB | Unusual aerosol disseminating devices |
| | | <u>CHEM Descriptors:</u> |
| | 2CA | Unk, nonpersistent |
| | 2CB | Unk, persistent |
| | 2CC | Unk, persistency not determined |
| | 3CA | Blood agent |
| | 4CA | Blister agent |
| | 5CA | Nerve agent, nonpersistent |
| | 5CB | Nerve agent, persistent |
| | 6CA | Tear, vomiting, or incapacitating agent |
| | | <u>cGy Descriptors:</u> |
| | 2RA | Initial reading |
| | 3RA | Increasing radiation |
| | 3RB | Decreasing radiation |
| | 4RA | Peak dose rate |
| | Blank | Not reported |
| 9 | Symptoms | naa |
| | | This field is used only for BIO and CHEM reports |
| | | <u>Symptom Descriptors:</u> |
| | 2SA | Blisters |
| | 2SB | Swelling or discoloration of skin |
| | 3SA | Paralysis |
| | 3SB | Gastrointestinal |
| | 4SA | Tightness of chest |
| | 4SB | Respiratory difficulty |
| | 5SA | Pinpointed pupils |
| | 5SB | Fever |
| | 6SA | Convulsions |
| | 6SB | Malaise |
| | 7SA | Skin reaction |
| | 8SA | Mental disorientation or hallucinations |
| | | Blank Not reported |
| 10 CHEM | Basis for Report | naa |
| | | Use this field only for BIO and reports |
| | | <u>Report Descriptors:</u> |
| | 2FA | Covert dissemination |
| | 2FB | Covert dissemination suspected |

| Field | Range of Values | Amplifying Data |
|-------|-----------------|---|
| | 3FA | Aerial dissemination |
| | 3FB | Aerial dissemination suspected |
| | 4FA | Agent detected by detection kit |
| | 4FB | Agent identified by detection kit |
| | 5FA | Agent identified by lab or medical doctor |
| | Blank | Not reported |

A3.3. Additional Information. Remarks - Pass over telephone any explanatory remarks which cannot be translated into these codes.

**SAMPLE GLASSEYE REPORT AND DIRECTIONS FOR COMPLETION
(NORAD FORM 60)**

| GLASSEYE REPORT | | |
|---|-------------------------|--------------|
| ITEM 1: MISSION IDENTIFIER | _____ | _____ |
| ITEM 2: DATE - TIME (ZULU) OF OBSERVATION | _____ | _____ |
| ITEM 3: GROUND ZERO: LATITUDE | _____ | _____ N |
| LONGITUDE | _____ | _____ W/E |
| PLACE NAME | _____ | |
| ITEM 4: RADIUS OF DAMAGE: | _____ | _____ |
| | MILES | 10THS |
| ITEM 5: CRATER | _____ (NO - 0, YES - 1) | |
| ITEM 6: REMARKS | _____ | |
| | _____ | |
| | _____ | |
| | _____ | |
| | AIRCRAFT CALL SIGN: | RECEIVED BY: |
| | GLASSEYE SENT BY: | |

NORAD FORM 60, SEP 92 PREVIOUS EDITION IS OBSOLETE

A4.1. General. The GLASSEYE report is an aircrew voice report describing, in narrative form, observed post-attack battle damage. This information is passed to a NORAD NBCOC which formats the information into a CARDA report. The CARDA report can then be FORWARD TOLD via ROCC and SOCC FORWARD TELL lines and NFARS and NAFTOC teletype circuits.

A4.2. Basic Information:

| Field | Range of Values | Amplifying Data |
|--------------------------------------|--|---|
| 1 Mission Identifier | acccc | <p>First Character is:</p> <p>Z ANR W CANR(W) S CANR(E) C SE Sector B NE Sector R WAD Sector P USSTRATCOM post-attack command and control aircraft</p> <p>Last four characters are a combination of letters and numbers which represent the mission identifier and are provided by the reporting aircraft.</p> |
| 2 Date-time Group (Z) of Observation | ddhhmm | |
| 3 Ground Zero: Latitude | nnnnN | North latitude in degrees and minutes |
| Longitude | nnnnnW/E | West or East longitude in degrees and minutes |
| Place Name | | Name of observed location (if known) |
| 4 Radius of Damage | nnn | Radius of damage in NM and tenths of mile |
| 5 Crater | 0 1 Blank | No crater exists Crater exists No data available |
| 6 Visual Description | A thru H as appropriate | Pilots provide a brief damage summary in the applicable categories. |
| | A Airfields B Major Highways C Railroads D Ports E Military F Industrial Complex G Population Centers H | Condition of runway Physical condition and traffic Conditions of mainlines and switching yards Visible channel obstructions; ships sunk at docks Damaged communications (yes Installations or no), evacuated Visual Damage Damage, fires, floods, etc. Other Significant damage |

**SAMPLE CARDA REPORT AND DIRECTIONS FOR COMPLETION
(NORAD FORM 56)**

| CARDA REPORT | | | | |
|---------------------|---|--|--|---|
| 1 | FIELD (1) _____ DATA BASE INDICATOR A - ACTUAL X - EXERCISE | (2) N G MESSAGE INDICATOR A - ACTUAL CARDA MSG X - EXERCISE CARDA MSG | (3) _____ SOURCE IDENTIFIER (ROCC/SOCC) FACILITY IDENTIFIER | |
| 2 | (4) _____ DTG (ZULU) OF OBSERVATION | (5) _____ N _____ LATITUDE | (6) _____ W/E _____ LONGITUDE | (7) _____ . _____ DAMAGE RADIUS (NM) |
| 3 | (8) _____ CRATER 0 - NO 1 - YES BLANK - NO DATA | (9) _____ REMARKS | (10) _____ REMARKS | (11) _____ PLACE NAME - UP TO 12 CHARACTERS BLANK - NO TARGET WITHIN DAMAGE AREA |
| REMARKS | | | | |
| | | REPORTING FACILITY: | RECEIVED BY: | TRANSMITTED BY: |

A5.1. General. The purpose of the CARDA report is to provide an initial estimate of post-attack damage to civil and military authorities. Narrative pilot reports (GLASSEYE reports) are converted by NORAD NBCOCs to the CARDA report format.

A5.2. Basic Information:

| Field | Description | Amplifying |
|-------|------------------------------------|--|
| 1 | Data Base indicator | A Actual message X Exercise message |
| 2 | Message Identifier | ANG - Actual CARDA message XNG - Exercise CARDA message |
| 3 | Source or Tasking Identifier | Wcccc- First letter is region or sector identifier (see para A6.2., Field 1). The last four characters are the flight track number. ddhhmm |
| 4 | Date-time Group (Z) of Observation | |
| 5 | Latitude | North degrees Latitude |
| 6 | Longitude | West/East degrees Longitude |
| 7 | Damage Radius in NM | 093- The first two characters in miles, and the third character is tenths of mile |
| 8 | Crater Indication | 0 - No crater 1 - Crater exists |
| 9,10 | Remarks | Blank - No data available The following description codes are used in these two fields: YAD Debris on runway YAN Runway cratered YCC Aircraft crash on runway YHD Explosions YHF Fires or firestorms YHG Flood YHH Fire (general) YHN NBC hazard YOA No communications with ground facility YOD Massive damage observed YOE Light damage observed YON No damage to military or industrial facilities observed YOR Heavy traffic out of damage area YOV Visibility limited by smoke or haze YOX Destroyed YOY NUDET YYE Installation evacuated or abandoned |
| 11 | Blank Place Name | No remarks Target identified by lat/long or closest target within damage radius. |
| | Blank | No targets are within area. |

A5.3. Narrative Comments. Enter any appropriate remarks here.

NORAD FORWARD AUTOMATED REPORTING SYSTEM (NFARS)

A6.1. General. The NFARS circuit is in continuous operation. Subscribers are not required to have their terminal switched on at all times. Subscribers must activate their equipment upon notification of a defense readiness condition (DEFCON) 3 or higher alert condition (LERTCON) or when directed by CINCNORAD. Routine tests of the circuits will be conducted between HQ NORAD and subscribers.

A6.2. Subscribers:

A6.2.1. NMCC, Site R, Ft Ritchie, MD.

A6.2.2. Commander in Chief Special Operations Command (USSOCOM), MacDill AFB, FL.

A6.2.3. FEMA Special Facility Division (FEMA/SFD), Berryville, VA.

A6.2.4. USA Research and Development and Acquisition Information Systems Activity (USAARDAISA), Radford VA.

A6.2.5. Federal Aviation Administration (FAA) Records Center, Martinsburg, WV.

A6.2.6. USA Forces Command (FORSCOM), Ft McPherson, GA.

A6.2.7. USA Training and Doctrine Command (TRADOC), Ft Monroe,

A6.2.8. * US Atlantic Command (USACOM), Norfolk, VA.

NOTE: USACOM is currently not on the circuit; however following installation of the Granite Sentry computer system upgrade, they will receive NFARS data.

A6.3. Output Messages. The following messages may be transmitted over NFARS:

A6.3.1. FORWARD-TELL Summary Report

A6.3.2. NUDET Report

A6.3.3. NEGATE NUDET Report

A6.3.4. RETELL NUDETS

A6.3.5. Environmental Hazard Report

A6.3.6. NUDET Target Place Name Report

A6.3.7. CARDA Report

A6.3.8. Line Check

NOTES: 1. Complete operational specifications for these output messages are found in Technical Publications (TP) NCS 60-1 for the NORAD Computer System.
2. In case of circuit failure, contact your unit maintenance representative who should contact 721 SPCS/SCOT at NORAD, DSN 268-4655.

A6.4. Output Message Formats:

A6.4.1. FORWARD TELL Summary Report:

A6.4.1.1. Purpose. This report transmits missile warning information derived from NORAD's ballistic missile detection systems. Transmits on change of data, but not more often than once each 5 minutes. Output is to NFARS.

A6.4.1.2. Format:

| | |
|--------|-------------|
| Line 1 | X |
| Line 2 | Time 260745 |
| Line 3 | CAV T/RPT |
| Line 4 | BMEW T/RPT |

Line 5 SLBM T/RPT
 Line 6 SHY T/RPT
 Line 7 UK T/RPT
 Line 8 CAV NYI 0001/TTG 00
 Line 9 BMEW NYI 0022/TTG 00
 Line 10 SLBM NYI 0032/TTG 00
 Line 11 SHY NYI 0014/TTG 00

A6.4.1.3. Format Explanation:

| Line | Description | Amplifying Data |
|------|--|----------------------------|
| 1 | Data Type | A - Actual X - Exercise |
| 2 | Time of Message | Date Time Group (Z) |
| 3 | Cavalier Test Report | T - Test, R - Real |
| 4 | Ballistic Missile Early Warning Test Report | T - Test, R - Real |
| 5 | Sea Launch Ballistic Missile Test Report | T - Test, R - Real |
| 6 | Shemya Test Indicator System Report | T - Test, R - Real |
| 7 | United Kingdom Test Indicator | T - Test, R - Real |
| 8 | Cavalier Not Yet Impacted Number of Missiles | CAV NYI 0001 |
| 9 | Time To Go Till Next Impact BMEWS Not Yet Impacted Number of Missiles | TTG 00 BMEWS NYI 0022 |
| 10 | Time To Go Till Next Impact SLBM Not Yet Impacted Number of Missiles | TTG 00 SLBM NYI 0032 |
| 11 | Time To Go Till Next Impact Shemya Not Yet Impacted Number of Missiles | TTG 00 SHY NYI 0014 |
| | Time To Go Till Next Impact | TTG 00 |

A6.4.2. NUDET Report:

A6.4.2.1. Purpose. This report indicates where a NUDET has occurred.

A6.4.2.2. Format:

X/0303/R/AD501/4035N/12300W/131700/0/Anywhere/101/010232
 1 2 3 4 5 6 7 8 9 10 11

A6.4.2.3. Format Explanation:

| Field | Range of Values | Amplifying Data |
|-------|-------------------------------------|---|
| 1 | Data Base Indicator | A Actual X Exercise |
| 2 | Sequence Number (computer assigned) | NUDET Sequence Number (2000 Maximum) |
| 3 | Region or Sector Identifier | W CANR(W) S CANR(E) C SE Sector B NE Sector R WAD Sector Z ANR |
| 4 | Target Number or NOTGT | NUDAP Number or Not a NUDAP Target |
| 5 | Latitude | Latitude of Burst |
| 6 | Longitude | Longitude of Burst |

| Field | Range of Values | Amplifying Data |
|--------|--|--|
| 7 8 | Date Time Group (Z) of Burst Message Type | 010000 - 312359 0 Single Air Burst 1 Negate NUDET 2 Single Surface Burst 3 Multiple air burst 4 Multiple Burst, at least one Surface 5 Unknown 6 High altitude |
| 9 | Place Name NOTGT UPDATE | Up to 12 Alpha Characters Target Identifier Unknown Update of Message Type from field 8. |
| 10 | Yield | 000-999 Event in Kilotons. Character 1/2 = Number. Character 3 = Exponent in power of 10. |
| 11 | Altitude | First Character is the Sign. 0 = Positive. 1 = Negative. Second thru Fifth Character is the Mantissa. 0000 to 1023. Sixth Character is the Exponent of Ten. 0 to 7. Example: 010232 = +1023 x 10 ² . Altitude is Unknown. |
| | UNK | |

A6.4.3. NEGATE NUDET Report:

A6.4.3.1. Purpose. This report cancels a previously transmitted NUDET report.

A6.4.3.2. Format:

```
X/0100/W/AR105/5008N/11050W/NEGATE
 1  2  3  4      5      6      7
```

A6.4.3.3. Format Explanation:

| Field | Description | Amplifying Data |
|-------|--------------------------|---|
| 1 | Data Base Indicator | A Actual Message X Exercise |
| 2 | Sequence Number | 0100 - NUDET report being canceled. |
| 3 | Region/Sector Identifier | W CANR(W) (for other designators see para A6.4.2.3. field 3). |
| 4 | Target Number | NUDAP Number. |
| 5 | NOTGT | Not a NUDAP Target. |
| 6 | Latitude | Latitude of Burst. |
| 7 | Longitude | Longitude of Burst. |
| 7 | Negate Indicator | Target has been Negated. |

A6.4.4. RETELL NUDETS:

A6.4.4.1. Purpose. This message is used to RETELL NUDAP NUDETS by block, region or sector, NUDAP class, radius from a specific point in lat/long and by single NUDAP. In the RETELL process, NUDETS are retold in groups of six.

A6.4.4.2. Format. One of these messages appears followed by the NUDET to be retold.

A6.4.4.2.1. RETELL NUDETS nnnn THRU nnnn (block option).

A6.4.4.2.2. RETELL NUDETS a Region or Sector (region or sector option).

A6.4.4.2.3. RETELL NUDETs aa CLASS (prefix option).

A6.4.4.2.4. RETELL NUDETs nn NM RAD nnnnN/nnnnnW (correlation option).

A6.4.4.2.5. RETELL NUDET aa nnn (specific NUDET option).

A6.4.5. Environmental Hazard Report.

A6.4.5.1. Purpose. The Environmental Hazard Report contains information concerning environmental hazards resulting from an event involving biological agents, chemical agents, or radiological contamination. This information comes from Environmental Hazard Reports submitted to HQ NORAD from external sources.

A6.4.5.2. Format:

ANB/ANDREWS/CA/012345/9999/1234/2BA/3SA/2FA/S
 1 2 3 4 5 6 7 8 9 10

A6.4.5.3. Format Explanation:

| Field | Description | Amplifying Data |
|-------|------------------------------|---|
| 1 | Message Identifier | ANB Actual Biological Report ANC Actual Chemical Report XNR Actual Radiological Report XNB Exercise Biological Report XNC Exercise Chemical Report XNRExercise Radiological Report Place name up to 10 Characters First letter is the Region/Sector: W CANR(W) S CANR(E) C SE Sector B NE Sector R WAD Sector Z ANR G Thule Greenland O Iceland Second letter is report type: I Initial Report A Amending Report. Amending BIO/CHEM reports should indicate the same DTG in field 4 as initially reported. Amending reports are not used to correct erroneous information previously reported. If a report is found to contain erroneous data, negate the report and forward a new initial report. There are no amending RADMON reports. N Negate Report. A negate report deletes the initial and all amending reports. |
| 2 | Location Affected by Hazard | |
| 3 | Reporting Region/Report Type | |
| 4 | Date-Time(Z) of Observation | 010000-312359 |
| 5 | Injured | Injured excluding deaths resulting from BIO/CHEM events or radiation (four characters). |

| | | |
|--------------|-------------------------------|---|
| 6 | Death/Dose Rate | BIO/CHEM reports with resulting deaths or radiological reports of the outside dose rate (four characters). |
| 7 | BIO/CHEM/RAD Descriptor | Use only the following codes: <u>BIO Descriptors:</u> 2BA Unknown agent 3BA Water contamination 4BA Food contamination 5BA Unusual disease 5BB Unusual frequency of disease 6BA Unusual insect concentration 6BB Unusual substance on the ground or vegetation 7BA Increased number of sick or dead animals 7BB Appearance of shrunken or diseased crops 8BA Unusual devices for dissemination of insects or small animals 8BB Unusual aerosol disseminating devices <u>CHEM Descriptors:</u> 2CA Unknown, nonpersistent 2CB Unknown, persistent 2CC Unknown, persistency not determined 3CA Blood agent 4CA Blister agent 5CA Nerve agent, nonpersistent 5CB Nerve agent, persistent 6CA Tear/vomiting (incapacitating) agents <u>RAD Descriptors:</u> 2RA Initial reading 3RA Increasing radiation 3RB Decreasing radiation 4RA Peak dose rates |
| 8 | Symptoms discoloration | Use only the following codes: 2SA Blisters 2SB Swelling or of skin 3SA Paralysis 3SB Gastrointestinal |
| Field | Description | Amplifying Data 4SA Tightness of chest 4SB Respiratory difficulty 5SA Pinpointed pupils 5SB Fever 6SA Convulsions 6SB Malaise 7SA Skin reaction |

| | | | |
|----|------------------|-------|---|
| | | 8SA | Mental disorientation or hallucinations |
| 9 | Basis for Report | | Use only the following codes: |
| | | 2FA | Covert dissemination |
| | | 2FB | Covert dissemination suspected |
| | | 3FA | Aerial dissemination |
| | | 3FB | Aerial dissemination suspected |
| | | 4FA | Agent detected by detection kit |
| | | 4FB | Agent identified by detection kit |
| 10 | Assessment | 5FA | Agent identified |
| | | S | BIO/CHEM suspected |
| | | C | BIO/CHEM confirmed |
| | | Blank | N/A to RADMON reports |

NOTE: Field 2 contains the translated, abbreviated place name as correlated with the GEOLOC file. If the location does not correlate with the GEOLOC file and the location was not updated, then the place name is left blank.

A6.4.6. NUDET Target Place Name Report:

A6.4.6.1. Purpose. This report provides place names for those nuclear detonations which are reported with no NUDAP numbers for FORWARD TELL. The reports shall not interrupt normal output and may be sent after all NUDET reports have been FORWARD TOLD. Since the output has to be entered manually, the report is seldom used.

A6.4.6.2. This report shall only be FORWARD TOLD over NFARS.

A6.4.6.3. Format:

X/0021/PITTSBURGH PA
 1 2 3

| Field | Description | Amplifying Data |
|-------|---------------------|---|
| 1 | Data Base Indicator | A Actual message X Exercise message |
| 2 | Sequence Number | NUDET sequence number (2000 Maximum) |
| 3 | Place Name | Location of NUDET |

A6.4.7. CARDA Report:

A6.4.7.1. Purpose. The CARDA report contains information concerning the visual appearance of military installations, harbors, cities, and industrial complexes after a nuclear burst has occurred in the vicinity. This information comes from narrative reconnaissance (GLASSEYE) reports provided by aircraft which fly over specified locations shortly after an attack.

A6.4.7.2. Format:

X/XNG/WT01B/121230/4735N/11040W/123/1/YHD/YHG/SOMEWHERE
 1 2 3 4 5 6 7 8 9 10 11

A6.4.7.3. Format Explanation:

| Field | Description | Amplifying Data |
|-------|---------------------|--|
| 1 | Data Base Indicator | A Actual message X Exercise message |
| 2 | Message Identifier | ANG Actual CARDA message XNG Exercise CARDA message |

| | | |
|------|------------------------------|--|
| 3 | Source or Tasking Identifier | First letter is region or sector identifier (see para A6.4.5.3., field 3) or P for PACCS aircraft; last four characters are the facility identifier. |
| 4 | DTG of Observation | 010000 - 312359 |
| 5 | Latitude | Latitude of burst |
| 6 | Longitude | Longitude of burst |
| 7 | Damage radius | First two characters are in NM, last character is tenths of NM. |
| 8 | Crater Indication | 0 No crater 1 Crater exists |
| 9,10 | Remarks | Blank No data available The following codes are used in these two fields: |
| | | YAD Debris on runway |
| | | YAN Runway cratered |
| | | YCC Aircraft crash on runway |
| | | YHD Explosions |
| | | YHF Fires out of control or firestorms |
| | | YHG Flood |
| | | YHH Fire (general) |
| | | YHN NBC hazard |
| | | YOA No communications with ground facility |
| | | YOD Massive damage observed |
| | | YOE Light damage observed |
| | | YON No damage to military or industrial facilities |
| | | YOR Heavy traffic out of damage area |
| | | YOV Visibility limited by smoke or haze |
| | | YOX Destroyed |
| | | YOY NUDET |
| | | YYE Installation evacuated or abandoned |
| 11 | Blank Place Name | No remarks Target identified by lat/long or closest target within damage radius (up to |
| 12 | Blank | characters) No targets are within damage radius |

NOTE: The characters in Field 3 can be alpha or numeric character.

A6.4.8. Line Check:

A6.4.8.1. Purpose. This message contains the words "line check" and the system clock time. Messages are output over NFARS every 5 minutes when no data has been transmitted during the preceding 5 minutes. Tests of the line check can be routinely conducted as prescribed in local procedures.

A6.4.8.2. Format:

LC/LINE CHECK/2145

NORAD AUTOMATED FORWARD TELL OUTPUT TO CANADA (NAFTOC)

A7.1. General. The NAFTOC system is activated when directed by CINCNORAD. Outputs are tailored to meet the requirements of the Canadian Forces under normal peacetime conditions and in times of emergency.

A7.2. Subscribers:

- A7.2.1. National Defence Operations Centre (NDOC), Ottawa, Ontario Canada.
- A7.2.2. CF Air Command Operations Centre (ACOC), Winnipeg, Manitoba Canada.
- A7.2.3. Canadian NORAD Region (CANR), North Bay, Ontario Canada.

A7.3. Output Messages. The following messages may be transmitted over NAFTOC:

- A7.3.1. NORAD missile warning data.
- A7.3.2. NUDET report.
- A7.3.3. Negate NUDET report.
- A7.3.4. Surveillance message.
- A7.3.5. Environmental Hazard Report.
- A7.3.6. RETELL NUDETS.
- A7.3.7. Canadian NCA Target Tactical Warning Message.
- A7.3.8. Line Check.

NOTE: Complete operational specifications for these output messages are found in TP NCS 60-1 Volumes III and VII (Technical publication for the NORAD Computer System).

A7.4. Output Message Formats:

A7.4.1. NORAD Missile Warning Data (NMWD):

A7.4.1.1. Purpose. The NMWD message contains an indication that an ICBM or SLBM attack situation exists and activates a bell at the receiving terminals. This message is generated upon changes to any field but not more than once each minute.

A7.4.1.2. Format:

NMWD/T/2045Z/1/H/0001/0003/15\$
 1 2 3 4 5 6 7 8

A7.4.1.3. Format Explanation:

| Field | Description | Amplifying Data |
|-------|----------------------|--|
| 1 | Message Indicator | NMWD |
| 2 | Real/Test Indicator | R Real T Test |
| 3 | DTG(Z) | 2045Z |
| 4 | Spare | Not Used |
| 5 | CINCNOAD Assessment | Δ No Value H High M Medium N No Confidence C Concern D Domestic |
| 6 | Total ICBMs | 0001 |
| 7 | Total SLBMs | 0003 |
| 8 | Time to First Impact | 00-99 Minutes before Impact |

NOTE: The \$ sign indicates end of message.

A7.4.2. NUDET Report. This report contains information concerning NUDETs on the North American Continent reported through the NORAD NBCWRS. All NUDETs occurring north of or on the 38th parallel of latitude are FORWARD TOLD. For an example of the NUDET report format and explanation see paragraph A2.2.

A7.4.3. NEGATE NUDET Report. See paragraph A6.4.3. for NEGATE NUDET report format and explanation.

A7.4.4. Surveillance Message:

A7.4.4.1. Purpose. Use this message to report track information. It is output upon receipt of a new track or change to an existing track.

A7.4.4.2. Format:

```

LINE 1 TRK/X/P/RF001/0019/5017N,11245W/AP
      1 2 3 4 5 6 7
LINE 2 018/0010/05/01/00/00$
      8 9 10 11 12 13

```

A7.4.4.3. Format Explanation:

| Field | Description | Amplifying Data |
|-------|-----------------------------------|---|
| 1 | Message Indicator | TRK |
| 2 | Data Base Indicator | A Actual X Exercise H Hostile U Unknown K Faker S Special P Pending |
| 3 | Track Classification | |
| 4 | Reporting Source and Track Number | RF001 |
| 5 | DTG(Z) of Report | 0019(Z) |
| 6 | Location (lat/long) | 5017N,11245W |
| 7 | Other Actions | First Character is: A Active N No data S Simulated Second Character is: E ECM track F Friendly M Maneuvering H High mach X High mach and maneuvering R Request (cease tell) S Spawned from another |
| track | | D Military decision K Splash Z Spawning to another track P Passed to adjacent region C Clear DP Dropped No additional information available |
| | Blank | |

| Field | Description | Amplifying Data |
|-------|-------------------------------|---|
| 8 | Course (10 degree increments) | 000 - 360 (3 digits) |
| 9 | Speed (10 knot increments) | 0000 - 5100 (4 digits) |
| 10 | Altitude | 01 - 99 (thousands of feet) |
| 11 | Flight Size | 00 - 99 |
| 12 | Weapons Committed | 00 - 99 Number of weapons committed on this track |
| | | AD Action deferred |
| | | NF No fighter in suitable location |
| | | NR Not required |
| | | OR Out of range |
| | | WX Weather |
| 13 | Kills Reported | 00 - 99 Number of kills reported on this track |
| | \$ | End of message |

A7.4.5. Environmental Hazard Report:

A7.4.5.1. Purpose. The Environmental Hazard Report contains information concerning environmental hazards resulting from an event involving Biological agents, Chemical agents, or Radiological contamination. This information comes from Environmental Hazard Reports submitted to HQ NORAD from external sources. For an example of the Environmental Hazard Report format and explanation, see paragraph A3.2.

A7.4.6. RETELL NUDETs. See paragraph A6.4.4. for format and explanation.

A7.4.7. Canadian NCA Target Tactical Warning Message:

A7.4.7.1. Purpose. This teletype output message contains warning data of a missile predicted to impact on a Canadian NCA target. It transmits a message for each missile predicted to impact upon a Canadian NCA target.

A7.4.7.2. Format:

```

CAN NCA/T/2045Z/SHY//12/$
  1   2   3   4   6 7
    
```

A7.4.7.3. Format explanation:

| Field | Description | Amplifying Data |
|-------|----------------------|-----------------------------|
| 1 | Message Identifier | CAN NCA |
| 2 | Real/Test Indicator | R Real T Test |
| 3 | DTG (Z) | nnnnZ |
| 4 | Reporting System | BMEWS SLBM CAV SHY |
| 5 | Time to go to Impact | 00 -59 minutes |
| 6 | \$ | End of message |

A7.4.8. Line Check. See paragraph A6.4.8. for format and explanation.

NUDET AND DAMAGE INFORMATION SUMMARY (NUDIS)

A8.1. General. The NUDIS report is a NUDET or CARDA summary message generated by the NCS and transmitted over AUTODIN teletype circuits. The messages are sent to subscribers at FLASH precedence (actual) or IMMEDIATE precedence (exercise). The report is transmitted periodically after the initiation of nuclear warfare. The prime purpose of the NUDIS report is to FORWARD TELL information concerning nuclear events, NUDETs, and subsequent damage reports within the North American Continent to all interested agencies having a need for the information, but who are not subscribers to NFARS and NAFTOC.

A8.2. Message Output. Each NUDIS message contains either NUDET or CARDA messages, but never a mix of both. Upon commencement of an enemy nuclear attack, the NCS buffers (stores) upwards of 25 NUDETs then automatically generates a NUDIS message to subscribers via AUTODIN teletype. If after 15 minutes have elapsed, and less than 25 NUDETs have accumulated in the buffer, the NCS automatically generates a NUDIS AUTODIN message with the stored NUDETs (1 to 24 NUDETs). The operation is similar for CARDA messages except that the NCS generates a NUDIS CARDA message with only 10 reports in the buffer. A NUDIS CARDA message is generated by the NCS with less than 10 reports if 15 minutes have elapsed since the preceding NUDIS CARDA message.

A8.3. Subscribers. Address Indicator Group (AIG) 8759 comprises a list of subscribers who receive the NUDIS reports during an attack. NUDIS messages containing NUDET or CARDA summaries are classified SECRET and should be handled accordingly.

A8.4. Reading a NUDIS NUDET Message:

A8.4.1. Format:

```
X/008/ /3Q015/3870N/09800W/211317/0/ANYWHERE/010/010232$
 1  2  3  4  5  6  7  8  9  10  11
```

A8.4.2. Format explanation:

| Field | Description | Amplifying Data |
|-------|-------------------------------|--|
| 1 | Data Base Indicator | A Actual message X Exercise message |
| 2 | NUDET Sequence Number | 0001 - 2000 |
| 3 | Region Identifier | For NUDETS reported by RAOCs/SAOCs(see Attachment 3 for region/sector letter designators) |
| | Blank | NUDET reported by Automatic Sensor system (normal means of receiving NUDET reports) |
| 4 | Target Number | 3Q015. Five characters given to areas considered to be of value as targets |
| | NOTGT | Detonation occurred outside of the NUDAP target areas |
| 5 | Latitude | Latitude of burst |
| 6 | Longitude | Longitude of burst |
| 7 | DTG (Z) | Time of burst |
| 8 | Message Type | 0 - 6 See paragraph A6.3 for a description of message types |
| 9 | Place Name NOTGT UPDATE | Up to 12 characters Target identifier is unknown Indicates this NUDET is an update of message type, field 8 |
| 10 | Yield | 000 -999 Yield in Kilotons, third character identifies the exponent in power of 10 |

| Field | Description | Amplifying Data |
|-------|-------------|--|
| 11 | Altitude | 110237 - 010237 Altitude of burst, see para A8.4.2.3., field 8, for a description of characters UNK Altitude is unknown End of message |
| | \$ | |

NOTE: In the event the NUDIS NUDET report is a NEGATE NUDET report, fields 8 thru 11 are omitted. If it is a NUDIS NUDET target place name report, fields 4 thru 11 are omitted.

A8.5. Reading a NUDIS CARDA Message:

A8.5.1. Format:

X/XNG/BSPBN/111400/4250N/11245W/0111/1/YAD/YHF/ANYWHERE\$
 1 2 3 4 5 6 7 8 9 10 11

A8.5.2. Format explanation:

| Field | Description | Amplifying Data |
|---------|-----------------------|--|
| 1 | Data Base Indicator | A Actual X Exercise |
| 2 | Message Indicator | ANG Actual CARDA message XNG Exercise CARDA |
| message | | |
| 3 | Source Identifier | Identifies the region/sector submitting the report and the facility identifier. First character is region/sector: Z ANR W CANR(W) S CANR(E) C SE Sector B NE Sector R WAD Sector O Iceland P STRATCOM post-attack command and control aircraft. The last four characters represent the facility identifier. (Reference GEOLOC location code catalog). |
| 4 | DTG(Z) of Observation | Time of observation |
| 5 | Latitude | Latitude of burst |
| 6 | Longitude | Longitude of burst |
| 7 | Damage Radius | nnn Radius of damage in miles and tenths of mile. (999 indicates damage radius is unknown). |
| 8 | Crater Indication | 0 No crater exists. 1 Crater exists. |
| | Blank | No data available. |
| 9,10 | Remarks | Use the following codes: YAD Debris on runway. YAN Runway cratered. YCC Aircraft crash on runway. YHD Explosion. |

| Field | Descriptor | Amplifying Data |
|-------|---------------------|--|
| 11 | Blank Place Name | YHF Fires out of control or fire storms. YHG Flood. YHH Fire (general). YOA No communications with ground. YOD Massive damage observed. YOY Light damage observed. YON No damage to military or industrial facilities observed. YOR Heavy traffic out of damage area. YOY Visibility limited by smoke or haze. YOX Destroyed. YOY NUDET. YYE Installation evacuated or abandoned. No remarks. Target correlated to lat/long given, or the closest target within the damage radius. No targets within the damage area. End of message. |
| | Blank | |
| | \$ | |

NFARS BACK-UP VOICE TELL AND ASSOCIATED USERS SYSTEM

A9.1. General. Should the NFARS or NAFTOC teletype output from the CMAS fail during an enemy attack, a back-up VOICE TELL system can be activated to provide subscribers with NUDET and CARDA reports. The system is activated by accessing the NORAD Tactical DSN System at FLASH precedence. Refer to the AFKAI-1 voice call sign list (VCSL) to determine the daily call signs for the airborne command posts noted below. The seven digit telephone number used to establish the conference loop is in place at each Region or Sector NBCOC.

A9.2. Subscribers:

- A9.2.1. National Military Command Center, Site R, Ft Ritchie, MD.
- A9.2.2. * National Emergency Airborne Command Post (VCSL), Offutt AFB, NE.
- A9.2.3. Army Operations Group (Army Ops GP), Carlisle Barracks, PA.
- A9.2.4. HQ USSTRATCOM, Offutt AFB, NE.
- A9.2.5. * USSTRATCOM Airborne Command Post (VCSL), Offutt AFB, NE.
- A9.2.6. Commander in Chief US Atlantic Command (USCINCLANT), Norfolk, VA.
- A9.2.7. * USCINCLANT Airborne Command Post (VCSL), Norfolk, VA.
- A9.2.8. FEMA Special Facility Division (FEMA/SF), Berryville, VA.
- A9.2.9. FEMA Federal Support Center, Gaithersburg, MD.
- A9.2.10. Federal Aviation Administration (FAA), Martinsburg, WV.
- A9.2.11. US Army Forces Command (FORSCOM), Ft McPherson, GA.
- A9.2.12. National Defence Operations Centre (NDOC), Ottawa, Ont, Canada.

A9.3. Communications Check Procedures:

A9.3.1. The designated NORAD Region or Sector NBCOC obtains call signs for the starred (*) subscribers in paragraph A10..2. from the current edition of the AFKAI-1 VCSL.

- A9.3.1.1. NEACP, Block 1001, Line 4, JCS.
- A9.3.1.2. USSTRATCOM/ABNCP, Block 1015, Line 0, C - USSTRATCOM.
- A9.3.1.3. USCINCLANT/ABNCP, Block 1006, Line 0, C - C-LANT.

A9.3.2. The call signs obtained are used to contact the airborne command posts. In all other cases, the subscribers are addressed by their subscriber abbreviation. After dialing up the conference loop use the following narrative as subscribers answer:

“THIS IS THE SE (OR APPROPRIATE) NORAD REGION/SECTOR WITH A CONFERENCE COMMUNICATIONS CHECK, PLEASE STAND BY”. (Repeat as each subscriber answers).

When subscribers stop answering, say:

“THIS IS THE SE (OR APPROPRIATE) NORAD REGION/SECTOR WITH A CONFERENCE COMMUNICATIONS CHECK OF THE PRIMARY (OR ALTERNATE) NFARS BACK-UP VOICE TELL CIRCUIT. AS YOUR POSITION IS CALLED, REPORT THE STRENGTH AND READABILITY OF THE CONFERENCE AND STATE YOUR INITIALS. PLEASE REMAIN ON THE CIRCUIT UNTIL RELEASED.

A9.3.3. When the primary test call is finished, advise subscribers:

“THIS IS THE SE (OR APPROPRIATE) NORAD REGION/SECTOR. THIS CONCLUDES THE PRIMARY CONFERENCE COMMUNICATIONS CHECK. ALL SUBSCRIBERS WILL HANG UP NOW AND STANDBY FOR A CALL ON THE ALTERNATE CIRCUIT.”

A9.3.4. Use the same procedures for the alternate circuit test. Coordinate with telephone technicians at the two DSN switching centers to resolve circuit problems and then report results and recommendations to this headquarters as directed in paragraph A9.4.

A9.4. After Conducting Tests. Send a message to HQ NORAD/J3OBN stating the results of the test. This message should identify problem areas and give recommendations.

EFFECTIVE DOWNWIND MESSAGES

A10.1. General. Effective downwind messages (EDM) are transmitted twice daily by US Air Force Global Weather Central (AFGWC) to NORAD Headquarters and each NORAD region or sector. EDMs provide wind direction in degrees True and windspeed in knots for base locations throughout the continental United States, Canada, and Alaska. EDMs are necessary when preparing radioactive fallout plots. Radioactive fallout plots are detailed in chapter 4.

A10.2. Exercises. For major JCS and NORAD simulation exercises, use standard climatological EDMs. Issue the EDMs to NBCOCs at exercise start. EDMs are effective for the entire liability period. As technology permits, NORAD NBCOC is transitioning as quickly as possible to the Fallout Assessment System (FAS) and to the use of Single Integrated Damage Assessment Criteria (SIDAC) winds for the prediction of radiological intensities and arrival times of radioactive fallout. A prototype of this system is currently in operation at NORAD NBCOC.