CONAD/NORAD

HISTORICAL SUMMARY

(UNCLASSIFIED)

JULY - DECEMBER 1957

VOLUME III

SUPPORTING DOCUMENTS

99 Through 131
CONC14
HC. 013
FOR RJEPY3 RJEEDR RJEEDN
DE RJEPHQ 193
R 2929982
FY HQ USAF WASH DC
TO RJEPY3/CINCCDC BALTO MD
ZEN/CO/APGC ESGN AF3 FLA
RJEDR/CINCSAC OFFTAF OMAHA NEBR
RJEEDN/CO/ALRDFCNC ENT AF3 COLO
ZEN/DEPU2 229 CHURCH ST NYC
ZEN/RAF ACE ST HUBERT CANADA
RJEDR/CINCONAD ENT AF3 COLO

CITE AFDOC-AD/C 53445 THIS IS AC CATEGORY MSG

RC USAF MSG CITE AFCAV 52342 DATED 2 NOV 57. CONTINUATION
OF OPERATIONAL TEST INITIATED AS APGC EAST PROJECT NO. APG/ADA/1260A
IS DESIRED AS INDICATED.

REF APGC MSG DCS/O-TR/AS 0960C, 16 SEPT 57. THIS HEADQUARTERS
APPROVES ESTABLISHMENT OF 1 APRIL 1958 AS STARTING DATE FOR PART III
EMPLOYMENT AND SUITABILITY TEST OF BEN LINE, PROJECT APG/ADA/1260A.
REQUEST THAT ALL PARTICIPATING AND SUPPORTING AGENCIES INITIATE
NECESSARY PLANNING ACTION TO INSURE TIMELY COMPLETION OF THIS TEST.

ST 29/2992 NOV RJEPHQ

A-PARAPHRASE NOT REQUIRED EXCEPT PRIOR TO CATEGORY 3 CRYPTOGRAPHY--
PHYSICALLY REMOVE ALL INTERNAL REFERENCES BY DATE-TIME-GROUP PRIOR TO
DECLASSIFICATION

ADVANCE COPY OF THIS MSG HAS BEEN DELIVERED TO COG.
Reference USAF message AFPA-E/C-52415, 24 November, subject:

APCC Project No. 43/AL/A/120, Part III, Employment and Suitability

Test of LRF Line. Request that headquarters be advised at the earliest date as to what actions are required of this command in support of the above test.
This hq is in receipt of a copy of the Canadian Department of Transport’s Air Navigation Order, Series V, No. 14, "Security Control of Air Traffic Order", 13 November 1957, which contains the rules for the Distant Early Warning Identification Zone. Request confirmation that action has been taken to insure that all information pertaining to these rules is being published in all appropriate aeronautical publications. Request confirmation also that action has been taken with the CTI and the Canadian Department of Transport to insure that the AMIS sections serving the DEW Line are capable of forwarding all flight plans on all air traffic penetrating the DEW Line to the appropriate Main Station Data Centers.

ADCOF-0

S/L Anderson/Act

2760

1

JOHN M. YOMGELL, COL USAF

DIRECTOR OF OPERATIONS
DEPARTMENT OF NATIONAL DEFENCE
Royal Canadian Air Force

St Hubert, Que, 19 Dec 57.

Commander,
5 Air Division, RCAF, Vancouver, B.C.
4th Air Division, USAF, Port Pepperell, Maine.
1st Air Division, USAF, Minneapolis, Minn.
42 AGW Sqn, USAF, Hopefield, Lab.

Sector Commander,
1 ADCC, Lac St Denis, Que.
2 ADCC, St Margaret's, N.F.
3 ADCC, Edgar, Ontario

Commanding Officer,
RCAF Station Dawson Creek, B.C.
RCAF Station Stoney Mountain, Alta.
RCAF Station Birt, Man.
RCAF Station Cranberry Fortage, Man.
RCAF Station Minik, Ont.
RCAF Station Enob Lake, Que.
RCAF Station Great Whale, Que.

 Info: Cdr. USAF ADC, "Colorado Springs, Colo"

Cdr, USAF, Trumanview, Missouri

Commander, Ottawa, Ont.

Visual Identification - Mid Canada Line

1. Attached hereto is a copy of Air Navigation Order Series V, No. 14, which contains the regulations concerning flight through the CabII, MidII and USaII.

2. The regulations pertaining to the MidII contain a requirement for pilots to request visual identification in circumstances where it is not possible for them to file a ground filed flight plan. This procedure was based on the assumption that DDS's at which beacons were located would not be unmanned until sometime in late 1958. It was recognized during the planning stages that the visual identification procedure was a temporary arrangement only and would ultimately have to be replaced.

3. As you are aware, unmanned of DDS's is already underway and therefore it is now necessary to revise our interpretation of the visual identification requirement until such time as a substitute method of identification can be devised to cover this type of traffic.

4. Accordingly, operations staffs on the Mid Canada Line are to perform visual identification as follows:

(a) If the MidII beacon nearest an aircraft requesting visual identification is a manned unit, visual identification procedures are to apply.
(c) In both the above cases, units are to ensure that an air
filed flight plan is received from the pilot.

5 In reporting a penetration under para 4(b) above, units are to
designate the aircraft as Okkano and in item 9 of the teletype telling
sequence insert the words "air file".

6 Distribution of the Air Navigation Order mentioned in para 1 above
will be complete very shortly, therefore, units are requested to be on the
alert and ready to assist aircraft in complying with the MHIZ regulations.

[Signature]

L.R. Winn

O/C

for ASC NOC.
AERONAUTICS ACT

Security Control of Air Traffic Order

AIR NAVIGATION ORDER, SERIES V. No. 14

The Minister of Transport, pursuant to the Aeronautics Act and the Air Regulations, is pleased hereby to make the annexed Security Control of Air Traffic Order (Air Navigation Order, Series V. No. 14).

Dated at Ottawa, the 28th day of October, 1957.

GEORGE HEES.
Minister of Transport.
AIR NAVIGATION ORDER SERIES V. NO. 14

Secrity Control of Air Traffic

1. (1) In this Order,
   (a) "coastal CADIZ" or "Coastal Canadian Airspace Identification Zone", means the airspace extending upward from those areas off the coast of Canada described in Schedule A.
   (b) "domestic CADIZ" or "Domestic Canadian Airspace Identification Zone", means the airspace extending upward from that area of Canada described in Schedule B.
   (c) "DEWIZ" or "Distant Early Warning Identification Zone" means the airspace extending upward from the area of Canada described in Schedule C.
   (d) "DEWIZ aerodrome" means an aerodrome described in Schedule D.
   (e) "DEWIZ beacon" means a non-directional radio or medium frequency radio navigation aid beacon within that area described in Schedule D.
   (f) "DVFR" or "Defence Visual Flight Rule" means a rule pertaining to VFR flight conduct as described within this Order.
   (g) "DVFR Flight Plan" means a flight plan which (i) contains a VFR flight plan as set out in section of the Flight Plan Order, Air Navigation Order, Schedule No. 4, and (ii) states the altitude above sea level to be flown.
   (h) "MIDIZ" or "Mid Canada Identification Zone", means the airspace extending upward from that area of Canada described in Schedule F.
   (i) "MIDIZ beacon" means a non-directional or medium frequency radio navigation aid beacon within that area described in Schedule F.
   (j) "MIDIZ clearance aerodrome" means an aerodrome described in Schedule G at which communication facilities exist for the immediate forwarding of flight plans to MIDIZ beacon at an appropriate air traffic control unit.
   (k) "SIZ" or "Security Identification Zone", means an airspace extending upward to an altitude of 3,000 feet above the terrain over the area described in Schedule I.
   (l) "southbound", means in a southerly direction on any route between 090° true and 269° true.
   (m) "westbound" means in a westerly direction on any route between 153° true and 331° true.

(2) In this Order, a reference to a time or estimated time shall be to Greenwich Mean Time.
PART I

Domestic Cadiz Rules

2. In the airspace extending outward from that area where a part of the MIDIZ lies within the CADIZ, the rules for flight within MIDIZ shall apply.

3. No person shall operate an aircraft into or within a domestic CADIZ unless he has filed an IFR or DVFR flight plan with an appropriate air traffic control unit.

4. Position reports or estimates of domestic CADIZ penetration above 3,000 feet above terrain shall be provided to an appropriate air traffic control unit as follows:
   (a) an IFR flight within controlled airspace shall comply with normal IFR position reporting requirements;
   (b) an IFR flight outside controlled airspace or a DVFR flight shall report:
      (i) over the last reporting point on the route of the flight prior to entering the domestic CADIZ its position, altitude, time, and estimated time of arrival; or
      (ii) if it is impossible to make the report referred to in subparagraph (i), it shall report its altitude and estimated time and place of penetration at least 15 minutes prior to penetrating the domestic CADIZ.

PART II

Coastal Cadiz Rules

5. No person shall operate an aircraft into or within a coastal CADIZ unless he has filed an IFR or DVFR flight plan with an appropriate air traffic control unit.

6. A flight shall not penetrate a coastal CADIZ toward Canada unless an appropriate air traffic control unit is provided with position reports required by the instrument flight rules and, in addition, a position report is made at the time of the penetration.

PART III

Security Identification Zone Rules

7. No person shall operate an aircraft southbound into the Eastern or Western SIZ or westbound into the Hope SIZ unless he has filed an IFR or DVFR flight plan with an appropriate air traffic control unit.

8. Subject to section 9, position reports or estimates of Eastern or Western SIZ penetration southbound or penetration of the Hope SIZ westbound shall be provided to an appropriate air traffic control unit as follows:
   (a) an IFR flight within controlled airspace shall comply with normal IFR position reporting requirements.
PART IV

Mid Canada High Level Flight Route (MIDL) Zone Rules

10. The pilot-in-command of an aircraft departing from a location which has facilities for the immediate transmission of flight plans shall:
   (a) file an IFR or DFR flight plan for any flight which will operate within or penetrate the MIDL zone and;
   (b) include in such flight plan the estimated time and place of MIDL penetration where applicable;
   (c) establish radio contact with a MIDL beacon at least 5 minutes before penetrating the MIDL zone, or immediately after take-off from within the MIDL zone and make a position report, and
   (d) obtain authorization before proceeding with the flight.

11. For a flight which will penetrate the MIDL zone, the pilot-in-command, when departing from a location which does not have facilities for the immediate transmission of flight plans to an appropriate air traffic control unit, shall:
   (a) land at a location which has facilities for the immediate transmission of flight plans to an appropriate air traffic control unit or MIDL beacon and proceed in accordance with section 10 or
   (b) establish radio contact with a MIDL beacon at least 5 minutes before penetrating the MIDL zone, or immediately after take-off from within the MIDL zone and
   (c) file an IFR or DFR flight plan, and
   (d) request visual identification and in accordance with instructions proceed to the nearest MIDL beacon and circle the beacon VFR at an altitude not exceeding 4000 feet above terrain until an authorization is obtained from the MIDL beacon to proceed with the flight.
12. No person shall conduct a flight on a route through the MIDIZ or from point to point within the MIDIZ at an angle of less than 45° to the length of the MIDIZ unless special arrangements have been made through an appropriate air traffic control unit, or MIDIZ beacon.

PART V

Distant Early Warning Identification Zone

13. The pilot-in-command of a flight originating outside Canada or a non-stop flight originating in Canada which penetrates the DEWIZ inbound shall

(a) file an IFR or DVFR flight plan before take-off from the last location prior to penetrating the DEWIZ inbound, and shall include in the flight plan the estimated location and time of inbound penetration,

(b) prior to DEWIZ penetration, establish radio-telephone communications with an appropriate DEWIZ beacon and transmit a position report,

(c) penetrate the DEWIZ within plus or minus one hour and plus or minus 100 nautical miles of his flight plan estimate of time and place of penetration,

(d) when requested to do so by a DEWIZ beacon, amend his flight planned estimate of time and place of penetration of the DEWIZ in minutes early or late and nautical miles east or west,

(e) maintain a continuous listening watch on the frequency on which communication has been established with the appropriate DEWIZ beacon until the flight is through the DEWIZ,

(f) maintain an altitude at least 6000 feet above terrain, unless the safety of the flight requires operation at a lower altitude.

14. A flight operating laterally within the DEWIZ shall only originate at a base having facilities to forward flight plan information to a DEWIZ beacon, and the pilot-in-command shall

(a) before take-off, file an IFR or DVFR flight plan, with a DEWIZ beacon or an appropriate air traffic control unit,

(b) establish radio-telephone communications with a DEWIZ beacon as soon as possible after take-off and provide a position report,

(c) where practicable, conduct as much of the flight as is possible south of the DEWIZ and operate in accordance with radar advisory navigation provided through the DEWIZ beacon,

(d) report any deviation in excess of 5 minutes of his estimate or 10 nautical miles of his flight planned track to a DEWIZ beacon,

(e) maintain a continuous listening watch on the frequency on which
15. The pilot-in-command of a flight originating north of the DEWIZ where facilities do not exist for forwarding flight plans to a DEWIZ beacon or an appropriate air traffic control unit shall

(c) operate under VFR conditions while in the DEWIZ,

(b) establish radio-telephone communication with an appropriate DEWIZ beacon prior to entering the DEWIZ and transmit a position report,

(c) proceed in accordance with instructions issued by a DEWIZ beacon, which will normally require the flight,

(i) to proceed to the nearest DEWIZ beacon for visual identification,

(ii) to land at a stated location, 

(d) maintain a continuous listening watch on the frequency on which communications have been established with a DEWIZ beacon until released by the beacon, and

(e) maintain an altitude of at least 6000 feet above terrain, unless the safety of the flight requires operation at a lower altitude.

PART VI

General

16. The pilot-in-command of an aircraft shall revise his position report with the appropriate air traffic control unit or MIDIZ beacon when the aircraft is not within

(c) a time tolerance of plus or minus 5 minutes of the estimated time over a reporting point, or point of penetration of a CADIZ, SIZ or MIDIZ or the point of destination within a CADIZ or MIDIZ, or

(b) a distance tolerance of 10 nautical miles from the centre line of the route of flight indicated on the flight plan or the estimated point of penetration of a CADIZ, SIZ or MIDIZ.

17. No person shall operate an aircraft on an IFR or a DVFR flight plan into or within any identification zone unless it is equipped with a two-way radio capable of permitting the communications required by this Order.

18. No deviation shall be made from a DVFR or IFR flight plan filed for a flight into or within an identification zone unless

(a) prior notification is given to the appropriate air traffic control unit or MIDIZ or DEWIZ beacon, or

(b) where prior notification is not possible, the deviation is reported to an appropriate air traffic control unit or MIDIZ or DEWIZ beacon as soon as practicable.

19. When, due to an emergency, the pilot-in-command of an aircraft is unable to comply with any provision of this Order he shall submit a detailed report of the emergency in writing to the Director General, Air Services within 48 hours of the emergency.
20. In the event of a radio failure, the pilot-in-command shall, 
(a) on an IFR flight, comply with the requirements of Air Navigation 
Order, Series V, No. 6, and
(b) on a VFR flight, proceed in accordance with his flight plan or 
shall land at the nearest suitable aerodrome on the route of flight 
specified in his flight plan.

Schedule "A"

1. The Pacific coastal CADIZ is the airspace extending upward from 
the area described as follows: commencing at
Latitude 48° 30' North, Longitude 125° 00' West; thence to 
Latitude 48° 30' North, Longitude 124° 10' West; thence to 
Latitude 51° 30' North, Longitude 134° 00' West; thence to 
Latitude 53° 28' North, Longitude 130° 35' West; thence to 
Latitude 51° 15' North, Longitude 128° 00' West; thence to 
Latitude 50° 30' North, Longitude 126° 00' West; thence to 
Latitude 50° 10' North, Longitude 128° 16' West; thence to 
the point of beginning.

2. The Atlantic coastal CADIZ is the airspace extending upward from 
the area described as follows: commencing at
Latitude 43° 00' North, Longitude 65° 48' West; thence to 
Latitude 45° 00' North, Longitude 61° 00' West; thence to 
Latitude 46° 30' North, Longitude 58° 00' West; thence to 
Latitude 46° 30' North, Longitude 52° 30' West; thence to 
Latitude 41° 30' North, Longitude 55° 00' West; thence to 
Latitude 53° 14' North, Longitude 54° 00' West; thence to 
Latitude 57° 14' North, Longitude 59° 00' West; thence to 
Latitude 61° 00' North, Longitude 63° 00' West; thence to 
Latitude 64° 00' North, Longitude 63° 00' West; thence to 
Latitude 65° 00' North, Longitude 66° 00' West; thence to 
Latitude 65° 00' North, Longitude 71° 20' West; thence to 
Latitude 63° 00' North, Longitude 71° 30' West; thence to 
Latitude 61° 00' North, Longitude 69° 20' West; thence to 
Latitude 61° 00' North, Longitude 70° 40' West; thence to 
Latitude 63° 00' North, Longitude 73° 00' West; thence to 
Latitude 66° 00' North, Longitude 73° 00' West; thence to 
Latitude 66° 00' North, Longitude 66° 00' West; thence to 
Latitude 66° 00' North, Longitude 63° 00' West; thence to 
Latitude 64° 30' North, Longitude 62° 00' West; thence to 
Latitude 48° 00' North, Longitude 48° 00' West; thence to 
Latitude 45° 00' North, Longitude 30° 00' West; thence to 
Latitude 43° 30' North, Longitude 53° 15' West; thence to 
Latitude 39° 30' North, Longitude 63° 45' West; thence to 
the point of beginning.
SCHEDULE "B"

I. The domestic CADIZ is the airspace extending upward from the area described as follows; commencing at
Latitude 53°22' North, Longitude 130°35' West; thence to
Latitude 57°00' North, Longitude 123°00' West; thence to
Latitude 57°00' North, Longitude 115°00' West; thence to
Latitude 51°00' North, Longitude 115°00' West; thence to
Latitude 51°00' North, Longitude 70°00' West; thence to
Latitude 52°30' North, Longitude 65°00' West; thence to
Latitude 56°00' North, Longitude 65°00' West; thence to
Latitude 63°00' North, Longitude 71°30' West; thence to
Latitude 65°00' North, Longitude 71°30' West; thence to
Latitude 65°00' North, Longitude 66°00' West; thence to
Latitude 64°00' North, Longitude 63°00' West; thence to
Latitude 61°00' North, Longitude 63°00' West; thence to
Latitude 57°00' North, Longitude 59°00' West; thence to
Latitude 53°00' North, Longitude 54°00' West; thence to
Latitude 51°30' North, Longitude 55°00' West; thence to
Latitude 48°00' North, Longitude 52°30' West; thence to
Latitude 46°30' North, Longitude 52°30' West; thence to
Latitude 46°30' North, Longitude 58°00' West; thence to
Latitude 45°00' North, Longitude 61°00' West; thence to
Latitude 43°00' North, Longitude 65°48' West; thence to
Latitude 44°30' North, Longitude 66°45' West; thence to
Latitude 44°30' North, Longitude 67°07' West; thence to
Latitude 44°45'36" North, Longitude 66°54'11" West; thence along the United States-Canadian Boundary to
Latitude 47°10' North, Longitude 65°32' West; thence to
Latitude 47°10' North, Longitude 85°31' West; thence along the United States-Canadian Boundary to
Latitude 49°00' North, Longitude 121°00' West; thence to
Latitude 50°10' North, Longitude 122°00' West; thence to
Latitude 50°10' North, Longitude 128°16' West; thence to
Latitude 50°30' North, Longitude 129°00' West; thence to
Latitude 51°15' North, Longitude 128°00' West; thence to the point of beginning.
SCHEDULE "C"

1. The DEWIZ is the airspace extending upward from the area described as follows: commencing at:
   - Latitude 71°00' North, Longitude 141°00' West; thence to
   - Latitude 71°00' North, Longitude 132°00' West; thence to
   - Latitude 71°45' North, Longitude 125°00' West; thence to
   - Latitude 70°15' North, Longitude 118°00' West; thence to
   - Latitude 70°15' North, Longitude 68°00' West; thence to
   - Latitude 67°30' North, Longitude 57°00' West; thence to
   - Latitude 63°00' North, Longitude 60°00' West; thence to
   - Latitude 66°00' North, Longitude 66°00' West; thence to
   - Latitude 67°00' North, Longitude 63°00' West; thence to
   - Latitude 68°25' North, Longitude 68°00' West; thence to
   - Latitude 69°00' North, Longitude 73°00' West; thence to
   - Latitude 69°00' North, Longitude 77°00' West; thence to
   - Latitude 68°00' North, Longitude 86°00' West; thence to
   - Latitude 68°25' North, Longitude 101°00' West; thence to
   - Latitude 68°50' North, Longitude 105°00' West, thence to
   - Latitude 68°10' North, Longitude 114°00' West; thence to
   - Latitude 69°15' North, Longitude 125°00' West; thence to
   - Latitude 68°30' North, Longitude 135°00' West; thence to
   - Latitude 69°30' North, Longitude 141°00' West; thence to
   the point of beginning.
### SCHEDULE "D"

1. The DEWZ aerodromes are located as follows:

<table>
<thead>
<tr>
<th>Location</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cape Dyer</td>
<td>68°34.30'</td>
<td>81°37.00'</td>
</tr>
<tr>
<td>Broughton</td>
<td>67°33.00'</td>
<td>64°03.00'</td>
</tr>
<tr>
<td>Cape Hooper</td>
<td>68°35.30'</td>
<td>66°46.30'</td>
</tr>
<tr>
<td>Mid-Island</td>
<td>68°36.20'</td>
<td>71°19.30'</td>
</tr>
<tr>
<td>Foley</td>
<td>68°36.20'</td>
<td>75°18.00'</td>
</tr>
<tr>
<td>Rowley</td>
<td>68°46.00'</td>
<td>81°14.00'</td>
</tr>
<tr>
<td>Hall Lake</td>
<td>68°46.30'</td>
<td>81°14.00'</td>
</tr>
<tr>
<td>West Melville</td>
<td>68°46.30'</td>
<td>81°14.00'</td>
</tr>
<tr>
<td>West Simpson</td>
<td>68°26.15'</td>
<td>80°39.00'</td>
</tr>
<tr>
<td>Shepherd Bay</td>
<td>68°26.00'</td>
<td>63°24.30'</td>
</tr>
<tr>
<td>King William</td>
<td>68°39.30'</td>
<td>97°48.00'</td>
</tr>
<tr>
<td>Jenny Lind</td>
<td>68°39.10'</td>
<td>101°43.30'</td>
</tr>
<tr>
<td>Cambridge Bay</td>
<td>69°06.00'</td>
<td>105°08.00'</td>
</tr>
<tr>
<td>Unnamed Point</td>
<td>68°40.10'</td>
<td>109°04.12'</td>
</tr>
<tr>
<td>Lake Franklin</td>
<td>68°29.33'</td>
<td>113°13.11'</td>
</tr>
<tr>
<td>Young Point</td>
<td>68°56.10'</td>
<td>116°55.32'</td>
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<tr>
<td>Clinton Point</td>
<td>69°30.92'</td>
<td>120°44.45'</td>
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<tr>
<td>Cape Parry</td>
<td>70°10.05'</td>
<td>124°41.10'</td>
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<tr>
<td>Napoleon</td>
<td>68°57.00'</td>
<td>128°54.30'</td>
</tr>
<tr>
<td>Tok Tok</td>
<td>68°26.45'</td>
<td>132°00.19'</td>
</tr>
<tr>
<td>Shingle Point</td>
<td>68°57.00'</td>
<td>137°12.00'</td>
</tr>
</tbody>
</table>
SCHEDULE "E"

DEWIZ beacons are described as follows:

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Identification</th>
<th>Frequency</th>
<th>Transmitting Frequencies</th>
<th>Receiving Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Latitude 60°25'50&quot; North</td>
<td>VX</td>
<td>218 ke/s</td>
<td>122.2 mc/s</td>
<td>122.2 mc/s</td>
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<tr>
<td></td>
<td>Longitude 61°23'20&quot; West</td>
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<td></td>
<td>121.5 mc/s</td>
<td>121.5 mc/s</td>
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<td>236.6 mc/s</td>
<td>236.6 mc/s</td>
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<td></td>
<td></td>
<td></td>
<td>241.0 mc/s</td>
<td>241.0 mc/s</td>
</tr>
<tr>
<td></td>
<td>Latitude 67°39'10&quot; North</td>
<td>VM</td>
<td>230 ke/s</td>
<td>122.2 mc/s</td>
<td>122.2 mc/s</td>
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<tr>
<td></td>
<td>Longitude 68°49'10&quot; West</td>
<td></td>
<td></td>
<td>121.5 mc/s</td>
<td>121.5 mc/s</td>
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<td>236.6 mc/s</td>
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<td></td>
<td>241.0 mc/s</td>
<td>241.0 mc/s</td>
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<td>3235 ke/s</td>
<td>3235 ke/s</td>
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<tr>
<td></td>
<td>Latitude 68°26'15&quot; North</td>
<td>UZ</td>
<td>287 ke/s</td>
<td>122.2 mc/s</td>
<td>122.2 mc/s</td>
</tr>
<tr>
<td></td>
<td>Longitude 66°44'00&quot; West</td>
<td></td>
<td></td>
<td>121.5 mc/s</td>
<td>121.5 mc/s</td>
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<td>236.6 mc/s</td>
<td>236.6 mc/s</td>
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<td>241.0 mc/s</td>
<td>241.0 mc/s</td>
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1. The MID12 is the airspace extending upward from the area described as follows: commencing at

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Latitude 55°50' North, Longitude 115°30' West; thence to
Latitude 56°40' North, Longitude 110°00' West; thence to
Latitude 56°40' North, Longitude 105°30' West; thence to
Latitude 55°30' North, Longitude 102°40' West; thence to
Latitude 55°30' North, Longitude 100°30' West; thence to
Latitude 54°55' North, Longitude 99°30' West; thence to
Latitude 54°55' North, Longitude 99°30' West; thence to
Latitude 56°50' North, Longitude 99°30' West; thence to
Latitude 56°50' North, Longitude 95°30' West; thence to
Latitude 55°50' North, Longitude 91°00' West; thence to
Latitude 55°50' North, Longitude 87°00' West; thence to
Latitude 54°10' North, Longitude 81°20' West; thence to
Latitude 53°30' North, Longitude 75°00' West; thence to
Latitude 55°30' North, Longitude 69°00' West; thence to
Latitude 55°30' North, Longitude 66°00' West; thence to
Latitude 55°30' North, Longitude 60°10'30" West; thence to
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Latitude 55°30' North, Longitude 55°00' West; thence to
Latitude 55°30' North, Longitude 77°00' West; thence to
Latitude 54°10' North, Longitude 81°20' West; thence to
Latitude 54°10' North, Longitude 77°00' West; thence to
Latitude 54°10' North, Longitude 73°00' West; thence to
Latitude 54°10' North, Longitude 69°00' West; thence to
Longitude 54°30' North, Longitude 63°30' West; thence to
Longitude 55°00' North, Longitude 107°40' West; thence to
Longitude 55°30' North, Longitude 110°30' West; thence to
Longitude 55°30' North, Longitude 113°30' West; thence to
Longitude 55°30' North, Longitude 115°30' West; thence to
Longitude 55°30' North, Longitude 120°08'30" West; thence to
the point of beginning.
### Schedule "G"

1. The MID1Z beacons are described as follows:

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Identification</th>
<th>Frequency</th>
<th>Transmitting Frequencies</th>
<th>Receiving Frequencies</th>
</tr>
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<tbody>
<tr>
<td>Harp Lake</td>
<td>Latitude 55°18'40&quot; North, Longitude 61°49'30&quot; West</td>
<td>HH</td>
<td>358 kc/s</td>
<td>255.4 mc/s 122.2 mc/s</td>
<td>255.4 mc/s 122.2 mc/s</td>
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<td>Border</td>
<td>Latitude 55°20'04&quot; North, Longitude 62°10'15&quot; West</td>
<td>EE</td>
<td>318 kc/s</td>
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<td>255.4 mc/s 122.2 mc/s</td>
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<td>Latitude 55°15'44&quot; North, Longitude 66°04'15&quot; West</td>
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<td>281 kc/s</td>
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<td>255.4 mc/s 122.2 mc/s</td>
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<td>Knob Lake</td>
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<td>Gilbapie</td>
<td>Latitude 55°10'32&quot; North, Longitude 67°35'25&quot; West</td>
<td>EH</td>
<td>350 kc/s</td>
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<td>308 kc/s</td>
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<td>255.4 mc/s 122.2 mc/s</td>
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<td>Bulldog</td>
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### Schedule "G" (Continued)

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<td>Latitude 55°14'43&quot; North, Longitude 72°12'05&quot; West</td>
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<td>EZ</td>
<td>220 ke/s</td>
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<td>Latitude 54°39'27&quot; North, Longitude 78°17'00&quot; West</td>
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<td>122.2 mc/s</td>
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<td>3021.5 kc/s</td>
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<td>Canoe</td>
<td>Latitude 55°19'23&quot; North</td>
<td>VS</td>
<td>246 kc/s</td>
<td>255.4 mc/s</td>
<td>255.4 mc/s</td>
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<td></td>
<td>Longitude 108°05'46&quot; West</td>
<td></td>
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<td>122.2 mc/s</td>
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<tr>
<td>Peter Pond</td>
<td>Latitude 55°09'34&quot; North</td>
<td>VY</td>
<td>308 kc/s</td>
<td>255.4 mc/s</td>
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</tr>
<tr>
<td></td>
<td>Longitude 109°17'00&quot; West</td>
<td></td>
<td></td>
<td>122.2 mc/s</td>
<td>122.2 mc/s</td>
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<td>3021.5 kc/s</td>
<td>3021.5 kc/s</td>
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<td>Birch Lake</td>
<td>Latitude 56°21'35&quot; North</td>
<td>VZ</td>
<td>249 kc/s</td>
<td>255.4 mc/s</td>
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<tr>
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<td>Longitude 110°29'43&quot; West</td>
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<td></td>
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<td></td>
<td></td>
<td>3021.5 kc/s</td>
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<tr>
<td>Stony Mountain</td>
<td>Latitude 56°29' North</td>
<td>TN</td>
<td>371 kc/s</td>
<td>236.6 mc/s</td>
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<td></td>
<td>Longitude 111°16' West</td>
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<td>213.0 mc/s</td>
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<td>121.5 mc/s</td>
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### Schedule "G" (Concluded)

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<tr>
<th>Name</th>
<th>Location</th>
<th>Identification</th>
<th>Frequency</th>
<th>Transmitting Frequencies</th>
<th>Receiving Frequencies</th>
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<td>Horse</td>
<td>Latitude 56°31'00&quot; North</td>
<td>XM</td>
<td>259 kHz</td>
<td>255.4, 122.2, 122.2 kHz</td>
<td>255.4, 122.2 kHz</td>
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<tr>
<td></td>
<td>Longitude 111°47'20&quot; West</td>
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<tr>
<td>Livock</td>
<td>Latitude 56°21'17&quot; North</td>
<td>XN</td>
<td>318 kHz</td>
<td>215.4, 122.2 kHz</td>
<td>255.4, 122.2 kHz</td>
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<td>Longitude 111°04'15&quot; West</td>
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<td>Nipal</td>
<td>Latitude 55°49'20&quot; North</td>
<td>XV</td>
<td>308 kHz</td>
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<td>255.4, 122.2 kHz</td>
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<td>Longitude 114°36'20&quot; West</td>
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<tr>
<td>Buffalo Bay</td>
<td>Latitude 50°32'30&quot; North</td>
<td>XW</td>
<td>240 kHz</td>
<td>255.4, 122.2 kHz</td>
<td>255.4, 122.2 kHz</td>
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<td>Longitude 116°07'15&quot; West</td>
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<td>Wabigo</td>
<td>Latitude 55°11'06&quot; North</td>
<td>VA</td>
<td>347 kHz</td>
<td>255.4, 122.2 kHz</td>
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<td>Longitude 117°45'30&quot; West</td>
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<td>Saddle Hill</td>
<td>Latitude 55°35'22&quot; North</td>
<td>YH</td>
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<td>255.4, 122.2 kHz</td>
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<td>Longitude 119°13'23&quot; West</td>
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<tr>
<td>Dawson Creek</td>
<td>Latitude 55°17' North</td>
<td>DQ</td>
<td>394 kHz</td>
<td>236.6, 241.0, 121.5 kHz</td>
<td>236.6, 241.0 kHz</td>
</tr>
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<td></td>
<td>Longitude 120°12' West</td>
<td></td>
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</table>

2. All MIDIZ beacons operate only on request except for Knob Lake, Great Whale River, Winisk, Bird, Cranberry Portage, Stony Mountain and Dawson Creek which are on continuous operation.
SCHEDULE "II"

The MIDIZ clearance Aerodromes are located as follows:

<table>
<thead>
<tr>
<th>Place</th>
<th>Latitude</th>
<th>Longitude</th>
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</thead>
<tbody>
<tr>
<td>Great Whale River</td>
<td>55° 17'</td>
<td>77° 46' W</td>
</tr>
<tr>
<td>Winnik</td>
<td>55° 14'</td>
<td>85° 07' W</td>
</tr>
<tr>
<td>Churchill</td>
<td>58° 48'</td>
<td>94° 04' W</td>
</tr>
<tr>
<td>Flin Flon</td>
<td>54° 48'</td>
<td>101° 20' W</td>
</tr>
<tr>
<td>Lake La Ronge</td>
<td>55° 05'</td>
<td>105° 20' W</td>
</tr>
<tr>
<td>Buffalo Narrows</td>
<td>55° 52'</td>
<td>108° 29' W</td>
</tr>
<tr>
<td>McMurray</td>
<td>56° 39'</td>
<td>111° 13' W</td>
</tr>
<tr>
<td>Peace River</td>
<td>56° 14'</td>
<td>117° 20' W</td>
</tr>
<tr>
<td>Fort St. John</td>
<td>56° 14'</td>
<td>120° 44' W</td>
</tr>
</tbody>
</table>

SCHEDULE "I"

1. The Western SIZ is the airspace extending upward from the area described as follows: commencing at
   Latitude 56° 30’ North, Longitude 129° 00’ West; thence to
   Latitude 56° 30’ North, Longitude 121° 45’ West; thence to
   Latitude 56° 10’ North, Longitude 121° 26’ West; thence to
   Latitude 56° 10’ North, Longitude 128° 16’ West; thence to
   the point of beginning.

2. The Eastern SIZ is the airspace extending upward from the area described as follows: commencing at
   Latitude 47° 25’ North, Longitude 69° 16’ West; thence
   along the United States-Canada Boundary to
   Latitude 47° 10’ North, Longitude 69° 32’ West; thence to
   Latitude 47° 10’ North, Longitude 85° 31’ West; thence
   along the United States-Canada Boundary to
   Latitude 47° 30’ North, Longitude 56° 19’ West; thence to
   Latitude 47° 30’ North, Longitude 70° 00’ West; thence to
   the point of beginning.

3. The Hope SIZ is the airspace extending upward from the area described as follows: commencing at
   Latitude 50° 10’ North, Longitude 122° 00’ West; thence to
   Latitude 50° 10’ North, Longitude 121° 26’ West; thence to
   Latitude 49° 00’ North, Longitude 121° 00’ West; thence to
   the point of beginning.
DEPARTMENT OF THE AIR FORCE
OFFICE OF THE CHIEF OF STAFF
UNITED STATES AIR FORCE
WASHINGTON, D.C.
17 January 1958

SUBJECT: Assignment of Operational Control and Contract Administration of the DEW Line

TO: Commander
Air Defense Command
On: Air Force Base
Colorado Springs, Colorado

1. References:
   c. DEW Logistics Plan, dated 1 August 1957.
   f. ADC message ADCCO 113, dated 3 December 1957.

2. The Air Defense Command recommendations for assignment of operational control of that part of the DEW Line extending from Cape Dyer to Cape Lisburne is approved by this Headquarters. Effective 15 February 1958 ADC will assume responsibility for operational control of the Cape Lisburne-Cape Dyer DEW Line. Direct coordination with concerned commands and agencies will be affected as required.

3. Action concerning establishment of a standardized identification zone to include Alaska is withheld pending the results of the Identification Study being conducted by CUSCAT.

4. This decision negates the recommendation made by the Alaskan Air Command concerning changes in the plan for contract administration of the DEW Line.
For ADC, Subject: Assignment of Operational Control and Contract Administration of the NE Line (Cont'd)

5. An identical letter has been sent to Alaskan Air Command.

cc: RCAF
    RCAF-ADC
    COMWPAR
    MIL
    ETO

JACOB E. SMART
Major General, U. S. Air Force
Assistant Vice Chief of Staff
1. The requirement for an ionospheric communications link for the Aleutian Segment of the DEW Line as an alternate communications facility, which was previously established by the EWONG, be met as soon as possible. (Ref. page 3, Minutes, 19 Nov 1957)

2. The USAF Air Defense Command be requested to submit a proposed change to the DEW-MCL Operations Plan to provide for the operations of the Greenland Extension of the DEW Line. (Ref. page 8, Minutes, 19 Nov 1957)

3. A "read-back" capability between DEW Base Stations and DEW Maine be authorized for installation as soon as possible. (Ref. page 6, Minutes, 20 Nov 1957)

4. The responsibility for logistical support and operations follow the same organization; further, that one organization be given overall responsibility for the operation and maintenance of the land-based DEW Line to be responsive to NORAD's requirements. (Ref. page 3, Minutes, 21 Nov 1957)

5. The USAF Air Defense Command be designated to resolve operational problems that do not change the concept of operations of the land-based DEW Line. (Ref. page 3, Minutes, 21 Nov 1957)

6. The approved directional beacons be installed on the air strips along the Aleutian Segment. (Ref. page 4, Minutes, 21 Nov 1957)

7. As an interim measure, recommendations for Operations Plan changes be submitted by operational commands to the USAF Air Defense Command for resolution. (Ref. page 1, Minutes, 22 Nov 1957)

8. The EWONG be dissolved at such time as NORAD is prepared to accept the present EWONG responsibilities and that Hq USAF take appropriate action on this matter after the NORAD Terms of Reference are approved. (Ref. page 5, Minutes, 21 Nov 1957)
**EARLY WARNING OPERATIONS WORKING GROUP (EWOWG)**

**MINUTES OF 19-22 NOVEMBER 1957 MEETING**

<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
<th>Hq or Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luther W. Hough, Jr.</td>
<td>Lt Col, USAF</td>
<td>Hq NORAD - Chairman, EWOWG</td>
</tr>
<tr>
<td>B. W. Clinger</td>
<td>Major, USAF</td>
<td>Hq ADC - Secretariat, EWOWG</td>
</tr>
<tr>
<td>Richard E. Holcombe</td>
<td>Lt Col, USAF</td>
<td>Hq USAF</td>
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<tr>
<td>Dean G. Roath</td>
<td>Lt Col, USAF</td>
<td>Hq NORAD</td>
</tr>
<tr>
<td>J. D. Crisp</td>
<td>Lt Col, USAF</td>
<td>DEW Project Office, NYC</td>
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<tr>
<td>T. F. Warns</td>
<td>Lt Col, USAF</td>
<td>DEW/WA Project Office (ARDC)</td>
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<tr>
<td>P. J. Cuniff</td>
<td>Lt Col, USAF</td>
<td>HQ CINCAI, Alaska</td>
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<td>W. S. Quint</td>
<td>W/C, RCAF</td>
<td>Hq ADC (RCAF)</td>
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<td>H. F. Marcou</td>
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<td>Hq RCAF</td>
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<tr>
<td>C. V. Walton</td>
<td>Major, USAF</td>
<td>Hq AAC</td>
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<tr>
<td>P. Pelak</td>
<td>Major, USAF</td>
<td>Hq ADC</td>
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<tr>
<td>R. J. Lloyd</td>
<td>Major, USAF</td>
<td>Hq 64th Air Div</td>
</tr>
<tr>
<td>Robert W. Eveli</td>
<td>Major, USAF</td>
<td>Hq USAF</td>
</tr>
<tr>
<td>C. W. McKelvie</td>
<td>Major, USAF</td>
<td>Hq ADC</td>
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<tr>
<td>H. J. Tierman</td>
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<td>Hq 64th Air Div</td>
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<tr>
<td>D. H. Blakely</td>
<td>Major, USAF</td>
<td>Hq USAF</td>
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<td>D. Briggs</td>
<td>S/L, RCAF</td>
<td>ADC/RCAF, Colorado Springs</td>
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<td>Supt, Trans Eng</td>
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<tr>
<td>C. G. Teeter</td>
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<tr>
<td>P. E. Groome</td>
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<tr>
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<tr>
<td>K. B. Clarke</td>
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MINUTES OF EWOWG MEETING

19 NOVEMBER 1957

The Chairman, Lt Col Luther W. Hough, Jr., convened the EWOWG at 1000 hrs at 220 Church Street, New York, on 19 November 1957. He outlined the general purpose of the meeting as to discuss and act on:

a. changes to the plan relative to the Aleutian Segment;
b. NORAD's communication requirements for Rearward and Lateral DEW Circuitry; c. the future status and responsibilities of the EWOWG; and, d. planning for incorporating the Greenland extension of the DEW Line.

Lt Col Hough first presented a résumé of events that took place at the previous meeting. He mentioned the present DEW Line identification system (basically flight plan correlation) and indicated that Hq USAF had approved this identification system as an interim measure because the code word and maneuver system, as written in the plan, could not be implemented in time to meet the operational date of the DEW Line. Lt Col Hough briefly discussed the NORAD communications proposal, which would provide for improving reliability and flexibility of DEW Line communications. He also stated that NORAD had been confronted with an operational requirement from SAC that makes it necessary to alter the present DEW Line operational concept. He indicated that many times data being received at the NORAD COC from the DEW Line had been unreliable and unusable. To present these points in detail, the Chairman introduced Lt Col Dean Roath, DCS/C&G,
Hq NORAD, who briefed the Group on communications improvements in the
DEW System that were believed necessary in order to meet present and
future NORAD operational needs. He specifically emphasized a SAC
requirement for a voice recall capability to all Main Stations.

Lt Col Roath explained NORAD’s proposed regional breakdown of the
North American Air Defense area indicating it may have a supporting
bearing on the NORAD Communication proposal.

He then discussed specific items of the NORAD proposal: First,
the augmentation and improvement of White Alice to the DEW System.
He stated that NORAD needs adequate communications from the White
Alice System in Alaska to the DEW Stations, LIZ and BAR. The
addition of repeaters from White Alice Stations to either and/or both
of these DEW Stations would provide a high quality communications
system.

His next subject was the augmentation of Alaskan Long-Line
facilities to the Zone of Interior. He stated that communications
from the ZI to Skagway, Alaska are considered adequate and that the
communications system in Alaska southward to the Anchorage area is
satisfactory, but that the connecting link between Skagway and
Anchorage is an open wire type and considered inadequate. He
discussed this rearward route and recommended that the construction
of a "tropo" link connecting White Alice to the submarine terminal
at Skagway be favorably considered by the EWOC as a requirement.
Lt Col Holcombe, Hq USAF, stated that the EWOG should not act on this as a requirement, but should determine whether it was technically feasible and economically advisable.

A discussion followed. The Group agreed that it would be best to approve this and other NORAD communications requirements only from a technical aspect.

Lt Col Roath, Hq NORAD, discussed the construction of alternate communications facilities from Aleutian DEW to the Alaskan mainland. He stated that a modest ionospheric type reporting system between Umnak and King Salmon should be installed, primarily so that surveillance data could be re-routed for transmission over this link if any of the island segments failed. He emphasized the importance of this link becoming operational by the time Project "Stretchout" is completed. Lt Col Roath mentioned the possible future tie-in of the Pacific Barrier to the Aleutian Segment of DEW, stating that the Umnak to King Salmon link also could serve as an alternate means to relay Pacific Barrier data.

Lt Col Holcombe, Hq USAF, stated that this had been discussed at an earlier EWOG Meeting and the Group felt that a requirement existed for the Pacific Barrier tie-in and that a requirement for the ionospheric link between Umnak and King Salmon had been established by the EWOG previously. However, Hq USAF had not funded for this link because of limited funds. The Group agreed that the ionospheric link should be reiterated to Hq USAF as a requirement to be met as soon as possible.
Lt Col Roath, Hq NORAD, then discussed the installation of repeat-back equipment on the DEW ionospheric rea rward telling circuits. He stated that much of the data received at the NORAD COC from the DEW Stations was not usable. He felt that the radio portions of rearward air surveillance circuits should be duplexed providing a repeat-back capability. By providing this facility, at least some of the errors now being experienced could be corrected. Discussion followed. It was determined that this facility could be acquired economically and that it was technically feasible. Lt Col Roath discussed the establishment of a communication control point at Dawson Creek. The Dawson Creek control point would monitor operations of the DEW System, direct queries on failed communications and monitor quality of surveillance data going rearward. Major Ewell, Hq USAF, asked why NORAD had selected Dawson Creek in preference to Fort Nelson. Lt Col Roath stated that Dawson Creek was an MCL terminal station and that it appeared to be a logical point for localizing trouble areas and servicing faulty data. Also being tied into an MCL station, lateral alternate communications facilities could be made available more readily in the event they are needed. Lt Col Roath further stated that if this system is established, a new primary radio link between Fort Nelson and Dawson Creek would be required to increase reliability of this link.

The improvement of Pole-vault to DEW Communications Systems was next covered by Lt Col Roath. He stated that this system should be
made more reliable and that the 64th should have a voice capability with any Main Station on the DEW Line. This would in turn give NORAD and SAC the same capability through Pole-vault as through White Alice.

Lt Col Roath discussed NORAD's reason for supporting a tropo system, through the Mid-Canada Line to the DEW Line. He stated that the ICEM threat dictates a requirement for a micro or tropo link to the FOX-CAM area and that such a system would provide higher channel capacity and reduce total dependence on Pole-vault and White Alice. He indicated that all NORAD's requirements were now before the Group for consideration.

Major Lloyd, Hq 64th Air Division, asked if NORAD had submitted their communications requirements to the Operating Commands. Lt Col Roath said that this was his purpose in presenting the requirements to the HWOWG, as all affected Commands were represented in the Group.

Major Walton, Hq AAC, asked if Command responsibilities had to be changed if the NORAD communication requirements were approved.

Lt Col Holcombe, Hq USAF, informed the Group that if NORAD's communications requirements were realized, it would require a change in command responsibilities as well as in DEW operational concept.

A discussion followed.

Lt Col Hough, Hq NORAD, the Chairman, adjourned the Group for lunch at 1145.

Afternoon session:
The Chairman asked the Secretariat for a résumé on events that were covered during the morning session, after which he opened the meeting to further discussion of NORAD's communications requirements.

Mr. Marks, RADC, asked how it was being contemplated to extend communication from Cape Lisburne and Barter Island to Ft. Yukon. Lt Col Roath indicated that the installation of a repeater between Ft. Yukon and Barter Main and by using the lateral system from Lisburne to Barter Island would provide this communications link.

S/L Biggs asked what parts of the DEW Line operations are to be serviced at Dawson Creek providing this facility becomes an agreed communications focal point. Lt Col Roath stated that all DEW surveillance information would be serviced at Dawson Creek. He then summarized NORAD's DEW Line communications requirements again emphasizing need for immediate action to improve DEW communications in order to meet the operational requirement.

Major Lloyd, Hq 64th AD, asked what specific action was being taken to augment Pole-vault. Major Blakely, Hq USAF, stated that plans are now in effect to improve the voice capability of the Pole-vault system between Cape Dyer and Goose Bay. Major Lloyd indicated that there appeared to be a requirement for a considerable increase in number of channels feeding through pole-vault, and that the present system would certainly have to be augmented to accomplish this capability. The Group agreed.
W/C Quint, RCAF-ADC, stated the Group had been presented several proposals and asked how it affected the EWWG. Discussion followed and it was determined that the DEW operational concept must be changed before any action could be taken by the Group.

Major Walton, Hq AAC, stated that the DEW System was in much need of a detailed operations manual which would be a guide to provide systematic control over and standardized procedures for the entire line. Major Lloyd indicated that Hq 84th AD favored this, but that operational responsibilities would have to be more clearly defined before this could be done. The Chairman indicated that NORAD should be given operational control over the entire land-based DEW System and that ADC would be the most likely organization to carry out monitoring of the system in accordance with NORAD's requirements.

Lt Col Cunniff, Hq CINCAK, said that if this were the case it appeared that CINCAK would be taking instructions from ADC. Lt Col Holcombe stated that ADC was a subordinate command and that it didn't appear to him that ADC would be involved with CINCAK on such matters. Lt Col Hough then requested that further discussion of the subject be continued later after the EWWG discussed other agenda items.

Lt Col Hough asked Lt Col Holcombe to brief the Group on the status of the Greenland extension to the DEW Line. He stated that siting surveys will be delayed four to five months, but that of the four sites which are now agreed upon, two will be installed at an early date. Major Lloyd asked what Hq USAF was planning for
communications to facilitate the Greenland extension. USAF representatives indicated that this was a NORAD problem. The Group agreed that ADC would work with 64th to determine communications and operational details for this system and submit a proposed change to the Plan.

Major Lloyd questioned concept as to operational control. Lt Col Roath stated that until NORAD's terms of reference are "jelled," only assumptions can be made. However, he stated that he believed the entire DEW Line should be under the control of one agency. Mr. Glenn, Hq NORAD, stated that on two separate occasions the NORAD COC had lost contact with the DEW Line for long periods. He emphasized that if surveillance control were under one agency, specifically monitored at Dawson Creek, the communication problems could be detected and resolved more easily.

Lt Col Hough then asked the Group to favorably consider the NORAD communications requirement. Lt Col Holcombe said that under the present Terms of Reference, the EWG could not take such action. However, he said that the Group could go so far as to determine if the NORAD requirements are technically feasible. Discussions followed, but no decision was reached.

Lt Col Cumniff stated that CINCCAL had submitted a letter to Hq USAF requesting additional circuitry in AAC to satisfy ACS and other operational requirements and that Hq USAF had not favorably considered the requirements. He further indicated that many of
CINCAL's communications requirements parallel those presented by NORAD.

After a break, the Chairman asked the AAC representative to discuss FPIS circuit requirements for the Aleutian Segment. Major Walton stated the circuitry from Umnak to King Salmon was necessary to provide alternate routing of surveillance data from the Aleutian Segment.

Mr. Grimm of BTL suggested establishing an identification point on either end of the Aleutian Segment, "stretch out," in place of COB, a Center Line Main. He felt this would give a more reliable service if lateral communications were lost. This suggestion was not favorably considered by the Group. The Group agreed with Major Walton's earlier statement concerning FPIS circuitry from Umnak to King Salmon.

The Chairman suggested that the reliability of the entire rearward circuitry from DEW Line to Colorado Springs be discussed further. S/L Biggs stated that in planning rearward circuitry for DEW and MCL data, it was determined that this circuitry would need to be 98% reliable. If the circuitry meets this criteria, then he could see no reason for duplexing. Mr. Alexander, Western Electric Co., said that rearward links to the base stations have met this reliability and that the Air Force had received what they contracted for. Lt Col Roath stated that if this were the case, the trouble must be rearward from base stations.
Mr. Broomhall, Bell of Canada, stated there were many different commercial companies involved in the rearward route through Canada and that a lack of systemized maintenance procedures may be a source of trouble. Mr. Groom, AT&T, said that AT&T and Bell of Canada were working out a system to get together on this problem. He further stated that a requirement for frequent tests of rearward circuitry beyond the DEW base stations was in the making. Lt Col Roath indicated that a read-back capability from the NORAD CAC to the Line was the only logical cure to the present problems. S/L Biggs indicated that he was not convinced that this was the solution or that Canada would apply money toward such a service. Mr. Groom then stated that he had been to a meeting in Montreal, the purpose of which was to describe problems connected with land line communications rearward of DEW mains. He believed, as did Mr. Broomhall, that the number of commercial communications companies involved in this rearward circuitry was a large factor in the problem area. He said the problem can be alleviated through cooperation and the development of a systemized line check and maintenance procedures. Major McKelvie, HQ ADC, said that evaluation of data received from the DEW Line had shown considerable improvement during the last few weeks. He stated that means to improve the reliability of this data was an Air Defense Command responsibility.

A discussion followed.

The Chairman adjourned the Group at 1630 to be reconvened at 0930 the next day.
MINUTES OF EWOG MEETING
20 NOVEMBER 1957

The Chairman convened the EWOG at 1000 hours, 220 Church Street, New York. He asked Major Clinger, Secretariat, to give a résumé of events of the previous day's meeting. Lt Col Hough requested the Group to actively participate in the discussion concerning NORAD's communications requirements, as he felt the EWOG should reach a position regarding these communications proposals.

Lt Col Holcombe disagreed with the Chairman. He stated that based upon present joint agreed DEW system concept, the EWOG had already planned a sound communications system for the DEW and MC Lines. He indicated that a change in communications as outlined by NORAD should only be considered if a change in the operations concept had been made.

The Chairman stated that a change in the operations concept was expected. A discussion followed and it was determined that NORAD submit their major proposals to the C/S, USAF, as Executive Agent for NORAD, in the form of a communications study.

Lt Col Roath then asked for a definition of major proposals.

Major Blakely, Hq USAF, said that major proposals were those proposals which require additional funding and/or programming of equipment.

Lt Col Roath stated that a repeat-back capability between Base Stations and DEW Mains was not a major proposal, and he asked the Group to discuss this facility.
Mr. Swinney, FECO, stated that a simple repeat-back capability could be implemented immediately at no cost, because necessary system equipment is available as spare equipment.

Major Lloyd, Hq 64th AD, said that using spare equipment for an additional function would affect back-up capability.

Lt Col Roath then stated that NORAD was willing to take this risk to insure that intended messages were getting through to the base stations.

Mr. Swinney indicated that installing a message composer (Model 19) on the send-side of the rearward circuit and a page type teletypewriter (Model 15R0) on the "repeat back" side would provide the DEW Line a highly responsive communications system.

Major McKelvie, Hq ADC, said he would favor a message composer installed at each data center on the DEW Line.

Major Walton, Hq AAC, indicated concurrence and stated controllers at main stations are not experienced or efficient in teletype operation. Therefore, normally they could not prepare rearward surveillance reports in the 20-second time period allowed for each particular message. He stated that AAC had forwarded a study to ADC, NORAD, and other agencies outlining a requirement for a message composer and recommending procedures which would reduce operational functions at main stations.

Mr. Alexander, WECO, said that over the past two years the installation of a message composer was fully covered by WECO and BTL
people, but it was determined that a composer could not be developed and installed in time to meet 31 July 1957 operations date of the DEW Line. He recommended that the Group favorably consider Mr. Swinney's suggestion regarding this facility.

The Chairman asked how long it would take to develop and install a message composer at DEW main stations.

Mr. Swinney said he estimated it would require one to two years.

Lt Col Roath said he felt this was too long, as NORAD needed reliable data from the DEW system and could not wait two years to get it.

Major McKelvic said he understood that the Model 15 RO teletype-writer could be modified to accomplish both message composing and read-back features. This would save considerably in time.

Mr. Glezen, HQ NORAD, indicated that immediate repeat-back capability from base stations to the DEW Line was fine but what NORAD really wanted was a read-back from the NORAD COC to the DEW Mains.

Lt Col Holcombe said this was understood and he suggested that all major proposals be submitted to the C/S, USAF. He stated that a full capacity "read-back" feature would undoubtedly require considerable additional funding and communications equipment programming.

Mr. Alexander indicated that WECO had received a letter from AT&T through ADC complaining about data being received at Colorado Springs. He stated that Lt Col Roath had mentioned that a high percentage of surveillance data being received at the NORAD COC was
defective and useless. He felt that the trouble was not between the DEW mains and base stations but at other points.

Major Lloyd stated that the 64th AD was in favor of message composers at their stations on the DEW Line. However, he did not believe that "read-back" would be operationally desirable. He felt it would be too restrictive if traffic were heavy, and also, it might cause unacceptable confusion at Main Stations.

Major Everell, HQ USAF, indicated that "read-back" from base to main stations would cause confusion. He mentioned an "alarm system" at several relay points, pointing out that when messages were garbled, the alarm system would be alerted.

Mr. Sullivan, WECO, said that the alarm system would not be activated if a message were garbled in the center of its text.

Mr. Grimm, STL, discussed rearward testing of FPIS circuits, and indicated these circuits were as good as their design characteristics. He was in favor, however, of accomplishing a repeat-back facility.

Lt Col Holcombe stated that if the FPIS circuits were as good as their design characteristics, then the system was 98% reliable and he saw no reason for a repeat-back facility. Lt Col Holcombe believed the trouble, if there were trouble in this section of the communication link, was with the operators. He did not feel that any new requirements or changes should be made until the operators were evaluated.
Major Walton said there is no doubt that a good share of the trouble stemmed from inability of the controllers to perform functions of a teletype operator.

Lt Col Roath asked Lt Col Holcombe if he would agree to a two week test using the simple read-back facility outlined earlier in the meeting.

Lt Col Holcombe said that he had no objections to any test providing it didn't require additional funding. He stated that before any additional equipment or requirements are supported, the problem areas should be isolated and presented to a group of technical advisors for resolution.

Lt Col Roath said he thought the EWOWG had this capability.

W/C Quint read several items in the Terms of Reference for the EWOWG, indicating that unless the Terms were changed, it would not make any difference whether or not the capability existed within the Group. He stated that improvement proposals for communications of the DEW System should be handled as recommended earlier.

The Chairman requested the Group to come to a conclusion on the subject concerning read-back capability. He stated the Group was fortunate to have highly technical engineering individuals present and that these technicians jointly agreed that a read-back capability is technically feasible and will not cost any additional money. He suggested the EWOWG accept the read-back proposal.
Major Walton stated that it was not only a problem of being technically feasible, but one of determining whether it was an operational requirement.

Lt Col Holcombe reiterated his desire that operators' techniques be explored before changes in circuitry were ordered.

Lt Col Roath stated that Lt Col Holcombe had earlier agreed to a two-week test. Lt Col Holcombe stated he had no objections to a read-back test but still felt the problem was operational. Discussion followed.

The Chairman asked the ADC member for his position on the read-back facility. Maj Clinger stated the Air Defense Command supports the proposal for read-back between base and main stations.

Lt Col Holcombe then stated that USAF would support the proposal.

The EMWGC agreed to support the read-back proposal and recommended that the DEVFC authorize it to be installed as soon as possible. Further, that after two weeks of test a full report be submitted by operating commands to DCS/C3E NORAD for evaluation.

Lt Col Roath asked the Group to discuss the establishment of a communications control point at Dawson Creek.

Lt Col Holcombe stated that he had no objections to discussing this proposal but felt the proposal, along with others indicated by NORAD, was an effort to remedy deficiencies which would not exist if the requirements of the Plan were met. He clarified this by saying
the Plan premised its concept on 98% reliable circuitry. If this
were being realized, there would be no problem.

Mr. Alexander objected, stating that the WECO part of DEW Line
communications met design characteristics.

Mr. Groome stated that he was not clear on how a control point
at Dawson Creek would function. He indicated that AT&T had a control
office at Denver that deals directly with the NORAD COC. He
mentioned that there were 16 groups involved in the communications
system between Colorado Springs and the DEW Base Stations. He stated
that if the Air Force control point were moved from Colorado Springs
to Dawson Creek, AT&T would have no industry there. He asked whether
AT&T would have to tie-in with Dawson Creek, Denver and Colorado
Springs.

Lt Col Roath indicated that the unit at Dawson Creek would be
military and that AT&T would deal with Colorado Springs as before.

Lt Col Holcombe stated that he would like to hear the basis for
NORAD proposals, i.e., the communications improvements indicated
beyond the communications requirements presently outlined in the
Operations Plan.

The Chairman stated that he would submit the concept after lunch
and adjourned the Group at 1145 until 1315.

The meeting was resumed at 1315. The Chairman presented the
concepts that established the basis for NORAD's communication pro-
\[...\]
1. A NORAD requirement for high quality data flow from the DEW Line.

2. A SAC requirement to permit contact with SAC aircraft at the line via voice circuitry.

3. The use of DEW circuitry to permit ICBM warning data to be relayed at a faster rate than present communications facilities will permit.

Lt Col Holcombe questioned the first statement.

Mr. Glezen stated that in order to support items 2 and 3 above, NORAD needed two-way voice communications with all Main stations to be backed up with teletype. The voice circuits to be "hot lines," i.e., direct without "switching."

Discussion followed and the Group agreed that these and other major proposals be packaged, substantiated and submitted by NORAD to C/S USAF, as Executive Agent for NORAD, for necessary action.

Mr. Glezen said it was necessary to have voice capability from one end of the DEW Line to the other without time-consuming "patching" or switching.

Major Biakely stated that USAF has some money available to handle this function providing it was operationally necessary. He mentioned other improvements to the DEW system that were underway. Specifically, he mentioned providing additional reliability to the Pole-Vault system.
Major Blakey indicated that a requirement was going to be placed on NORAD to come up with a complete channel requirement in the DEW lateral, in DEW rearward circuits, Pole Vault, and DEW East, i.e., to include air defense requirements, SAC requirements, RCAF and DOT requirements. All requirements would be exclusive of White Alice which CINICAL would be requested to provide. He stated that when these requirements are received, they would be turned over to a dependable engineering agency to determine a means to meet the requirements.

The Chairman asked the 64th AD member how reliable the communications were between the 64th and Dye and Fox.

Major Lloyd stated they were 95 to 97% reliable but they were experiencing signaling difficulty.

The Chairman asked the AAC representatives if any communication difficulties were being encountered in their portion of the DEW line.

Captain Egli, AAC, indicated that on lateral circuitry they had noise problems and also signaling difficulty. He believed the noise problem was worse between LIZ 2 and LIZ 3 and thought the reason was due to bad propagation pathing.

The Chairman asked the AAC representatives how long it took to contact Dye Main Station from AAC COC.

Captain Egli stated that he could not give the exact time but that it would be considerable in that patching between mains enroute was necessary.
Mr. Wollman, WECO, stated that the basic operations plan for the DEW Line required voice call from main to main. To provide an immediate voice capability from either command along the full length of the DEW Line would require special engineering and channelization.

A discussion followed, and it was determined that immediate voice capability along the entire DEW Line from either or both operational commands was technically feasible. The cost and reliability could only be determined by study and test.

The Chairman adjourned the group at 1715 hours to meet the following day at 0900.
MINUTES OF EWOG MEETING
21 NOVEMBER 1957

The Group was convened at 1015 hours. At the request of the
Chairman, the Secretariat gave a resume of the previous day's
meeting. The Chairman then stated that he wanted the Group to
review and correct Change One to the DEW Ops Plan to include oper-
ations of the Aleutian Segment ("Stretch Out").

Maj Clinger stated that the EWOG had prepared and submitted
the original Change One to Hq USAF over six months ago and asked
Lt Col Holcombe what had happened to the Change One.

Lt Col Holcombe stated that CAA had not signed off on the
Change but that he had sent a copy of the Change to the DEW
Project Office for their guidance.

Maj Clinger stated that he saw no reason why CAA took
objection to the Change, stating that CAA had a representative
at the meeting when the Change was prepared.

A discussion followed, and the Group agreed to resubmit a
corrected Change One to Hq USAF for approval.

The Chairman assigned a working group under Maj Walton to
prepare the corrected Change One. Mr. Wellman and Mr. Grimm were
to help in preparing Figure 3A to Change One (Figure 3A is the
communications layout of "Stretch Out").

Lt Col Hough asked Lt Col Holcombe to give the Group a
resume on organization and command responsibilities for the DEW
Line.
Lt Col Holcombe said that present plans give operational control of the line to AAC and NEAC. He stated that recent changes within the U.S. air defense organizations have caused ADC to assume, through 60th AD, operational control of those parts of the DEW Line assigned to NEAC and have caused AAC to be responsive to CINCSAL and CONAD for air defense responsibilities. He added that the assignment of the M&O contract administration to ADC, which will occur on 15 February 1958, causes the command channels to differ between operational control, logistic support, and operations of the DEW Line.

Lt Col Holcombe recommended that the operational control be assigned to the USAF ADC to be responsive to NORAD's requirements; further, that, as an interim measure, AAC and 60th AD forward recommended changes to the present USAF-RCAF DEW-MCL Ops Plan or recommendations for more detailed operational procedures to the USAF ADC. He stated that the USAF ADC should coordinate these recommendations and obtain RCAF-ADC approval prior to changing the Plan and that such changes need not be forwarded to the respective Air Force organizations for approval unless a joint USAF ADC and RCAF-ADC position cannot be obtained. He also stated that technical equipment changes should be handled in the same manner but should be forwarded to the DEWPO for implementation after joint RCAF-ADC and USAF ADC approval. The EMOWG agreed, with the exception of AAC and CINCSAL representatives, who took exception to the USAF ADC having operational control of the DEW.
Line now assigned to AAC. Further, Lt Col Hough did not agree to Lt Col Holcombe's proposal to give operational control of the land-based DEW Line to ADC and stated that NORAD should be given this operational control.

Mr. Swinney stated the FEO would prefer operating under one system or agency. This would simplify personnel and administration problems and would result in a better overall operation.

Following a discussion, the EDCOMG recommended that:

a. The responsibility for logistical support and operations follow the same organization; further, that one organization be given overall responsibility for the operation and maintenance of the land-based DEW Line to be responsive to NORAD's requirements.

b. The USAF Air Defense Command be designated to resolve operational problems that do not change the concept of operations of the land-based DEW Line.

Maj Walton discussed communications requirements for the Aleutian Segment, specifically making reference to an FPLS circuitry from Unmak to King Salmon. He mentioned the need for directional beacons at Stations along the Aleutian Segment.

Lt Col Holcombe suggested that beacons be placed at strips, not at the stations, as is on the DEW Line.

Lt Col Crisp, DEWPO, stated that communications improvements approved for the main DEW Line would most likely be incorporated in the Aleutian Segment. However, requirements for beacons, their recommended locations, etc., should be made known to him as soon
as possible. The Group agreed and recommended that approved directional beacons should be installed on the air strips along the Aleutian Segment.

The Group recessed for lunch at 1130 hours.

The Group reconvened at 1300 hours.

The Chairman asked Maj Walton for the status of Change One. Major Walton indicated that he would have the Change completed by 1700 hours but that Figure 3A would be corrected and submitted to the Group the following morning for approval.

Lt Col Hough asked Lt Col Holcombe what he thought the future status of the EMOWG would be. Lt Col Holcombe said the EMOWG was originally formed to write an operational requirement plan for the land-based portion of the Distant Early Warning System. The Group was formed to speed up the normal staff method of planning since there were so many major commands concerned. He said that changes in U.S. service organization and the completion of ARDC and AMC responsibilities have reduced the number of major commands responsible for the DEW system. He stated further that when the Terms of Reference for NORAD are approved, NORAD should have the capability of handling all responsibilities presently assigned to EMOWG. Therefore, he recommended the EMOWG be dissolved at such time as NORAD is prepared to accept the present EMOWG responsibilities and that Hq USAF take appropriate action on this matter after the NORAD Terms of Reference are approved.
A discussion followed. The EMWG agreed with Lt Col Holcombe's recommendation and that it be stated as a recommendation of the EMWG.

The Chairman adjourned the Group at 1630 hours to be reconvened at 1000 hours Friday.
MINUTES OF EW/WG MEETING
22 NOVEMBER 1957

The Chairman convened the Group at 1000 hours. He asked Major Walton the status of Change One and Figure 3A. Major Walton turned in the corrected Change One, but stated Figure 3A was still being worked on. The EW/WG approved the corrected Change One and the forwarding of the corrected Figure 3A along with the corrected Change One to Hq USAF for approval.

The Chairman asked the Group if they had any comments to make regarding changes to the basic Ops Plan. Mr. Swinney stated that the DEW Line was not being operated in accordance with the basic Plan. Lt Col Holcombe said the basic Plan was not intended to be sufficiently detailed to handle all operations procedures, that the operational commands along with FECC should prepare detailed SOP’s, etc. Mr. Swinney mentioned time checks varied from procedures established in the Plan. He submitted a complete listing of actual problem areas being encountered since FECC has taken over operation of the DEW Line. He consolidated the problem areas into four points: (1) Communications, (2) Surveillance, (3) Weather, AMIS and Identification, (4) Security and Equipment Status Reports.

Discussion followed. The Group recommended that, as an interim measure, these and other similar problems or recommendations for Ops Plan changes be submitted to the operational commands, who, in turn, will submit their recommendations to USAF ADC for joint approval and necessary action.
(The EMWG agreed in the previous day's meeting that, as an interim measure, recommended changes to the present USAF-RCAF Ops Plan be submitted to the USAF ADC for joint USAF ADC and RCAF-ADC approval and necessary change action. Further, if joint agreement could not be reached, such should be referred to Hq USAF for resolution by Hq USAF and Hq RCAF.)

Lt Col Crisp stated that the operating contractor was encountering a great deal of confusion because of numerous call signs being used on the line. He recommended that the EMWG support the use of a single and uniform system of call signs and publish them in the radio facility charts for the Far North.

Discussion followed. The Group agreed to support this idea and indicated that the operational commands should send these recommendations to the USAF ADC for joint approval and necessary action.

Maj Lloyd presented 66th AD's problem areas. These were similar to those presented by FECC. It was determined that these too be submitted to the USAF ADC for resolution and necessary action.

Maj Pelak, Hq ADC, stated that ADC had forwarded a message to Hq USAF requesting concurrence on USAF KAC-1 Air Ground Authentication Area Code, KAC-13 ADC Regional Status Reporting Code, KAC-26 NORAD Point to Point Authentication Code, and KAC-72 SAC Air Ground Authentication Area Code for use on the DEW Line. He said that the systematic use of these codes on the DEW Line would
greatly alleviate problems being encountered on the DEW Line. USAF representatives indicated they would trace the status of the ADC request.

The ENWG agreed that if the code systems were utilized on the DEW Line, the USAF ADC should fully coordinate the systems with all interested agencies prior to implementing action.

Mr. Swimney stated that intermediate sites "I" should be provided navigational aids similar to the low frequency beacon, Wilcox 99C, now employed at Main and Auxiliary Stations. He said that these sites are visited at least once per week and much difficulty is being encountered in navigation to and from these sites.

Lt Col Holcombe said that FEGU should have anticipated such problems when they "bid" on the operations contract. He would not favor "plumping" tasks for operations personnel at this time. Lt Col Holcombe discussed background evaluation that lead the ENWG to determine that Nav-aids at "I" sites were not necessary. Specifically, he stated that "I" sites are to be eventually unmanned; that there are sufficient beacons in the area (within 50 miles); and that trips to these stations can be adjusted to be made in good weather. He said that if bad weather existed, it would be doubtful that an aircraft could land at an "I" site without a "let down" procedure, and ground air communications for clearance.

A discussion followed.
The EWG agreed with Lt Col Holcombe and stated that procedures should be worked out if possible for satisfactory navigation, deliveries, etc., without additional cost to the U.S. for navigational aids.

The Chairman summarized the meetings over the past three days and then asked for additional comments or questions. There being none, he adjourned the Group at 1200 hours.
PROPOSED CHANGE #1
TO OPERATIONS PLAN FOR
DISTANT EARLY WARNING AND MID-CANADA LINES

1. To incorporate the operation of the Aleutian segment of the
DEW Line into the Operations Plan for the Northern portion of the
system, the following changes are to be made to the Operations Plan,
Distant Early Warning and Mid-Canada Lines:

   a. Section I.
      (1) Paragraph 2, Lines 3 & h, after Canada, add: "and
the Aleutian Segment which extends between Port Heiden, Alaska, and
Nikolski on Unnak Island" and for that--

   b. Section II.
      (1) Page 3, Paragraph 6, line 5, after "1 July 1957"
delete last sentence and add: "Plans have also been made to extend
the land based portion of the DEW System from Cape Lisburne westward
around the perimeter of Alaska where it will tie into the Pacific
Sea Flank and eastward from Cape Dyer where it will tie into the
Atlantic Sea Flank. Approval has been given to construct that
portion of the land segment along the Aleutian chain which ties into
the Pacific Sea Flank."

   c. Section VI.
      (1) Page 9, Paragraph 1.a., third line, after "Canada",
add: "and along the Aleutian chain from Port Heiden to Nikolski."
Fourth line, before "DEW Line", insert: "Northern portion of the".

      (2) Same paragraph, second from last sentence, after
"flutter", insert: "The Aleutian segment will be similar to the"
above with the exception that there will be no 'flutter' equipment installed and, therefore, no requirement for Intermediate stations. There will be one (1) Main station with three (3) Auxiliary stations on the west side of the Main, and two (2) on the east side of the Main for a total of five (5) Auxiliary stations."

(3) Page 10, after paragraph 1.f., add: "NOTE: Low altitude coverage of the Aleutian Segment is 200 feet over water and 500 feet over land."

(b) Page 10, paragraph 1.g.(b). Change total personnel required to: "Military, 42 - 0; Civilians, 679."

(5) Page 11, paragraph 2.a.(2). After "receiver units," add: "(Mil on Aleutian Chain)."

(6) Page 11, paragraph 2.b.(b). After "10kw" add: "and PRC-39 on Aleutian segment."

(7) Page 12, paragraph 2.d.(10)(b). After "East, West flutter link," add: "(Mil on Aleutian segment)."

(8) Page 13, paragraph 3.a.(2). After "Receiver units" add: "(Mil on Aleutian segment)."

(9) Page 17, paragraph 5.g., second line, after "10kw", insert: "or PRC-39."

(10) Same paragraph, line 13, after "2h", insert: "or more."

d. Section VII.

(1) Page 27, paragraph 1.d.(1), line 6, after "East" insert: "The Alaskan ADIZ will be extended to include the coverage"
of the Alaskan chain." The extent of the DEMIZ -- -- --.

e. Section VIII.

(1) Page 34, paragraph 1.a., line 5. For "Six (6)"

Operational Sectors, read "Seven (7)" Operational Sectors.

(2) Page 34, paragraph 1.b.(1)(a), line 2, after "From",

insert: "Nikolski to Port Heiden" and from "LIZ -- -- --.

(3) Page 34. Change Pw Sector to read paragraph

1.b.(1)(a)2., and insert new paragraph 1.a.(1)(a)1.

1. Cold Bay (COB) Sector: That area East of

Nikolski 168°51'20"W to Port Heiden 158°37'36"W, including stations:

<table>
<thead>
<tr>
<th>Station</th>
<th>Type</th>
<th>Location (lat. and long.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nikolski</td>
<td>COB 1 A</td>
<td>52°58'25&quot;N 168°51'20&quot;W</td>
</tr>
<tr>
<td>Driftwood Bay</td>
<td>COB 2 A</td>
<td>54°00'46&quot;N 166°45'15&quot;W</td>
</tr>
<tr>
<td>Cape Sanrich</td>
<td>COB 3 A</td>
<td>54°35'35&quot;N 164°52'36&quot;W</td>
</tr>
<tr>
<td>Gold Bay</td>
<td>COB M</td>
<td>55°30'51&quot;N 162°52'21&quot;W</td>
</tr>
<tr>
<td>Port Moller</td>
<td>COB 4 A</td>
<td>55°58'00&quot;N 160°29'48&quot;W</td>
</tr>
<tr>
<td>Port Heiden</td>
<td>COB 5 A</td>
<td>56°58'55&quot;N 158°37'36&quot;W</td>
</tr>
</tbody>
</table>

(4) Pages 34 and 35. Change numbering of 1.b.(1)(a)

2, 3, 4, to read 1.b.(1)(a)2, 3, 4, respectively.

(5) Page 37, paragraph 1.c.(2)(a)2. After "From",

insert "COB".

(6) Page 37, paragraph 1.c.(3)(b), line 3. After

"within" insert "COB".

(7) Page 38, paragraph 1.c.(5)(b), delete present

paragraph (b) and insert new paragraph (b):
(b) Data on "Friendly", "Unknown" and "Hostile" airborne objects from POW and BAR Sectors will be transmitted to the 11th Air Division ADCO and from COB Sector to the 10th Air Division ADCO. Drops will be provided to Indian Mountain OCI Station on the POW Main Station surveillance circuit and to Fort Yukon OCI station on the BAR Main Station surveillance circuit to the 11th Air Division, and to the King Salmon Direction Center in the COB Main Station surveillance circuit to the 10th Air Division. The information which is transmitted from the BAR Main and POW Main Stations to the 11th Air Division, and from COB Main Station to the 10th Air Division, regarding "Friendly", "Unknown" and "Hostile" airborne objects will be subjected to RTT selector action which will allow through transmission of "Unknown" and "Hostile" data to AAC, COMAD and RCAF ADC COC's.

(8) Page 38. To paragraph 1.c.(5)(c), add the following: "and from the 10th Air Division to the COB Main Station. A voice operational circuit will be provided from the COB Main Station to the King Salmon ADCO."

(9) Page 38. To paragraph 1.c.(5)(f), add: "and from the 10th Air Division to COB Main Station Data Center."

(10) Page 39, paragraph 1.f.(1) for "three (3)" AMIS's read "four (4)" AMIS's. Line 7, after "Fairbanks" insert "Anchorage".

(11) Page 39, paragraph 1.f.(2), line 3, after "Fairbanks" insert "Anchorage".
(12) Page 40, after paragraph 1.f.(h)(e), insert new paragraph 1.f.(h)(f):

(f) Anchorage AMIS to COOB.

1. Provide all flight plans in the COOB Sector to COOB.

(13) Page 40, paragraph 1.f.(5), add the following sentence: "In the case of communications failure between COOB and Anchorage AMIS, Anchorage will route flight plan data through King Salmon Direction Center."

(14) Page 40, paragraph 1.g.(1). Add the following sentence: "Along the Aleutian chain, the Alaskan coastal ADIZ will be extended to include the radar coverage of COOB Sector."

(15) Page 43, paragraph 1.i.(1) Delete sentence one, and add new sentence one: "Time checks will be initiated every 24 hours by voice communication from the 10th Air Division COC to COOB, the 11th Air Division COC to BAR, and the Goose Bay ADDC to DYE."

(16) Page 56, paragraph 3.b.(a), AAC region, insert before POW Sector:

<table>
<thead>
<tr>
<th>Station</th>
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</thead>
<tbody>
<tr>
<td>COOB (Sector)</td>
<td>EZ</td>
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<tr>
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<td>EU</td>
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<td>EX</td>
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<tr>
<td>COOB-5 Sub-sector</td>
<td>EZ</td>
<td>71-85</td>
</tr>
</tbody>
</table>
(17) Page 62. Add to paragraph 4.a.: "When conditions prohibit COB-4 and/or COB-5 from reporting to COB by primary teletype, alternate surveillance voice to 705th AFW Squadron will be used."

f. Section I.

(1) Page 82, paragraph 1, add: "and Figure 3a" after "See Figure 3a."

(2) Page 82, paragraph 1.a.(1), renumber to read paragraph 1.a.(1)(a).

(3) Add paragraph 1.a.(1)(b): "On the Aleutian Segment this circuit will terminate in the operations room of the Alaskan Air Command AFW Station at King Salmon."

(4) Page 82, paragraph 1.b.(2), add: "COB to King Salmon."

(5) Page 82, paragraph 1.b.(2), add: "COB to King Salmon."

(6) Page 82, paragraph 1.c.(1), after Cape Lisburne, add: "and King Salmon."

(7) Page 82, paragraph 1.c.(2), add:

- COB-1 to COB-2
- COB-2 to COB-3
- COB-3 to COB
- COB to COB-4
- COB-4 to COB-5
- COB-5 to King Salmon

(8) Page 83, paragraph 1.d.(2), add:

- COB-1 to COB w/drops at:
  - COB-2
  - COB-3
COB to King Salmon w/drops at:

COB-1
COB-5

(9) Page 85, paragraph 1.e.(2), add:

COB to COB-1
COB to COB-2
COB to COB-3
COB to COB-4
COB to COB-5

(10) Page 85, paragraph 1.f.(2), add:

COB to King Salmon

(11) Page 86, paragraph 1.h.(2), add:

COB-1 to COB
COB-2 to COB
COB-3 to COB
COB-4 to COB
COB-5 to COB

(12) Page 87, paragraph 1.j.(2), add:

COB to:

COB-1
COB-2
COB-3
COB-4
COB-5

(13) Page 88, paragraph 1.k.(2), add:

COB-1 to COB
COB-2 to COB
COB-3 to COB
COB-4 to COB
COB-5 to COB

(14) Page 89, paragraph 1.m.(1)(b), add:

Paragraph 5. AAC multipoint connecting COB, 10th ADCC and King Salmon ADCC.
(15) Page 90, paragraph 1.n.(2)(b), add:

COB to COB-1: COB-1 rearward to Anchorage.

(16) Page 90, paragraph 1.n.(3)(c), add: COB.

(17) Page 91, paragraph 2.a.(2) add, after Resolution Island, Canada: "A UHF tropospheric scatter circuit from COB to King Salmon where it will enter the White Alice network."

(18) Page 91, paragraph 2.a.(3) add, after Cape Lisburne:

"King Salmon and Anchorage, etc."

(19) Page 92, paragraph 2.b.(1)(b) add, after 11th Air Division: "From COB at King Salmon ADCC and 10th Air Division."

(20) Page 93, paragraph 2.b.(2), add:

Addressed to:

I

C

T

H

A

D

(a) After FCW, add: "COB, XF under 10th Air Division, X under COMAD, X under RCAF, X under AAC, X under WADF, X under 5th AD.

(b) Under "Primary Routing" COB to King Salmon to 10th AD to AAC to Dawson Creek to (A) Edmonton to Winnipeg to RCAF ADCC (B) 5th AD to Tacoma to WADF to COMAD.

(c) Under "Alternate Routing" COB to COB-1 to 10th AD to King Salmon and AAC and same as primary from AAC.

(21) Page 97, add paragraph 2.b.(3)(1):
(1) Circuit 8. This is a one-way teletype circuit for transmitting surveillance data to 10th Air Division with a drop at King Salmon ADC, AAC CCC, 5th Air Division (Canada), WADF, RCAF, ADC CCC, and CONAD CCC. This information shall combine with other surveillance data at AAC CCC, Dawson Creek, Edmonton, Winnipeg, Tacoma, and WADF and be routed through sequencing equipment. At AAC it will be routed through sequencing equipment and over existing facilities to Dawson Creek. At Dawson Creek it will:

1. Branch and continue over a commercial one-way teletype circuit to Edmonton where it will be routed through sequencing equipment. At Edmonton it will continue over a commercial one-way circuit to Winnipeg where it will be routed through sequencing equipment. At Winnipeg it will continue over a commercial one-way teletype circuit to RCAF ADC CCC.

2. Be routed through sequencing equipment and over existing facilities to 5th Air Division (Canada) to Tacoma to WADF to CONAD.

(22) Page 97, paragraph 2.c.(1), line 3, after Fairbanks, add: "Anchorage, ".

(23) Page 98, add paragraph 2.c.(1)(g):

(g) Circuit 7. CEB to Anchorage will be over FPTS.

(24) Page 98, add paragraph 2.c.(2):

(2) A voice line from CEB to AMIS (CAA) Anchorage is provided due to density of commercial traffic along the Aleutian Segment of the DEW Line.

(d) A voice party line from 10th Air Division through

King Salmon to OOB.
**UNCLASSIFIED**

<table>
<thead>
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<th>ACTION</th>
<th>TO</th>
<th>INFO</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROUTINE</td>
<td>CANADIAN CENT AFB, COLORADO SPRINGS, COLO. (COPIER)</td>
<td>CANAIRE IQE ST. HUBERT, QUEBEC, CANADA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COCHRAN STEWART AFB, NEW YORK</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMUGCCP RICHARDS-GEBAUD AFB, MO</td>
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<td>COMUGCCP HAMILTON AFB, CALIFORNIA</td>
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<td></td>
<td></td>
<td>CINCAL ELMENDORF AFB, ANCHORAGE, ALASKA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMUGAPD PEPPERELL AFB, NEWFOUNDLAND</td>
</tr>
</tbody>
</table>

FROM NOESS-C \[X009\]

Extreme difficulties are being encountered in communications outages and receipt of excessive number of garbled messages at NORAD COC from DCA line. As principal advisor and agent for NORAD on air force matters, request you initiate necessary action, in coordination with other pertinent Air Force commands, to investigate and resolve these problems.

For info address: Further correspondence on this subject is being disseminated by ADC. Request assistance be provided to ADC, CANAISECURITY.

BE PROVIDED TO ADC, ORDER FOR RECORD.

**DATE** 22 **TIME** 162533 **MONTH** OCT **YEAR** 1957

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<td>J. W. LEDOUX</td>
</tr>
<tr>
<td></td>
<td>LCDR. USN</td>
</tr>
<tr>
<td></td>
<td>2nd Adjudant</td>
</tr>
</tbody>
</table>

**UNCLASSIFIED**
M/R: There are several organizational problems concerning responsibilities of individual components or agencies. Some of these problems arise from attempting to integrate data flow and communication to establish a single point of accountability. Various representations within ADE and ABC are in agreement.
CON011
A-37-02
FORWARDED
TO CONDCS-1
INFO CONDCS GIGABIT ENT AF3-04
COPPS USAF WASH-DC
CONDCS MACG INC. (7-4-17)

READING FILE

ACTION COGRC

CITE OCC-5202. REFERECNY YOUR MESSAGE
ARICE-LP 3-59 AND BY MESSAGE OCC-5202 NOTAL. LYE VOICE CIRCUIT
CONNECTED AND OPERATIONAL THROUGH MARB (R) CONDCS CIG SWITCHBOARD
EFFECTIVE 31 OCTOBER 1957.

AC: PARAPHRASE NOT REQUIRED; EXCEPT PRIOR TO CATEGORY I ENCRYPTION
PHYSICALLY REMOVE ALL INTERNAL REFERENCES IN DATE-TIME-GROUP PRIOR
TO DECLASSIFICATION--NO UNCLASSIFIED REFERENCES IF DATE-TIME-GROUP
IS COVERED.

//ADVANCED COPY HAS BEEN DELIVERED TO OCC//
CONCERNING ACCOOS
ME RATIONAL
DE RJDIDC 1C
40820602
Ft CINCAL ELHERDORF AFS ALASKA
TO RJDIDC/CINCAL ELHERDORF AFS COLO.
INFO/CONFIDENTIALITY ELHERDORF AFS ALASKA.
DT
FROM CDR. 5584
INFORMATION HERE INDICATES MARACEX FPE CIRCUIT CONTINUES TO BE
UNSATISFACTORY AND ATTEMPTS TO BRING CIRCUIT TO ACCEPTABLE
CONDITION UNSUCCESSFUL. IN VIEW APPARENT UNSUCCESSFUL CONTRACTOR
ATTEMPTS TO BRING CIRCUIT TO SATISFACTORY OPERATIONAL EFFICIENCY,
AND IMPORTANCE OF THIS AIR DEFENSE CIRCUIT, CONSIDER PROBLEM OF
SUFFICIENT IMPORT TO WARRANT YOUR ADVISING USE OF UNSATISFACTORY
OPERATION AND RECOMMENDING THAT YOU BE REQUESTED TO EXPEDITIOUS
ACTION TO BRING CIRCUIT TO SATISFACTORY OPERATIONAL EFFICIENCY.

DT
02/02/67 FM
NCV RJDIDC RJDIDC.

/*- PARAPHRASE NOT REQUIRED EXCEPT PRIOR TO CATEGORY 3 ENCRYPTION
PHYSICALLY REMOVE ALL INTERNAL REFERENCES BY DATE-TIME-GROUP
PRIOR TO ADVANCE COPY SENT TO CCR//
DECLASSIFICATION
//ADVANCE COPY HAS BEEN DELIVERED TO CCR//
CIMONRAD

TO: COPS USAF WASH DC
INFO COMAD (CITY)

W/X: At NACADA instruction, requesting Mr. X, as Executive Agent for NACADA, to direct 930 to expedite necessary improvement of RAG-43X PIS circuit.

AJ: PARAPHRASE NOT REQUIRED EXCEPT PRIOR TO CATEGORY B ENCRYPTION - PHYSICALLY RE-ENTRY. MOVE ALL INTERNAL REFERENCES BY DATE TIME GROUP PRIOR TO DECLASSIFICATION.

CLASSIFIED REFERENCE: AT DATE TIME GROUP

DATE 8
TIME 2030Z
MONTH NOV
YEAR 1957

0X03-C


SG. GARVER

SIGNATURE

DD: 173

REPLACES DD FORM 173, 1 OCT 49, WHICH WILL BE REPLACED BY EXHAUSTED
"NO UNCLASSIFIED REFERENCE IF THE PTC IS QUOTED."
THE FOLLOWING MESSAGE FROM CINCINNATI IS QUOTED: QUOTE. CONFIDENTIAL
NOLESS-C X014. COFS USAF AS EXECUTIVE AGENT FOR NORAD. SUBJECT IS
UNSATISFACTORY FP1S CIRCUIT BAR-ALGEX. IN VIEW OF APPARENT UN-
SUCCESSFUL CONTRACTOR ATTEMPTS TO BRING CIRCUIT TO ACCEPTABLE
OPERATING EFFICIENCY AND IMPORTANCE OF THIS NORAD CIRCUIT, REQUEST
DUMMY TO EXPEDITE ACTION TO BRING CIRCUIT UP TO SATISFACTORY
OPERATIONAL EFFICIENCY. QUOTE. ADVISE THIS HEADQUARTERS AND
CINCINNATI PROBLEMS ENCOUNTERED WITH THIS CIRCUIT, AND ACTION BEING
TAKEN OR RECOMMENDED ACTION TO IMPROVE THIS CIRCUIT.
AT
15/2320Z NOV RJPX40
CON01 HQA012
MM RJEDEL
DE RJXDA6 2C
M 0540

HQE012
AEC005

MM RJEDEL
DE RJXDA6 2C
M 050250Z
FM CINCEI ELMENDORF AFB ALASKA
TO RJEDEL/CINCNOAK ENT AFB COLO
INFO ZEN/COMAAC ELMENDORF AFB ALASKA
DT

FROM AEC005
REF MY MSG CITE CED 5388. ACTION BY FAPUSJCOG REDUCED WHF THY FSPS AT
BARTER ISLAND. THE AAC REQUESTED DEEPS TO REINSTALL HIGH FSR
CAPABILITIES AT BARTER AND ASEX AS BACKUP FOR FSPS. IN VIEW OF THE
IMPORTANCE OF THIS AD CIRCUIT IT IS STRONGLY RECOMMENDED THAT CINC-
NORAD SUPPORT THE AAC REQUEST.
ST
05/0307Z DEC RJXDA6

--PARAPHRASE NOT REQUIRED EXCEPT PRIOR TO CATEGORY B ENCRYPTION--
PHYSICALLY REMOVE ALL INTERNAL REFERENCES BY DATE-TIME-GROUP PRIOR TO
DECLASSIFICATION
//ADVANCE COPY XMITTED TO COC//
COPY OF INCOMING CLASSIFIED MESSAGE

NORDICOG 015
RR RJEDD RJOXH RJEFF
DE RJEPH 216
R 0321347
FM HQ USAF WASHDC
TO RJEDD/CINC/GRAD ENT AFB COLO
INFO RJOXH/CINCAL ELMENDORF AFB AL
RJOXH/COMAAC ELMENDORF AFB AL
ZEN: CHIEF DEWPO 220 CHURCH ST NY NY
RJEFF/COMAAC ANDREWS AFB CP SPRINGS MD
IT
FROM AFOAC-1 54675 "CATEGORY AC"
REFERENCE NOESS-3 X-28 NOTAL. THIS IS AN EXECUTIVE AGENCY MESSAGE IN THREE PARTS. PART I: THIS HEADQUARTERS CONCURS IN PROPOSAL TO PROVIDE HIGH FREQUENCY BACK-UP TO THE BARTEN ISLAND-ANCHORAGE DEW-REAR CIRCUIT, ON AN INTERIM BASIS. PART II: FOR CINCAL AND COMAAC, SUGGEST YOU DETERMINE IF REQUIRED EQUIPMENT CAN BE LOCATED IN THEATER IN AACS OR AAC RESOURCES AND ADVISE IN ORDER THAT PROGRAMMING CAN BE EFFECTED. IN REGARD TO FREQUENCIES, SUGGEST YOU CONSIDER FREQUENCIES FORMERLY USED ON BARTEN-ANCHORAGE OUR CIRCUIT AND THOSE RECENTLY DEACTIVATED ON AACS OPERATED ELMENDORF-FIELDING.

PAGE TWO RJEPH 216
CIRCUIT, SUBMIT FREQUENCY PROPOSAL TO THIS HEADQUARTERS. PART III:
FOR ALL DESIGNATION OF OPERATIONAL DATE AND ENGINEERING-INSTALLATION
AGENCY WITHHELD UNTIL RECEIPT OF INFORMATION CONCERNING ABILITY TO INSTALL THIS CIRCUIT WITH LOCAL RESOURCES. ALL ACTIONS MUST BE COORDINATED WITH CHIEF DEWPO. OTHER ACTIONS BEING CONSIDERED FOR EARLY IMPLEMENTATION SHOULD DRAMATICALLY IMPROVE RELIABILITY OF OUR ARCTIC COMMUNICATIONS SYSTEMS. THEREFORE, THIS HIGH FREQUENCY BACK-UP IS APPROVED FOR INTERIM OPERATION ONLY.
BT
03/22537 JAN RJEPH

AC-PARAPHRASE NOT REQUIRED EXCEPT PRIOR TO CATEGORY 3 ENCRYPTION---
PHYSICALLY REMOVE ALL INTERNAL REFERENCES BY DATE TIME GROUP PRIOR TO DECLASSIFICATION---NO UNCLASSIFIED REFERENCES IF DATE TIME GROUP IS QUOTED.
NOEPR

11 December 1957

SUBJECT: Review of North American Long-Lines Facilities Related to Air Defense

TO: Chief of Staff, United States Air Force
    As Executive Agent for NORAD
    Washington 25, D.C.

1. The enclosure to this letter proposes several changes to military communications systems in the North American area. The proposals are the direct result of their capability to support the NORAD requirements as they exist now and are expected to exist in the foreseeable future.

2. Subjectively, seven recommendations evolve from the review and these may be summarized as follows:
   a. Improvement of White Alice to DEW communications.
   b. Augmentation of Alaskan long-lines communications.
   c. Construction of alternate facilities to Aleutian extension of DEW Line (Project Syrenboat).
   d. Installation of rearward pointing equipment to DEW rearward pointing circuits.
   e. Establishment of communications monitor and control point in Dawson Creek area.
   f. Improvement of Pole Vault to DEW communications.
   g. Support of proposed Fox-Churchill tropospheric system (DEW to NOL).

3. The recommendation set forth in paragraph 2d is being implemented on a test basis. It is included as a part of this correspondence because of its relationship to other proposals for improvement of current operations.

4. The concern of this Headquarters for adequate, timely and reliable communications throughout the period of the projected threat to our security has prompted this study. It is considered vital to the progressive improvement of air defense through the remaining life of the air-breathing threat and basic to the communications required in transition to the ICBM time period. It is requested that the proposals contained herein be approved and that the engineering studies necessary to their accomplishment be initiated.
5. Inasmuch as this is a systems plan and coordination of the separate elements to the entire system is required, it is requested that we be kept advised of follow-on actions pertinent to this subject.

1 Incl
Subj: as above (dup)

Copies furnished
RCAF/ADC
CINICAL

M/R Not required.
A REVIEW OF NORTH AMERICAN LONG-LINES
FACILITIES RELATED TO AIR DEFENSE

1. The NORAD staff has reviewed the Distant Early Warning Communications System requirements necessary to enable CINCHORAD to perform his mission. The study has involved the requirements for telephone, telegraph and data communications:

   a. As they appear at this time.
   b. As they need improvement to strengthen the present system, including needs for the foreseeable future, and
   c. As they will undoubtedly require change in the ICBM era when time will be of the utmost importance.

2. This study has been made on the basis of an overall system concept and from the standpoint of the degree of continuous reliability required to assure the NORAD mission. The proposals presented herein anticipate the re-alignment of the NORAD regions, the direction of the proposed NORAD northern region from St. Hubert, and further extension of the communications network to the Aleutians and to the Greenland areas.

3. The attached map shows, in general, the present communications system, together with the areas where improvement and additions are required to effect an integrated communications system. Seven proposals are made on the basis of the needs of the various military forces,
including the Canadian complex, issues as they concern
the Distant Early Warning Air Defense and directly related
Strategic Air Command missions. The numbered items correspond
to the numbers indicated on the attached map as follows.

No. 1 - Improvement of White Alice to D.E.W. Com-
 munications.

No. 2 - Augmentation of Alaskan Long Lines Com-
munications.

No. 3 - Construction of Alternate facilities to
Aleutian Extension of DEW Line (Project Stretchout).

No. 4 - Installation of Repeat-Back Equipment to
DEW Rearward Telling Circuits.

No. 5 - Establishment of Communications Monitor
and Control Point in Dawson Creek Area. This involves:

1. Multi-point teletype loops to DEW main
 stations.

2. Full duplex teletype to NORAD WRC.

3. Tropospheric radio link between Fort
 Nelson and Dawson Creek.

4. Connection to the Mid-Canada line.

No. 6 - Improvement of Pole Vault to DEW Com-
munications.

No. 7 - Support of Proposed Fox-Hutchinill Tropo-
sphere Systems (DEW to WRC).

In addition to these seven main points consideration
must be given to adding equipment to the Mid-Canada line
to provide additional lateral circuits to permit connections.
between the DEW Line extensions and the Mid-Canada line
at Dawson Creek, Waterways, Bird and Amery (or Knob Lake).
Also, additional equipment will be required to increase the
lateral circuit capacity of the DEW Line between Liz and Dye.

4. It should be noted that these proposals all concern
facilities north of the Mid-Canada line. Further consideration
is required concerning the facilities south of this line, to
assure adequately safeguarding the Early Warning network system
through the southern Canadian and U.S. regions. This is being
done by the NORAD staff as time permits.

5. The existing communication system has been generated
largely on the basis of communications flowing southward from
the land based DEW Line utilizing telegraph for passing surve-
illiance information to the NORAD COC. Experience to date
indicates the need for a flow northward to assure reliable
message checks and to enable supervision of the functioning
of the communications network. In addition to the surve-
illance information, it is becoming more and more apparent that
voice communications will be required both to and from the
DEW Line and St. Hubert, NORAD, and alternate command post
locations. In addition, other voice requirements may be
necessary to support SAC in its EW mission (Fail Safe).
In order to provide the communications network in this
northern region, a two, three or more years implementation
period must be allowed. Because of this time lag it seems
important to anticipate as much as possible the communica-
tions facilities that undoubtedly will be required in
transition to the IBM era. In the IBM time period the
main consideration undoubtedly will be automatic data
processing and transmission to eliminate the delays always
injected by manual operations. This means that some form
of data transmission will be required between the SM
system and the PL. For this purpose high-quality voice
type circuits will be required. Both voice and data-type
circuits will require four-wire type facilities throughout
their length to assure the grade of transmission needed for
the length of circuits involved. This requirement is
anticipated in the seven proposals covered above.

6. These proposals have considered the overall basic
communications system requirements without regard to the
number of individual channels (telegraph, voice, or data)
required in each section of the system. After acceptance
of these seven general proposals, it will be necessary for
a single activity to ascertain and consolidate the individual
circuit requirements of all agencies concerned. It will then
be necessary to evolve a circuit routing plan before the de-
tailed engineering of the individual projects can be under-
taken. NORAD should be represented on these activities.

7. These seven proposals involve expenditures which
must be ascertained as the detailed engineering of each
project is completed. Preliminary rough estimates of the probable cost of completing these seven proposed projects indicate that somewhere in the order of 52 to 72% of the money already expended for the DEW line and related projects will be required. In other words, somewhere in the order of 50 to 70 million dollars is required. This seems to be reasonable in face of the sums already expended for distant early warning which will approximate about one billion dollars. The costs of the proposed east and west extensions of the warning system are not included. However, for these extensions to be considered reliable and effective, the seven projects discussed above must, in general, be provided.

8. In presenting these proposals an overall system concept has been the first consideration, taking into account the needs not only of air defense but of those requirements of other related activities. The attached Tables 1 through 7, describe in more detail these seven proposals and give rough estimates of the cost of providing the improvements. For ready reference the following cost estimates are involved:
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Attached:
- Map and
- Table 1 through 7
IMPROVEMENT OF WHITE ALICE TO DEW COMMUNICATIONS

1. The DEW Line proper terminates at Kibbeune, Alaska. The nearest station of the White Alice system to the DEW Line is in Kotzebue. A tropospheric scatter link is provided between these two stations to provide interconnection between the two systems. The distance between these stations is near the maximum for satisfactory transmission. While tests are under way to evaluate the performance over this long link, a repeater station may be required about halfway between the two to get the grade of transmission required for full reliability. Because of location and the need to provide complete installation a very rough estimate of four million dollars may be required to do this work.

2. In order to provide a second access link between White Alice and the DEW Line, it is proposed to provide a tropospheric scatter link between Ft. Yukon and Barter Island (BAI). It is felt that this link should be provided to assure the degree of reliability necessary for the functioning of the DEW system. Due to the difficult terrain of the Brooks Range of mountains, it may be necessary to locate a repeater station on the Canadian side of the Alaskan line in order to skirt the Brooks Range. This undoubtedly will require negotiations with the Canadian Government. It is estimated that this link between Ft. Yukon and Bar would cost in the order of 20 million dollars.
The ports of the station (at least the Dutch and the US) must be connected to the station line via telegraph links to the 3P Line and to stations like, e.g., (Saint Vincent, San Juan, Orte Paso) with a more than one main station link required laterall to the 3P Line. This considerably strengthens the reliability of communications in the central area of the 3P Line. It will be necessary to provide some additional equipment at the 3P Line stations to give the additional channel capacity requested. The amount of this equipment must be determined when all circuit requirements have been generated.
TAB 2.

AUGMENTATION OF ALASKAN LONG LINE COMMUNICATIONS

1. Communications from the White Alice system and, in turn, the DEW Line system to the AI is now provided by open-wire lines between Anchorage and Fairbanks to Tok Junction, and from Tok Junction by a single open-wire line to Skagway via Whitehorse and by submarine cable to Seattle. These open-wire lines are extremely vulnerable to weather, snow slides, atmospheric disturbances, and other hazards, and provide a very weak linkage from the White Alice system to the submarine cable between Skagway and Seattle. It is proposed that a tropospheric scatter radio link be provided from Boswell Bay to Skagway thus providing the same high-quality facility as the rest of the White Alice system. This route should then be used as the primary route for circuits from the DEW and White Alice systems to the States, the open-wire lines being used as an alternate route.

2. A preliminary study has been made by the White Alice Project Office of the Western Electric Company and a rough estimate made of the cost. About 12 million dollars would be required to provide the transmission facilities necessary for this system. This proposal recognizes that CAA now has a 12-channel VHF radio system between Boswell Bay and Skagway and all channels of the system are in use. It has been proposed that 12 additional channels be added to this system.
TAB 2 (Cont'd)

... to be used as an alternate route from White Horse to the submarine cable. However, it is felt that this proposal does not provide the degree of reliability necessary for strong linkage from the White Horse system to the ZI. The real estate and some other facilities of the CAA system can be utilized for the proposed tropospheric scatter radio system which would require repeater stations at Yakutat, Yakutat, and Gustavus. The requirements of CAA could be met by allocation of appropriate channels of this system.

3. With the provision of link between Boswell Bay and Juneau, the open-wire lines from Anchorage and Fairbanks via Tok Junction to the Ft. Nelson and Dawson Creek become an alternate route.
TABLE 3.

CLASSIFICATION: SECURE FACILITIES

DECREASE IN EXTENT OF DECLINE (PROJECT STRETCHOUT)

1. The Stretchout Project contemplates extending the White Alice system by tropospheric scatter from the King Salmon station of White Alice along the Aleutians to about Unak. This project does not include an alternate return to the mainland. Conditions along the Aleutian chain are more hazardous than in most areas due to earthquakes, land slides, etc. Consequently, it is felt that this Stretchout extension is subject to more hazards than similar stations in the White Alice System, and that some alternate route from the western terminus of the Stretchout back to the mainland should be provided. It is proposed that an ionospheric scatter radio system be provided for this purpose. It is estimated that this extension might cost as much as four million dollars.

2. It is understood that the Navy has an ionospheric scatter system terminating at Adak in the Aleutian Channel. Coordination of the Navy and Stretchout systems should be effected, possibly terminating both systems at the same station.
TAB 4.

INSTALLATION OF REPEATER-BACK DEMAND TO DWF LINE
TELEPHONE CIRCUIT

1. Ionospheric scatter radio systems have been provided from Bar, Hiu, Pam, and Nax on the DWF Line to Anchorage, St. Elias, Waterways, and Sirt in the Mid-Canada area (except for Anchorage). Surveillance information from the DWF Line is now forwarded over these southerly extensions on a simplex basis. In consequence, the operators on the DWF Line transmit information to the blind and have no way of telling the satisfaction their communications are being received at the southerly terminals.

2. It is proposed that a connection be made at the above-mentioned southerly terminals to connect the received information at these terminals back to the DWF Line originating stations. The equipment and channel facilities are available and only wiring changes need to be made to provide this read-back facility. Only a few minor costs are involved to accomplish this work.
TAB 5.

ESTABLISHMENT OF COMMUNICATIONS MONITOR AND CONTROL POINT IN DAWSON CREEK AREA

1. Dawson Creek is the westerly terminal of the Mid-Canada line. The ionospheric scatter extensions of the DEW Line terminate at stations along the Mid-Canada line. No interconnection has been provided between these southerly extensions and the facilities of the Mid-Canada line. In some cases these southerly extensions are on the same real estate and interconnection to the Mid-Canada line would not be a major problem. Providing equipment on the Mid-Canada line to increase the channel capacity would permit routing circuits from the southerly extension terminals of the DEW line along the Mid-Canada line to southerly commercial circuits to St. Hubert and the States. Because of the long distances from the States to the DEW Line, it seems desirable to have a control station located somewhere in the Mid-Canada area to permit supervising information flow, to act as a control point for trouble location and to facilitate rearrangement and supervision of traffic between the DEW Line and U.S. terminals.

2. By establishing Dawson Creek as a control point, the above objectives could be met by providing monitoring facilities at Dawson Creek from teletype relaying equipment at the southern terminals of the DEW line extensions. In
order to coordinate the NORAD and Dawson Creek operations, a full duplex teletype facility would be required between the NORAD COC and Dawson Creek.

3. Since two of the southerly extensions from Bar and Cam terminate at Ft. Nelson and only an open-wire line is provided between Ft. Nelson and Dawson Creek, it is proposed that a tropospheric scatter radio link be provided between these latter two stations to provide the degree of reliability required in this section. This, together with increased channel capacity along the Mid-Canada line, would provide strength to St. Hubert and the States and would permit routing circuits to other commercial facilities south of the Mid-Canada line.

4. Because both Canadian and U. S. military facilities are involved in this proposal, it will be necessary to work out full agreement between the Canadian and American forces.

5. Establishment of the control point in itself involves a comparatively minor expense. However, the Ft. Nelson-Dawson Creek link is required for full reliability and it is estimated that in the order of five million dollars will be required to implement this plan.
TAB 6

IMPROVEMENT OF POLE VAULT TO DEW COMMUNICATIONS

1. The present Pole Vault system in the Goose Bay area to Resolution Island has a 12-channel voice capacity. The antenna structures and equipment are not as reliable as required for the NORAD mission. Ruggedizing of these facilities is required and the circuit channel capacity must be increased. Further improvements are required in the Hopedale-Dye area consisting essentially of additional tropospheric scatter repeater stations. The channel capacity of this line should be increased. An even greater channel capacity will be required over the Pole Vault to DEW Line system if the extension from Fox to Churchill is not provided as discussed under Tab 7. The estimated cost of these improvements is about eight million dollars.

2. These improvements are discussed in the DEW System Improvement Plan Final Report, dated 31 October 1956, prepared under Contract AF 18(600)-852-Task 6.
1. Because of the weakness of the Pole Vault system and the need for strength into the DEW Line, it has been proposed that a tropospheric radio system be provided between Fox and Knob Lake where it will join the commercial communications systems through Canada to the States and to the Goose Bay area. Another proposal has concerned a Fox-Churchill tropospheric system. This particularly is required for SAC operations. To be useful in the overall communications system the terminal at Churchill would need to be extended to the Mid-Canada line at Amery. With increased channel capacity built into the Mid-Canada line, this would permit a strong communications path from the DEW Line at Fox into Canada and to the States. In view of the SAC requirements this would be a more advantageous route than the Fox-Knob Lake route, although from an overall system concept one or the other appears to be a necessity. With this southern outlet from Fox, and with increased channel capacity provided between Fox and Dye, junction can be made to the easterly extension of the DEW Line proposed across Greenland.

2. Referring to Tab 1, and considering the extensions south from Fox, voice and teletype communications could
then be had to any main station on the DEW Line between Liz and Dye without extending beyond the distance between adjacent main stations. With these southerly extensions joining the Mid-Canada line, and in turn extended to St. Hubert and the States, total failure of any station on the DEW Line (Liz to Dye) will disrupt only that portion of the system between the failure and either adjacent main station. This should materially increase the reliability of the entire DEW Line system.

3. Depending upon whether the Fox-Churchill or Fox-Knob Lake extension is provided, it is estimated that between six and ten million dollars will be required.
TO: CANADIAN ST. HUBERT QUEBEC CANADA

FROM: [Redacted]

SUBJECT: X013. CANSECURITY.

For C/O only. This message contains facts. Part I. Reference a telephone conversation with Lt. Col. North, this Tw. We coordinate at the forthcoming EQAO meeting in relation to a request for additional communications to the 12th Line from Camp No. 46. Specifically, we plan to ask for a full-duplex circuit to the Dawson Creek area, and also for half-duplex teletype communications from that area to the new main station at Chancy Pass and east from Haf and Col. Our service is not available on the new line 12 electromagnetic system. In addition, we have a full-duplex voice circuit between Dawson Creek and Colorado Springs.

Part II. A study of the USAP route plan reveals mid-Canada land lateral communications system and tropo system leading south from Winisk with considerable spare channel capacity. Request you advise feasibility of providing the proposed circuitry through use of (Winisk-North Bay troppo and NCN microwave) capability of extending.

DATE: 11-30-57

[Redacted]

DD FORM 173 REPLACES DD FORM 172. 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED.
THIS SERVICE TO U.S. COMMERCIAL SYSTEMS AND ESTIMATE OF DATE SERVICE COULD BE AVAILABLE IF U.S. - CANADIAN ARRANGEMENTS TO DO SO WERE FIRM.

PART III. THIS IS A PART OF OVERALL REVIEW OF DEM REARWARD COMMUNICATIONS AND OPERATIONAL RESPONSIBILITIES NOW BEING CONDUCTED AT THIS HEADQUARTERS. SERVICE IN QUESTION WOULD PROVIDE MEANS OF SERVICING AIR SURVEILLANCE DATA, WOULD ALSO PROVIDE SUITABLE COORDINATION FACILITY FOR USAF SAC ACTIVITIES WITH WHICH YOUR HQ IS FAMILIAR.

FILE NO: 2626

M/R Not required.

CANARIEF is authorized to receive classified material, and the material is releasable to Canada. 2019

Lt Col DO Roth
Bell Telephone Laboratories
Whippany Laboratory
Whippany, New Jersey
Tucker 7-1000

October 28, 1957

Mr. L. L. Meehan, Chief Scientist
Headquarters, M.C.A.D.
DCs/GB
Box 70
Ent Air Force Base
Colorado Springs, Colorado

Dear Mr. Meehan:

This letter accompanies a Memorandum for File concerning your recent briefing on DEW-Line conditions here at Whippany. We hope you enjoyed your visit as much as we did and look forward to repetitions of it.

Very truly yours,

W. A. Cushman
Military Communication Systems
Engineering Department

WH-4131-RAE-RRR

Att.
Memorandum dtd 10/23/57
By R. A. Cushman - 26973-W3-1340-2
Briefing: L. L. Gieszen, Keenan, on Derations of Bow-Line
Cases 18-79-44, 81-79 and 87-80

October 23, 1957

UNCLASSIFIED

On Thursday, October 17, 1957, Mr. L. L. Gieszen, Chief Scientist to the Deputy Chief of Staff/Communications and Electronics of the North American Air Defense Command (NORAD), telephoned for a talk on the above subject. This was held at EST, Wednesday, October 23. Besides Mr. Gieszen, the following met in Mr. A. F. Booth's office:

Lieuts. J. J. Matthews
W. D. Arnold
R. A. Cunanan
C. F. Norrison
C. A. Smith
O. H. Grint
R. M. Havlikotte

The Strategic Air Command has set up a requirement to talk with aircraft flying over the Bow-Line chiefly for recall purposes, it is understood.

1. SAC would prefer to talk from ONA directly to the airplane, two-way.

2. Lacking the above, SAC would like to telephone a message to main stations on the Bow-Line. The nearest main station might be by radio-telephone to the origination and obtain its acknowledgement.

3. A more immediately feasible plan would be to teletype to main stations on the Bow-Line and then radio-telephone to the airplane as above.

It is understood that for administration purposes a full duplex teletypewriter circuit exists from a point in the east to all main stations on the Bow-Line. For an interim communications facility, SAC will suggest that this facility be shared with SAC.
Mr. Glezen said he would like to have a clear picture of the current ability to provide a telephone connection to DEW-Line stations from either the east or the west end. Mr. Smith said that complete circuits and equipment from L12-1 to H3-1 at Resolution Island are installed, but not arranged for three thousand mile talking. The engineering requirement called for high quality speech from main station to main station only (300 to 500 miles). This was the system that WECo was committed to and did provide. The consensus of the people present seemed to be that refining terminal equipment to take out losses would satisfy the conditions.

A discussion of means to establish full duplex teletype on all five ionospheric circuits brought out the fact that the necessary equipment has already been installed. All that is required is assignment in the form of circuit orders, and some rewiring. Incidentally, each base station has full duplex mechanical repeaters for amplifying and reshaping teletype signals. The Collins predicted wave system is in current use between the DEW-Line and the mid-Canada base stations. The reliability of these circuits is unknown, but it is believed to be similar to the test circuit used by the Bell System some time ago.

As an aside, a subject of interest to BTL DEW-Line people was injected. As things now stand, all surveillance messages leaving the Line are unacknowledged; one or more may even be lost, but no check is available. A loop-back acknowledgement was discussed as a means of proof that messages are correctly received at the base station. It might be well to extend this loop-back further.

Mr. Glezen expressed himself as well satisfied with the information brought out in the conference.

WH-4131-RAC-RRY

R. A. Cushman

Copy to
Mr. L. L. Glezen, NORAD, Colorado Springs
FROM NOIRE-X 016: FOR APCIN. Re your message 54281.

Reference A-2506. No capability exists beyond 65,000 feet with present or planned equipment at the DEW line. It appears that an ICM radar similar to that proposed by MELPAR, RCA, GE and Lincoln Lab offers the only possible solution to ICM or satellite detection.

Detailed information concerning the proposals of the above organizations is available in Headquarters USAF, APGAC or APTRQ. It is recommended these directorates be contacted for any desired information.

M R: Message from APCIN requests AAF detailed information concerning what optical, electronic or other tracking facilities suitable for use in Soviet satellite tracking and observation exist at the DEW line. This message is OFIAF's answer to query.

DATE 23
TIME 2300Z
MONTH DEC
YEAR 1957

ALFRED J. NOIREN
AMF J. NOIREN
Lt Col, USAF

REPLACES CO FORM 173, 1 OCT 48, WHICH WILL BE USED UNTIL EXHAUSTED

UNCLASSIFIED
The Rand Corporation
1700 Main Street
Santa Monica, California

Attention: Patricia C. Keith

Dear Madam:

Reference is made to your letter L-14290, dated 17 Aug 47, (attached as enclosure 1).

All available information on existing and planned radar sites in Greenland and Iceland is attached as enclosure 2. It is suggested that your office contact Headquarters USAF if further planning information is required on these sites.

If enclosures are desired or not attached, this correspondence may be deemphasized in accordance with APR 105-1.

Respectfully,

[Signature]

F. V. Urquhart
Brig General, USA
US/Comm. Elect

Enclosures:
1. Ltr L-14290
   w/Enclosures
2. 2d Encl, APOCCE-2D

Above enclosures are authorized to receive classified material and have adequate safeguard made in accordance with APR 105-1.

It is believed that none could obtain any additional information required through their office at HQ USAF with similar delay. The following personnel could not furnish additional information:

L/C O'Dell, APOCR; Maj Murphy, APOC; Maj Beall, ORC;
Maj Goodrich, ORC; Maj Myers, ORC; Mr. Silverman, APOC;
T/Sgt Ernert, APOC.
COMMANDER-IN-CHIEF
Continental Air Defense Command
Deputy Chief of Staff, Communications
and Electronics
Ent Air Force Base
Colorado Springs, Colorado

Attention: Colonel O. W. Miller

Dear Colonel Miller:

The Engineering Division at RAND is currently trying to complete a study for General Patton by DRAF for which we have a September deadline. One of the items required for this study is a complete description of the locations and equipments of all the radar sites which will comprise the Atlantic extension of the DEW Line. In particular, we cannot seem to pin down the presently existing and planned radar sites for Greenland and Iceland. Ed Stwertka has shown me some data on this subject which your office provided for him and mentioned that you might be able to send us some additional information and possibly bring us up to date on the old data.

I have enclosed two pages describing the information we have and what we need. It would be very useful to us if you could verify the material and fill in some of the missing information and then return the sheets to us.

Sincerely,

Paul C. Keith
Operations Department

PCK:od
Enc. (2)
Ltr, Rand Corporation, L-14200, 1st Aug 57

19 AUG 1957

CGRM

1st Inc

H: Continental Air Defense Commander, Ent Air Force Base, Colorado Springs, Colorado

TC: Commander, Air Defense Commander, APOE, Ent Air Force Base, Colorado Springs, Colorado

1. In response to the basic request from Rand Corporation, it is requested that the required radar information for the Greenland and Iceland complexes be provided this headquarters.

2. Attention is invited to the short time period indicated by Rand to complete their study.

FOR THE COMMANDER-IN-CHIEF:

[Signature]

2 Incls.

n/c

F. F. UNK

Brig General, USA

DOS/Comm and Elect
Ltr, Rand Corporation, L-14372, 12 Aug 57

ADGCR-60
2nd Ind

HQ Air Defense Command, Ent Air Force Base, Colorado Springs, Colorado

TO: Commander, Continental Air Defense Command, MTW: CONAD, Ent Air Force Base, Colorado Springs, Colorado

1. The following information is furnished per your request:

a. Greenland

N-32 931 AGW Pingassuit, Greenland 76° 21' N 660 44' W
N-31 and N-26 have been deleted.

? ? Holsteinsberg, Greenland 67° N 56° W

? ? Ikateq, Greenland 66° N 36° W

X ? Icecap, Greenland 66° 30' N 43° W

? ? Kangia, Greenland 66° 30' N 43° 30' W

Sites X and Y have not yet been surveyed and locations are approximate. Sites X and Y and Holsteinsberg and Ikateq will tie into the Dew Line, but N-32 will not. All Dew Line Greenland sites will be FPS-30 radars. Kangia will tie into the Azores Line but not the Dew Line.

b. Iceland. The coordinates shown below were taken from the World Aeronautical Chart #47 Vatnajokull (Iceland) and are approximate.

N-1 Keflavik 64° 01' N 22° 39' W
N-2 Langanes 66° 17' N 15° 02' W
N-3 Hofn 61° 17' N 15° 10' W
N-4 Straumnes 66° 26' N 23° 05' W

All these Iceland sites will tie into the Dew Line. USAF has suggested that the data station for all the sites above, which tie into the Dew Line, be at Sondeborg. ADC has recommended that the data station be at Dye. Communications will be by tropospheric scatter.

FOR THE COMMANDER:

[Signature]

JAMES H. WILDER
Colonel, USAF
Director, Communications-Electronics
REL INCE MESSAGE THIS HEADQUARTERS, APOAC-E/A 56995, 7 JUNE 1957.

TOTAL: SUBJECT: GREENLAND EXTENSION DEV LINE. DESIRE FOLLOWING CHANGES FOR PLANNING PURPOSE IN CONCEPT OF GREENLAND EXTENSION DEV LINE:
A. HOLSTEINDBORP, FORMERLY DESIGNATED MAIN STATION SHOULD BE DESIGNATED AND CONSTRUCTION AS AUXILIARY STATION COMPARABLE IN SCOPE TO IKATER AND KANGER. B. EXISTING DEV MAIN STATION AT CAPE DYER SHOULD SERVE AS THE COLLECTION, EVALUATION AND IDENTIFICATION CENTER FOR ALL GREENLAND STATION EXCEPT KANGER.
C. PLANNING SHOULD CONSIDER SUPPLEMENTARY AS SUPPLY AND MAINTENANCE BASE FOR ALL GREENLAND DEV STATION. IN THIS CONNECTION ALL FACILITIES, CHOOSING (POL STORAGE, ETC.) MUST BE CONSIDERED ADDITIONAL REQUIREMENTS AS BASE HAS NO EXISTING FACILITIES TO SUPPORT DEV FUNCTION.

UT
05/1632Z AUG RJEP9Q

A-- PARAPHRASE NOT REQUIRED EXCEPT PRIOR TO CATEGORY B ENCRYPTION--

PHYSICALLY REMOVE ALL INTERNAL REFERENCES BY DATE-TIME-GROUP

PRIOR TO DECLASSIFICATION

//ADVANCE COPY HAS BEEN DELEVERED TO COG//
SUBJECT: Distant Early Warning Line Programming Change

TO: Commander-in-Chief
North American Air Defense Command
ATTN: DCS/Plans and Operations
Ens Air Force Base
Colorado Springs, Colorado

1. The following message is quoted for your information and comment: From USAF to AFSCC. "(CONFIDENTIAL) From AFSCC-EN-1 50106 COMANC pass to NGPRK, Chief, ESUS pass to TEMPO. Confirming advice to DEW Project Office representatives in 2 August 1957 Eastward Extension-DEW line meeting at this headquarters. Fund limitations have forced this headquarters to plan on the basis of funding only a two-station increment of the five-station complex in FY-58 with respect to equipment. FY-58 military construction funds in the amount of $20 million have been appropriated for this project. Equipment (P-230) FY-58 funds in the amount of 7.6 million are presently allocated to Eastward Extension-DEW line. Also, 2.2 million of 4.3 funds for systems engineering and path loss testing have been authorized for FY-58. It is highly unlikely that there will be any increased funds made available in FY-58; therefore, your planning should proceed with due recognition of these limitations. In order that investment in this program be minimized until feasibility is firmly established, it is desired that contractual action for a system subcontract be limited at this time to the task of systems engineering. This does not preclude the insertion of an option for the remainder of the system contracts task; however, the exercise of the option will be held in abeyance pending specific approval by this headquarters.

Prior to the completion of the systems engineering task, it is necessary that construction planning proceed upon the basis of the best information available. It is therefore desired that design criteria be provided to the Air Force installation representative, North Atlantic Region at the earliest practicable date and not later than 1 December 1957 based upon the assumption that the AN/FPC-30 radar will be the primary search equipment, that the AN/FRC-47 tropo equipment will be used for over-water links and that the AN/FPC-39 tropo equipment will be employed for icecap links.
ADLAN-2, Hq ADC, Subj: Distant Early Warning Line Programming Change

The above cited design criteria will be the basis for construction contractual action; therefore, the most definitive information available must be supplied. It is recognized that minor changes may be required upon completion of the systems engineering action. However, any radical changes which in the judgment of the air force installation representative, North Atlantic Region, would jeopardize the initiation of construction in the CY-58 construction season will require prior approval of this headquarters. Such changes should be addressed ATTN: APWPR-88.

It is requested that you evaluate and report to this headquarters ATTN: APWPR-FG-1 not later than 30 Sept 57 the feasibility, cost, and operational impetus of proceeding in line with the above fund limitations. Specifically, it is requested that a comparison be made of the following alternatives:


b. Procure only a minimum quantity of such long lead-time equipment, e.g., AN/FPS-30 as is absolutely essential in FY-58, the balance in FY-59 and install the entire five-station complex during 1961.

In preparing the above comparisons, coordination will be effected with the air force installations representatives, North Atlantic Region to insure compatibility of construction and installation schedule. Also request this headquarters, ATTN: APWPR-FG-1 be furnished a copy of the draft work statement for study in relation to requirement for revised guidance and for review leading to suggestions as to any revision of the work statement. Further request a copy of the phasing chart used in 21 August 1957 meeting be included.

2. Since this headquarters will assume responsibility for the operation and maintenance of the DSN line in the near future, your concurrence is requested in advising headquarters USAF that it would be operationally desirable to proceed with the first proposed alternative, that of installing two stations immediately, with the remainder to follow as funding permits. In this way it would appear that the DSN line in the affected area would have at least limited capability earlier than if the second course were followed.

FOR THE COMMANDER:

UNCLASSIFIED

EDGAR B. CAVETTE
Colonel, USAF
Director of Plans
ADLAM-C, HQ ADC, 8 Oct 57, Subj: Distant Early Warning Line Programming Change

RQ/ND

HQ North American Air Defense Command, Ent AFB, Colorado

TO: Commander, Air Defense Command, Ent AFB, Colorado

Concur with your proposed action indicated in paragraph 2 of basic letter in that Headquarters USAF is advised that it would be operationally desirable to install two stations immediately with the remainder to follow as funding permits.

FOR THE (X-9600)CH:1-11-57

HARVEY T. ALNESS
Maj Gen, USAF
DCS/Plans & Operations

M/R: Self explanatory

CONAD

243744
23 Oct 57

W7-11913
bh

UNCLASSIFIED
NOTICE OF IMPORTANT INCOMING CORRESPONDENCE

TO:

COMMANDER-IN-CHIEF

CHIEF OF STAFF

SECRETARY OF THE JOINT STAFF

For your information, the following correspondence has been received:

From: DOD

Dated: 8 Oct 57

Classification: CONFIDENTIAL

Panford, A7-11611

Suspense: 21 Oct 57

Action Office: NOGEO

SUMMARY: Subject is DISTANT EARLY WARNING LINE PROGRAMME CHANGE. ADC quotes to us for our information and comment, a Confidential message that USAF sent to WAPB. This is a lengthy, detailed message in which USAF offers two alternatives: (a) Procure a 2-station increment in FY-68. The balance in FY-59 with installation to be accomplished in CY-60 and CY-61, (b) Procure only a minimum quantity of such long lead-time equipment, the balance in FY-59 and install the entire 5-station complex during 1961. Since ADC will assume responsibility for the operation and maintenance of the DEW line in the near future, they ask our concurrence in advising USAF that it would be operationally desirable to proceed with the first alternative.

J. W. LEDOUX

LCDR, USN

Asst Adjutant
CONFIDENTIAL

TO: RICHDN RICDEN

FROM: RICDEN RICDEN

SUBJ: CIA.

DATE: 10 SEP 57

ATTACHMENT

INFORMATION ATTACHED FOR REFERENCE ONLY.

REFERENCE: CIA.

ACTION: COPY

INFO: COPY

D. THOMAS

RE: SCRAP

FROM: CIA.

ATTACHMENT

INFORMATION ATTACHED FOR REFERENCE ONLY.

REFERENCE: CIA.

ACTION: COPY

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RE: SCRAP

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ACTION: COPY

INFO: COPY

D. THOMAS

RE: SCRAP

FROM: CIA.

ATTACHMENT

INFORMATION ATTACHED FOR REFERENCE ONLY.
REFERENCE CONFERENCE ASD (R AND D) SHAPE SADTC NORAD CNO
CINCLANT JSC USAF SACLANT REPS HASH 5 DEC. SHAPE REQUESTED
SACLANT/CINCLANT COMMUNICATION REQUIREMENTS IN FAROES TO PROVIDE
EARLY WARNING INFO AND COORDINATION BETWEEN SHAPE AIR DEFENSE
SYSTEM AND EASTWARD EXTENSION US DEF LINE. CINCLANT REQUIREMENTS
FROM FAROES ONE HALF DUPLEX CIRCUIT FOR TRANSMISSION RAW DATA
TO BARCOM ICELAND. PROVISION SHAPE CHANNEL FAROES-UK AND AUTOMATIC
RELAY UK-ICELAND IN US. FACILITIES WOULD MEET THIS OPERATIONAL
REQUIREMENT. CROSS TELLING COORDINATION FAROES RADAR WITH ADJACENT
PICKET SHIP AND AIRCRAFT STATIONS ESSENTIAL TO INTEGRITY OF COMPLETED
DEFENSE SYSTEM. CONTINGENCY PLANNING INDICATES POSSIBLE REQUIREMENT
TROPO LINK FAROES-ICELAND. RECOMMEND CONSIDERATION THESE REQUIREMENTS
IN SHAPE ENGINEERING STUDY FAROES FACILITIES.

A--PARAPHRASE NOT REQUIRED EXCEPT PRIOR TO CATEGORY "B" ENCRYPTION--
PHYSICALLY REMOVE ALL INTERNAL REFERENCES BY DATE-TIME-GROUP PRIOR
TO DECLASSIFICATION.

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TH

CONOP A-350-26
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ON BARRIER REDUCTION NECESSARY TO INCREASE OPERATING FUNDS.
BT

A---PARAPHRASE NOT REQUIRED EXCEPT PRIOR TO CATEGORY B ENCRYPTION--

PHYSICALLY REMOVE ALL INTERNAL REFERENCES BY DATE-TIME GROUP
PRIOR TO DECLASSIFICATION
FOLLOWING HAS BEEN USED TO ANSWER PRESS QUERIES CLI!

THE NAVY IS REDUCING THE NUMBER OF AIRCRAFT SQUADRONS ASSIGNED TO BARRIER PATROL BY TWO - ONE IN THE ATLANTIC AND ONE IN THE PACIFIC. THE FOUR REMAINING SQUADRONS - TWO IN EACH OCEAN - WILL BE DROUGHT UP TO FULL STRENGTH.

EVEN WITH THIS REDUCTION THE NAVY WILL MAINTAIN A FULLY ADEQUATE BARRIER PATROL. MAJOR REASONS FOR THE REDUCTION ARE TWO CLI: (1) THE NAVY HAS NOW DETERMINED AFTER HAVING ACTUAL EXPERIENCE IN FLYING BARRIER PATROLS THAT IT CAN FULLY CARRY OUT ITS MISSION WITH LESS AIRCRAFT THAN WERE ORIGINALLY ASSIGNED TO THE MISSION SUITABLE.

PAGE TWO DEPU 038

REDUCTIONS IN OPERATING FUNDS REQUIRE CERTAIN REDUCTIONS IN THE NUMBER OF AIRCRAFT TO BE OPERATED AND IN THE NUMBER OF PERSONNEL ON ACTIVE DUTY DURING THIS FISCAL YEAR. SINCE BUT TWO SQUADRONS ARE REQUIRED IN EACH OCEAN IT BECOMES PRACTICAL TO INACTIVATE THE EXTRA SQUADRONS NOW BEING UTILIZED ON BARRIER PATROLS.

IN THE ATLANTIC ONE SQUADRON WILL BE KEPT ON STATION AT ARGENTINA AND WILL ROTATE WITH ONE AT PORTUGAL FOR THE REST OF THE NEEDED HOURS. FACILITIES FOR TWO SQUADRONS AT ARGENTINA ARE COMPLETED AND THE NAVY FULLY EXPECTS TO OPERATE ITS BARRIER PATROLS THIS WINTER AT NO LESS TEMPO THAN WERE OPERATED LAST WINTER.

CN (1) (2)
12/12/2042 SEP DEPU
INFORMATION AVAILABLE TO THIS HEADQUARTERS INDICATES SPECIFICATIONS FOR ALBUTAN EXTENSION COMMUNICATIONS WILL NOT PROVIDE SUITABLE ALTERNATE FACILITIES TO MAINLAND; I.E. CONNECTION TO WATTS ALICE IN EVENT ANY ISLAND SEGMENT FAILS. A PROPOSAL HAS BEEN ADVANCED WHICH WOULD SATISFY THIS REQUIREMENT BY CONSTRUCTION OF AN IONOSPHERIC SCATTER LINK WITH TERMINALS AT WESTERNMOST ALBUTAN POINT AND MAINLAND OF ALASKA. THIS MESSAGE TRAFFIC ORIGINATED ON THIS CHAIN WOULD BE ASSURED OF RAPID HANDLING REGARDLESS OF LOCATION OF FAILED COMMUNICATIONS LINES ON LINE. REQUEST YOU REVIEW DETAILED PLANS CONCERNING COMMUNICATIONS IN THIS AREA, AND IF OUR UNDERSTANDING OF ITS LIMITATIONS ARE CORRECT, YOUR COMMENTS CONCERNING THE REFERENCED PROPOSAL WOULD AID IN EVALUATING.
SITREP

TO: Commander-in-Chief
Continental Air Defense Command

SUBJECT: Project STRIPEDOUT

1. Following is extracted for your information from a letter
from this headquarters to Alaskan Air Command, Subject: Recent
Visit of Bureau of Budget Representative, dated 29 May 1957:

"Project STRIPEDOUT was approved over a year ago and yet
the Navy's JCS directed FPIB facility to Adak (part of the
intercontinental FPIB plan) has not been cross-related.

"This matter has been referred to the early warning Opera-
tions Working Group (EOWG). For your information, Continental
Air Defense Command provides the chairman and administrative
support to this group."

2. Comments of the Alaskan Air Command, in an indorsement
dated 11 July 1957 are:

"The cross-relating between Project Stripedout and Navy's
JCS directed FPIB facility to Adak is not clearly understood;
however, it is noted that both the Army and Air Force have been
allocated channels in the FPIB system. Further, the Navy can
tie in to Stripedout at Kalah via the White Alice System. Adak
is an airborne emergency alternate facility for Airborne Early
Warning forces for passing unfiltered information back to the
Commander, Air Force Pacific. Therefore, the tie in to FPIB by
Stripedout for early warning purposes does not appear to be
necessary."

FOR THE CHIEF OF STAFF:

UNCLASSIFIED
AFOSIC-8/3, Hq USAF, 16 Aug 1957, subj: Project STRETCHOUT

NOMNR

1st Ind

5 DEC 1957


TO: Chief of Staff, United States Air Force, as Executive Agent for NORAD, Washington 25, D.C.

1. The possibility of cross-relating Project Stretchout and the Navy Adak P4S facility was discussed at a recent meeting of the Early Warning Operations Working Group (EWO), which convened in New York City 19 to 22 November.

2. This Headquarters feels that an alternate route to the White Alice System must be provided from the Aleutian area over and above the lateral tropic system, which will be furnished by Project Stretchout. This requirement was presented to the NORAD and is predicated on the assumption that if any of the Project Stretchout stations on the chain should fail, all early warning data would of the point of failure would be lost to the air defense system. By providing an alternate means of communication to the Alaskan Mainland from the Aleutian region, the receipt of early warning data in the air defense system could be assured regardless of the operational status of Project Stretchout communications, at any time.

3. This Headquarters suggested to the EWO that it may be more feasible to extend the lateral system of communications provided by Stretchout to the Adak region and joining with the Navy P4S project at that point. This would satisfy the requirement for alternate communications to the Mainland and would also make available to the Navy certain voice facilities connecting with White Alice on the Mainland, should they so desire.

4. It is the opinion of this Headquarters that the subject of this paper should be studied further. Of primary importance to us, of course, is the provision of alternate communications to the Alaskan Mainland from the Aleutian region. The extension of the P4S Line, as discussed above, but further study of the subject of this report may be desirable, due to economic and systems considerations, in the long-range view.

5. The requirement for additional communications from the Aleutian area (alternate for Stretchout) will be reaffirmed in additional correspondence now being prepared at this Headquarters. This correspondence will propose several major revisions to long-line communications systems in the North American land area.

FOR THE COMMANDER-IN-CHIEF:

F. F. Uhrlr

Brig Gen, USA

FCS/Com and Kleet

Copy furnished: CINCPAC
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PAGE TWO A-232-10

OPERATING ON 1 TO 1 AT SEA; IMPORT RATION AND MAX 24 DAYS AT SEA.

ANY ONE TIME; PRESENTLY EXPECT AVG 4 PER QM STATION; AVG 4-PLUS
UV 2 QM STATION; UV 2 QM STATION WITH RANGE/THREE/DIST CABLES BETWEEN.
ACPT. ACTUAL DER LINE OR DER, STATION SPACING AND UV 2 TRACK TO GIVE MAX
DETECTION PROBABILITY SUCH RESULT DUAL BARRIERS BARRIER OPNS
BEING CONDUCTED UP TO 1 JUL 56.  D.  WHEN ALEUTIAN SEGMENT OPERATIONAL
UNTILL MIDWAY AND WEST MIDWAY A BARRIERS BARRIER OPNS
MIDWAY AND WEST MIDWAY PROVIDING 15 PER AVAILABLE AT TIME ITAL WITH AVG
4 WHITE 2 DAY FORCE TRACK PATTERN MAKING CONTACT WITH LAND BASED
RADAR COVERAGE AT NORTH END.  BOTH INTERIM AND ULTIMATE BARRIERS
CAN BE AUGMENTED IN EMERGENCY.

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NOR002
DV002
PP RFUWY RJEDNG RJEDDN RJUPS6 RJUPD4 RJENFX
DE RPE143 17/30
RJUPD4-T-RFUWY
RJENFX-T-RFEDX
P 3015102
FII CANAIRDEF
TO RFUWY/CANAIRVAN
RJEDNG/31 AIR DIV SNELLING AF3 MINN
RJEDDN/44TH AIR DIV PEPPERELL AF3 Nfld
RJEDDN/31ST AIR DIV COLN
RFEDX/HOPE ISLE
ZEN/CANAIRDEF
ZEN/SECTOR EDGAR
ZEN/SECTOR LAC ST DENIS
ZEN/SECTOR ST MARGARETS
ZEN/STN WAGO LAKE
ZEN/STN WENISK
ZEN/STN GREAT WHALE RIVER
ZEN/STN BIRD
ZEN/STN CRANBERRY PORTAGE
ZEN/STN STONEY MOUNTAIN
ZEN/STN DAWSON CREEK
ZEN/CANAIRDEF/COC

AC579 30 DEC
EFFECTIVE 00001 1 JAN 56 THE STATUS OF JID-CANADA LINE UNITS IS
CHANGED FROM LIMITED OPERATIONS TO FULL OPERATIONS
ST
30/16472

NNNN FFXA-PRAPHRASE NOT REQUIRED EXCEPT PRIOR TO CATEGORY 3 ENCRYPTION-
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TO DECLASSIFICATION

UNCLASSIFIED
PRIORITY

RC 308

VAC 224

4 Nov effective 31 October 57 the NLC exchange limit of Nations in a 24 Hour basis. with handling will be in accordance with US/ECFACOPS

PLAN dated 1 June 52. Identification performed by National will not

be of the high callers envisioned in above mentioned OPS Pack. is

normal problem with new equipment may cause some retention in

quality of detection such as pulse failing being reported as live

vibrations. In view of above you are requested to exercise

cautions in the initiation of tactical action based on NLC traffic

until further advised that NLC alterations have been scheduled

for all facilities.

AC--PARAPHRASE NOT REQUIRED EXCEPT PRIOR TO CRYPTOGRAPHY.

Physically remove all internal references by file title group prior

to reclassification. No unclassified references if file title group

is quoted.
SECURE HISTORY FILE

129

PRIORITY

1. Effective 0000Z Oct 57, theウィックシュテル空港 will continue limited operations on 14-180 frequency from 0600 to 1800Z due to the easy on northen line and from 2000Z to 0600Z due to the easy on data handling due to an accordance with DE and DE PLANT.

2. June 30th, 2021, certain facilities will be not available due to out of balance of in the above modified ops due the inall problem with the in hand. Mentioned in the above modified ops may cause some difficulty in the list of operation. Such as: No. 1. No facilities in the area. The report of the list of operation is on the figure.

3. Above you are advised to operate within the area.

PACK TWO REPORT 12/52

ENGLISH NOTICE BASED ON USER TRAFFIC UNTIL ADVISED THAT OPERATIONS ON 14-180 FREQUENCY CONTINUE AND ALL FACILITIES ARE AVAILABLE. FOR GOVERNMENT OFFICIAL OPERATIONS ONLY. IN THE EVENT TO ACCOUNTING LIST OF USER TRAFFIC TO DECREASE, YOU ARE ADVISED TO OPERATE ON 14-180 FREQUENCY TO AVOID THE EFFECTIVE 0000Z OCT 57. NO USER TRAFFIC ON 14-180 WILL BE ACCEPTED FROM 0600Z TO 1800Z DUE TO DATA HANDLING DELAYS. UNCLASSIFIED
CONAD 014 V
A-376-24
P 1545Z
FM CANAIRDEF
TO CANAL
A-376-24
P 231545Z
FM CANAIRDEF
TO CANAIRDEF USAF
ARC ENT AFB
NORAD ENT AFB
2 SECTOR
2 SECTOR
NOSE3 LAKE
INFO GREAT WHALE
4 AIR DIV
323 AGRO SCH NORDHAVEN

[Redacted]
AC548 23 OCT

Urgent Urgent Urgent Urgent
Urgent Urgent Urgent Urgent
DATE 25 OCT 57 THE NOSE3 LAKE SECTION OF THE HCL WILL COMMENCE LIMITED OPERATIONS ON A 24 HOUR BASIS PD DATA HANDLING WILL BE IN ACCORDANCE WITH USAF/AIRAC OPS PLAN DATED 1 JUNE 57 PD SINCE CERTAIN FACILITIES WILL NOT BE AVAILABLE BY 25 OCT CA M IDENTIFICATION PERFORMED BY NOSE3 LAKE WILL NOT BE OF THE HIGH CALIBER ENVISIONED IN THE ABOVE MENTIONED OPS PLAN PD NORMAL PROBLEMS WITH NEW EQUIPMENT MAY CAUSE SOME DETERIORATION IN QUALITY OF DETECTION SUCH AS FALSE ALARMS BEING REPORTED AS LIVE PENETRATIONS PD IN VIEW OF ABOVE CAN YOU ARE REQUESTED TO EXERCISE CAUTION IN THE INITIATION OF TACTICAL ACTIONS BASED ON HCL TRAFFIC UNTIL ADVISED THAT OPERATIONS ON HCL HAVE BECOME STABILIZED AND ALL FACILITIES ARE AVAILABLE PD FOR 2 SECTOR ONLY PD YOUR KC2-8 DATED 22 OCT REFERS DT

AC-PARAPHRASE NOT REQUIRED EXCEPT PRIOR TO CATEGORY 3 ENCRYPTION—PHYSICALLY REMOVE ALL INTERNAL REFERENCES BY DATE-TIME GROUP PRIOR TO DECLASSIFICATION—NO UNCLASSIFIED REFERENCES IF DATE-TIME GROUP IS CITED.