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HEARING ON THE FAILURES OF THE NORTH  
AMERICAN AIR DEFENSE COMMAND'S (NORAD)  
ATTACK WARNING SYSTEMS

WEDNESDAY, MAY 20, 1981

House of Representatives

Subcommittee on Legislation

and National Security of the

Committee on Government Operations

Washington, D.C.

The subcommittee met, pursuant to recess, at 10:05 a.m.,  
in room 2154, Rayburn House Office Building, Hon. Jack L.  
Brooks [chairman of the subcommittee] presiding.

Present: Representatives Levitas, Horton, Butler, and  
Clinger.

Staff present: Jim Lewin, professional staff member, full  
committee; Jim Rife, professional staff member, full  
committee; Richard Barnes, staff director, Subcommittee on  
Legislation and National Security; William Jones, general  
counsel, full committee; John Moore, staff administrator,

105 It is just that some people did not love the places they  
106 were put. A good many of them got planted if they were not  
107 lucky.

108 Mr. DeLauer, we are delighted to have you here. We would  
109 be pleased to hear your statement.

110

111 STATEMENT OF THE HONORABLE RICHARD D. DeLAUER, UNDER  
112 SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING,  
113 DEPARTMENT OF DEFENSE

114

115 Mr. DELAUER. Thank you, Mr. Chairman.

116 Let me first apologize for being tardy with my statement.  
117 I would like to have that statement entered into the record,  
118 and then I will just take the high points from that  
119 statement.


120 Mr. BROOKS. Without objection, that will be done. It  
121 will be inserted at this point.

122 [Material follows:]

123

124 \*\*\*\*\* INSERT \*\*\*\*\*

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STATEMENT BY

THE HONORABLE RICHARD D. DeLAUER  
UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

BEFORE THE

SUBCOMMITTEE ON LEGISLATION AND NATIONAL SECURITY

OF THE

HOUSE COMMITTEE ON GOVERNMENT OPERATIONS

20 May 1981

Mr. Chairman, I thank you for the opportunity to testify on the issues surrounding the failures of the North American Air Defense (NORAD) Command's computer system. With me today is Dr. Thomas Quinn, Acting Deputy Under Secretary for Communications, Command, Control and Intelligence.

I agree with you that this issue is vital to our national security and I wish to assure you that it has received and continues to receive the highest priority attention. In accordance with your letter of May 12, 1981, I am prepared in conjunction with other Department witnesses to discuss the incidents that occurred at NORAD last June, what we learned about them and the corrective measures we have taken to prevent their reoccurrence. The acquisition and use of ADP and telecommunications equipment at NORAD is the specific responsibility of the Air Force. Lt Gen Hartinger has already described the recent and near term future acquisition activities at NORAD.

The relationship between NORAD ADP and the World Wide Military Command and Control System (WWMCCS) is at present a minimal one. The computers used on the NORAD computer system were originally purchased in the early 1970's as part of the standard WWMCCS computer procurement. With the exception of this hardware purchase, there is no relationship between WWMCCS ADP and NORAD ADP. Evolution of software for these systems has proceeded separately because of the very different nature of the functions being performed. As we reported to Congress in January 1981 in a

report entitled, "Modernization of the WWMCCS Information System (WIS)", in the future we will consider the missile warning function (now called Tactical Warning and Space Defense) to be one of four functional families of the WWMCCS Information System (WIS). Recognizing the special sensitivities and needs of the Warning Family, the Report emphasizes that this area will be treated separately and not be constrained or otherwise affected by the other WIS modernization efforts.

Let me now discuss the incidents that occurred on June 3 and June 6, 1980. I would like to quote from a DoD press release of June 17, 1980 concerning these incidents:

"An investigation conducted by the North American Air Defense Command (NORAD) had concluded with high confidence that the cause of false missile warning displays on June 3 and 6 was an integrated circuit of a communications multiplexer. The communications multiplexer is a device that takes information coming out of the main NORAD computer and puts it into a format suitable for transmission over a communications line. In so doing, it adds information that will enable the receiving sites--for example, the National Military Command Center in the Pentagon and Strategic Air Command Headquarters in Omaha--to identify and interpret the message. On June 3 and 6 this integrated circuit generated false missile warning information and added it to the data message. (The multiplexer includes a mini-computer; however, the problem occurred not in the mini-

computer itself, but on a circuit board that is used to connect the output of the minicomputer to the communications line.)"

"The Task Force of computer experts from outside the government which we assembled to advise us on this problem agrees that there is high probability that the suspect integrated circuit is the source of the June 3 and 6 incidents."

"This particular problem can be corrected by replacing the faulty integrated circuit. However, in order to ensure that a similar, future hardware failure does not again cause an undetected error, we have decided to improve the error detection and correction capabilities of the NORAD communications system. Specific ways to do this are being investigated."

"It should be noted with respect to the incidents of June 3 and 6 that both the warning sensors and the main NORAD computer performed their functions without error."

"The computer receives warning data from sensors such as satellites and radar, which actually monitor launches and flights. The sensors themselves never registered a missile attack, nor did the main computer indicate an attack. Consequently, the false indication was recognized by the appropriate people in the military command center within 2-3 minutes."

I would like to emphasize that Secretary Brown; Dr. Dinneen, ASD (C3I); and Dr. Van Trees, his Principal Deputy, each took a

personal and detailed interest in this problem from its inception. Among many actions taken, a team of computer and communications experts from industry was assembled to advise on the nature and quality of the corrective measures. This team unanimously concluded in October 1980 that adequate steps had been taken to allow return of the NORAD 427M system to full operation. Following the JCS recommendation of October 27, 1980, Secretary Brown approved the return of 427M to normal operation on November 6, 1980. The system and all the additional corrective and alerting measures have performed without flaw since 427's restoration to service.

Following the June incidents, the Air Force conducted an extensive review of all aspects of the NORAD system and as a result has implemented, in addition to the specific technical improvements, extensive management changes to the Missile Warning and Attack Assessment area. These changes have focused on the establishment of a Missile Warning and Attack Assessment System management structure at the general officer level and a System Integration Office (SIO) reporting to ADCOM with responsibility for end to end technology integrity of the missile warning and attack assessment function. The SIO was activated on January 1, 1981 and will be fully staffed by October 1, 1981. It is our understanding from brief comments by the General Accounting Office following their recent review of the NORAD system that they agree that the recently instituted changes at NORAD are reasonable and should be given a chance to work.

In summary, we have taken a series of technical and management steps in response to the NORAD incidents which we believe are sufficient to correct the problem and prevent its reoccurrence. I ask the support of this Committee in ensuring that these corrective measures are carried out.



125 Mr. DELAUER. After all things were decided, I am here  
126 representing the Secretary, Mr. Weinberger, and I am here to  
127 talk about the problem with the NORAD computer failure.

128 Mr. HORTON. Would you yield just a minute?

129 Mr. DELAUER. Yes, sir.

130 Mr. HORTON. With the introduction, that will give us some  
131 background information, but I would like to know how long  
132 you have been in the Department of Defense.

133 Mr. BROOKS. He has been confirmed for two weeks and has  
134 been down there about two months. Is that right, sir?

135 Mr. DELAUER. That is right. And let me give a little  
136 background.

137 I had 15 years as an aeronautical engineering officer in  
138 the Navy. I was ~~on~~ a naval aviator <sup>ON AN</sup> airship. I had tours of  
139 duty in the Bureau of Aeronautics here. I had five years at  
140 Los Alamos as a military staff member working in the atomic  
141 energy business, and then I resigned in 1958. I had to quit  
142 flying--my eyes went bad--and decided that I would embark on  
143 a second career, which I did.

144 I joined TRW--then it was Space Technology  
145 Laboratories--in 1958. In 1960, I was the program director  
146 on the Titan weapons system and then ran all the ballistic  
147 missile programs for TRW and finally ran what was called the  
148 systems and energy sector. I was an executive vice  
149 president and member of the board of directors.

150 Since 1972, I have been a member of the Defense Science  
151 Board and have been chairman of the Defense Science Board's  
152 management panel, during <sup>THAT</sup> ~~which~~ period I either conducted,  
153 chaired, or organized the Defense Science Board's activities  
154 <sup>ON</sup> ~~in~~ the ~~whole~~ question of acquisition and acquisition  
155 management.

156 This year, in February, I was offered the chance to come  
157 into the Administration. I accepted, was appointed, and  
158 confirmed a couple of weeks ago. I have been on the job  
159 about two-and-a-half months in the building, and I am now a  
160 member of the team and appearing before this committee for  
161 the first time.

162 Mr. HORTON. Thank you.

163 Mr. DELAUER. To go on, I am here to talk about the NORAD  
164 accident and failure. Let me, at the outset, confirm what  
165 you have said, Mr. Chairman. The NORAD incidents were not  
166 based on any aspect of the acquisition process. It was a  
167 failure of a chip.

168 I have a circuit board here that is a duplicate of the one  
169 that failed. The one I have marked here is the microcircuit  
170 that was the culprit. This unit was in a multiplexer, which  
171 is a connecting unit between the computer and other segments  
172 of the communications system. It had nothing to do with the  
173 computer. It was part of the communications system that was  
174 the problem.

175 Of course, as you also mentioned, there was a human error  
176 involved, and the Air Force and the Department of Defense  
177 have taken steps to correct this problem.

178 So, ~~from the NORAD incident~~ <sup>WAS CAUSED BY A COMMUNICATIONS FAILURE.</sup> ~~basically this was the problem,~~  
179 ~~and the fix~~ <sup>is</sup> ~~was~~ to have a better design approach to the  
180 system and, of course, some better management approaches to  
181 the system.

182 The Air Force has made some marked changes in the way that  
183 they are managing their acquisition of equipment for the  
184 North American Air Defense complex.

185 I cannot do anything more than just say that it had  
186 nothing to do with the acquisition system, but since I am  
187 here I would like to talk a ~~little~~ bit about the broader  
188 aspects of ADP, particularly how it affects the Defense  
189 Department.

190 Mr. HORTON. Are you going to give us a dissertation on  
191 that, or are you going to try to comment on the General  
192 Accounting Office Acting Comptroller General's remarks that  
193 were made yesterday which were critical of the NORAD  
194 computer system and then also WWMCCS?

195 Mr. DELAUER. I am going to comment on the fact that the  
196 statements ~~as were~~ made by them were indeed fact. The NORAD  
197 computer that had the incident was, at the time, a unit  
198 similar to the one that was in the WWMCCS system. And it was  
199 true that they were directed to procure that system at the

200 time they made the installation in Colorado Springs. Their  
201 statement in regard to that is absolutely correct.

202 The GAO report also was explicit and said that it felt  
203 there were management changes being made within the Air  
204 Force, at NORAD, that they felt were positive and would go  
205 toward correcting some of the deficiencies that were  
206 experienced in the past. That is ~~about~~ what I intended to  
207 comment on in regard to that report.

208 I would like to talk now a ~~little~~ bit about the broader  
209 ADP acquisition issues, as I see them, as the acquisition  
210 executive in the Defense Department.

211 ADP is going to represent about 10 percent of the  
212 acquisition budget--about \$9.5 billion--of which a very  
213 small percentage--about 30 percent--represents what you  
214 would call routine ADP. That has to do with record-keeping,  
215 payroll, and things like that. Another 40 percent of <sup>THE TOTAL</sup> ~~that~~  
216 ~~approximately~~ has to do with embedded computers that are  
217 part of ~~the~~ weapons systems, and then there are the peculiar  
218 computers necessary to some of the military functions which  
219 are really the subject of the hearing.

220 ~~I have already given you a rundown on what my background~~  
221 ~~was, so I will not cover that at this time.~~

222 The point we are trying to make--and it was covered in the  
223 letter to you, Mr. Chairman, yesterday--the letter that was  
224 sent over and signed by the Secretary in response to your

225 note--that we are making initiatives.

226 Mr. HORTON. Which letter is that? I do not have a copy of  
227 that?

228 Mr. DELAUER. It is dated 19 May.

229 Mr. BROOKS. This came in at 7:45 last night. The staff  
230 was working late. I had already gone home. My wife was  
231 going to fix supper for the children. So I did not get to  
232 read this last night, and I did not see it this morning. It  
233 is a two-page letter.

234 That is another indication of why it would be nice to have  
235 things a little bit ahead of time, to make copies of them so  
236 that people might read them and so that Mr. Butler, Mr.  
237 Clinger, Mr. Horton, I, Mr. Levitas, and others could look  
238 at it.

239 Mr. DELAUER. Mr. Chairman, let me apologize for the second  
240 time for not having it here on time.

241 Mr. BROOKS. That is all right. I understand. Without  
242 objection, it will be included in the record at this point.

243 [Material to be supplied follows:]

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245 \*\*\*\*\* INSERT \*\*\*\*\*

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(COMMITTEE)

246 Mr. DELAUER. The point I wanted to make was that in the  
247 letter he pointed out that one of the major initiatives that  
248 he has undertaken and has assigned to the Deputy Secretary  
249 is a complete review and overhaul of the existing Department  
250 of Defense acquisition system.

251 We have issued two policy documents on the subject at the  
252 present time. I am in the process now of writing  
253 instructions--my people are--in order to implement this new  
254 policy. The object of the policy is to shorten the  
255 acquisition cycle.

256 Mr. HORTON. Do we have copies of that, too?

257 Mr. DELAUER. ~~I do not know whether you do. I can make~~  
258 ~~them available.~~ AVAILABLE. <sup>^</sup> ← **INSERT 12A**

259 Mr. HORTON. I think it would be helpful. These are the  
260 two policy statements?

261 Mr. DELAUER. That is right.

262 Mr. HORTON. Why not explain that again so that the  
263 chairman can pick up that information?

264 Mr. DELAUER. Mr. Chairman, Secretary Carlucci, in his  
265 conversations with you, I think yesterday, mentioned the  
266 fact that we had started new initiatives on changing the  
267 acquisition cycle.

268 Mr. BROOKS. The one within the Department of Defense--135  
269 signatures to buy a widget--a miserable system.

270 Mr. DELAUER. You have broken the code. That is

271 right--there are too many signatures. That is the point I  
272 am getting at.

273 Mr. BROOKS. When did they issue the order?

274 Mr. DELAUER. What they did was issue the general policy  
275 on acquisition, and that is going to be ~~a piece of it~~  
*THE BEGINNING OF OUR CHANGES.*

276 Mr. BROOKS. When did they issue it?

277 Mr. DELAUER. That was out about three or four weeks ago.

278 Mr. BROOKS. We would appreciate copies of that.

279 Mr. DELAUER. Absolutely.

**INSERT 13A**

280 Mr. BROOKS. And we would like a little analysis of how  
281 many signatures are now necessary. You know, your own study  
282 reflected that in the memorandum report on the study which  
283 you authorized--

**INSERT 13B**

284 Mr. DELAUER. This is the IDA study that you are referring  
285 to?

286 Mr. BROOKS. Yes.

287 Mr. DELAUER. Yes. That is a good study.

288 Mr. BROOKS. I notice, on page 10, they point out that a  
289 request for a delegation of procurement authority might have  
290 135 DOD coordinating signatures, and to reach this point  
291 might take anywhere from six months to seven years. Surely,  
292 you can improve on that.

293 I am delighted that you recognize that as an error. We  
294 have been complaining about that, but they keep saying it is  
295 acquisition not those 135 signatures that slow down anything

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HEARING DATE 20 May 1981	TRANSCRIPT PAGE NO. 13B	LINE NO. 283	INSERT NO.		

**ADP Acquisition**

Mr. Brooks. And we would like a little analysis of how many signatures are now necessary. You know, your own study reflected that in the memorandum report on the study which you authorized.

Dr. DeLauer. The brief study done by the Institute for Defense Analysis (IDA) was intended to place in perspective the process of acquisition of Automatic Data Processing Equipment (ADPE) by the Department. Only two weeks were invested in this review. There are details which must be added to their findings to be sure that more than exceptional cases are considered. What is apparent, however, is that there exists significant concern over the ADPE acquisition process and, for whatever cause, improvement is needed.

A case was cited wherein some 135 coordinating signatures were required to gain the release of a single request for delegation of procurement authority. Actually, the number quoted was slightly in error--there were 168 hands through which the request passed. We did not intend that this single case be considered as either the rule or the exception. The point to be made is that the process has become quite complex and, under the microscope of external review, there is little chance of spontaneous improvement.

We are undertaking initiatives to simplify the overall acquisition process and certainly ADPE must be considered as an integral part. We are convinced, and the Secretary is on record supporting the proposition, that we can effect a maximum improvement in this arena by placing mission-critical ADPE responsibilities fully under the authority of the Secretary. As a part of this drive toward improvement, the Defense Science Board is establishing a Task Force on Computer Acquisition and Management. As a part of that study they will analyze the internal process more fully and build a distribution around the single number earlier quoted.

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DIRECTORATE FOR FREEDOM OF INFORMATION  
AND SECURITY REVIEW (DASO-PA)  
DEPARTMENT OF DEFENSE



296 they do out there.

297 Without objection, that information and the policies will  
298 be included in the record at this point.

299 [Material to be supplied follows:]

300

301 \*\*\*\*\* INSERT \*\*\*\*\*

12A

13A

13B