7 010

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JOINT TASK FORCE SEVEN
TASK GROUP 7.3
APO 187, c/o Postmaster
San Francisco, California

FF3/7.3/32:mf
J15-9
Ser: 00666

76555

22 March 1954

From: Commander, Task Group 7.3
To: Chief of Naval Operations
Via: (1) Commander Joint Task Force SEVEN
(2) Commander in Chief, U.S. Pacific Fleet

Subj: Radioactive Contamination of Ships and Radiological Exposure of Personnel of Task Group 7.3 due to BRAVO, the First Nuclear Explosion of CASTLE

Ref: (a) CTG 7.3 Conf dispatch 130733Z of March 1954

Encl: (1) Diagram indicating positions of TG 7.3 ships from H hour until about 0815, 1 March 1954.
(2) Tabulation of average topside radioactive intensities of Task Group 7.3 ships, at various times following BRAVO.
(3) Tabulation of accumulated radiological exposures of Task Group 7.3 personnel by ships and units.
(4) BAIROKO (CVE 115) secret serial 0010 of 11 March 1954.

1. On 1 March 1954, at 0645M, the first nuclear explosion (BRAVO) of Operation CASTLE was detonated. Prior to the detonation, ships of Task Group 7.3 had been deployed at sea generally in the southeast quadrant from ground zero as indicated in enclosure (1). This disposition and its location were based on four principal factors, (a) the latest CJTF SEVEN radex, (b) the requirements of the Commander Scientific Task Group (CTG 7.1) that ESTES (AGC 12) and CURTISS (AV 4) be positioned about 12 miles from ENYU Island for reliable UHF communications and Raydist purposes, (c) the requirement that ships be disposed at safe distances (at least 30 miles) from ground zero to avoid harmful heat, and blast effects, and (d) the requirement of reasonable concentration for communications and control purposes. Prior to the detonation and because later wind data began to indicate an easterly component, some of the smaller and slower units were directed to move to the south, but the larger ships were retained in the localities indicated in view of the foregoing requirements (b) and (d) and the expressed desire of the JTF Commander that they not be moved. Because of the additional requirements for early helicopter survey trips and the early dispatch by helicopter of an emergency airfield crew for the airfield on ENINMAN Island, the large ships were retained generally in their pre-shot positions after the detonation until about 0800M, when sudden and rapidly increasing radioactive fallout was detected on some ships. At this time, all ships were ordered to take all possible radiological defense damage control measures, including the employment of washdown systems, and to proceed to the south at best speed.

2. Commencing about 0800M, highly radioactive, visible, white particles, about the size of pinheads, began to fall on BAIROKO, PHILIP, ESTES and CURTISS. At this time BAIROKO was about 31 miles from ground zero. In spite of the continuous use

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BY AUTHORITY OF DOE/OC 8/6/86
Reviewed per DNA LTR (ISCM) 7/10/85

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of their washdown systems, concentrations of up to several roentgens per hour built up on BAIROKO and PHILIP (plane guard for BAIROKO), with average readings reaching 500 and 750 milliroentgens per hour, respectively. The fallout pattern was not symmetrical, since both ESTES and CURTISS, approximately the same distance from ground zero as BAIROKO but on opposite sides of her, received less contamination. Other ships, including those which had been moved southward before the detonation, received none of this early fallout.

3. In addition to the early heavy fallout encountered by some ships during the morning, in the afternoon and early evening of 1 March, light, invisible fallout was detected by all ships in the area. Again, damage control measures were employed by all ships. This fallout commenced about 1300M, reached a maximum about 1800M and decreased to almost zero by 2400M. Average readings during this period reached 300 mr per hour, with maximum concentration up to 475 mr per hour. Ships experiencing this fallout were located in the general area between true bearings 110°T to 155°T from ground zero, distances from 20 to 70 miles.

4. Decontamination of the ships by the ships own decontamination crews, plus natural radioactive decay, brought the radioactive intensity down rapidly. The following table shows average topside intensities in milliroentgens in milliroentgens per hour (gamma only) of three representative ships at various times:

DATE	TIME	BAIROKO	PHILIP	GYPSY
1 MAR	0900	500	750	- - -
	1000	500	265	- - -
	1100	500	196	- - -
	1200	350	145	- - -
	1300	300	147	- - -
	1400	240	138	7
	1500	200	134	30
	1600	170	180	200
	1700	140	225	230
	1800	200	262	250
	1900	180	194	200
	2000	180	199	150
2 MAR	0000	160	188	130
	0400	145	156	110
	0800	134	111	80
	1200	108	78	45
	1600	36	60	40
	2000	30	47	35
3 MAR	0000	27	39	35
	0400	25	41	35
	0800	22	34	25

[redacted]

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FF3/7.3/32:mf
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DATE	TIME	[redacted] BAIROKO DOV ACT	PHILIP 1940	GYPSY
4 MAR	0800	14	17	20
5 MAR	0800	9	8	14
6 MAR	0800	6	7	12
7 MAR	0800	4	5	10
8 MAR	0800	3	4	8

These three ships are chosen as examples because the BAIROKO and PHILIP were the most heavily contaminated in the beginning, and the GYPSY (ARSD 1) was the most heavily contaminated one week later. It is believed that contamination clung to the GYPSY longer than to other ships because of the condition of her topside, which was quite rusty due to her recent heavy employment without adequate opportunity for unkeep. Another factor tending to increase radioactive intensity on the GYPSY was her recent employment to recover contaminated chains and mooring gear from the bottom of the lagoon.

5. Three (3) barges, ten (10) LCUs and ten (10) LCMs were anchored or moored in the southeast portion of the lagoon off ENYU Island (about 20 miles from ground zero) prior to the detonation, as it was not considered practicable nor safe to take them to sea in the prevailing weather. (BELLE GROVE (LSD 2) had eighteen (18) other LCMs and one (1) AVR in her well at shot time). These craft left in the lagoon suffered no damage from blast, heat or wave action, but all were heavily contaminated by radioactive fallout to such extent that about twelve (12) hours after shot time, they had a radioactive intensity averaging several roentgens per hour. Subsequently, all were washed down with hoses from other vessels (the high pressure hoses of GYPSY proved particularly effective as GYPSY was maneuvered successively in the close vicinity of these craft), followed by a thorough decontamination by additional hosings and scrubbings by decontamination personnel who, by this time, were able to board the craft. All these measures were sufficiently effective that average radioactive intensity of these craft is now only about two (2) mr per hour (gamma only).

6. By three (3) days after the shot, all the water in BIKINI Lagoon had become slightly contaminated with radioactive material. Contamination was of the order of one microcurie per liter. Fortunately, drinking water produced by ships evaporators from lagoon water has shown no activity. The salt water systems, such as evaporators, condensers, fire mains, etc., on most ships became gradually contaminated, and at one time it was feared this might become a major problem. However, ten (10) days after detonation the radioactive intensity of the salt water system ceased to increase, and at the present time this intensity is decreasing. The highest intensity of this kind detected was 30 milliroentgens per hour (gamma only) on the exterior of an auxiliary condenser of USS CURTISS. The average

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intensity in the engineering space where this condenser was located was only about 2 milliroentgens per hour. As more shots are fired it is possible that higher salt water system intensities will be recorded, but at the present time it is considered that such will not prevent Task Group 7.3 from rendering the necessary support to the Scientific Task Group, although it may result in the requirement that ships remain at sea a considerable portion of the time.

7. As a result of the radioactive fallout on nearly all ships, the necessary decontamination measures following, and the radiation received by helicopter and boat pool personnel in support of the Scientific Task Group, a large proportion of the personnel of Task Group 7.3 have been exposed to radiation in varying degrees. Enclosure (3) is a nearly complete and reasonably accurate tabulation of accumulated radiological exposures of personnel of Task Group 7.3 by ships and units. (Reasonable estimates have been made in many cases since it has not been possible to provide all personnel with film badges; more information is gradually being made available as the over-worked laboratory personnel and facilities develop additional film badges.) It will be noted that the following approximate numbers and percentages of Task Group 7.3 personnel have received dosages to date in the ranges indicated:

Exposure in Roentgens	Approx. number TG 7.3 personnel with exposure	Approx percentage of TG 7.3 personnel with exposure
0 - .999	3936	69.9
1 - 1.999	1100	19.5
2 - 2.999	325	5.8
3 - 3.999	144	2.6
4 - 4.999	83	1.5
5 - 5.999	27	0.5
6 - 6.999	7	0.12
7 - 7.8	3	0.05
Over 7.8	3	0.05

The film badges of three (3) men of an LCM crew (those listed in the "over 7.8" column in Enclosure (3)) indicated a dosage of approximately 90R. Thorough investigation has failed to reveal how these three men could have received this much radiation; however, they have been transferred to Naval Station, Kwajalein for observation, and treatment if found necessary, by Atomic Medicine Specialists. Personnel of the PHILIP and BAIROKO have received greater exposures, in general, than other personnel. For this reason, it is planned that for all future shots of this operation, PHILIP will be employed at a location other than near the shot atoll. This will not be practicable in the case of BAIROKO, but steps will be taken to station BAIROKO, insofar as possible, in locations where the probability of receiving additional significant fallout is reduced.

[redacted]

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8. In order to be able to continue to carry out CASTLE requirements, CTG 7.3 has requested Commander, Joint Task Force SEVEN to increase the Maximum Permissible Exposure for Operation CASTLE to 7.8 roentgens (AEC allowed exposure for 26 weeks) for (a) Helicopter pilots and plane captains, (b) Boat operating personnel of Task Group 7.3 boat pool, (c) Flight deck crew of the USS BAIROKO, and (d) Personnel attached to the USS PHILIP, approximately 490 persons in all. In the interest of efficiency and economy, this command has also recommended to Commander, Joint Task Force SEVEN that personnel not be relieved or detached from TG 7.3 units due to radiation, unless their accumulated exposure exceeds or approaches 7.8R. This command is endeavoring to employ persons with high exposure in activities where they will receive little or no additional exposure, insofar as practicable.

9. Since BRAVO was detonated on a reef, the subsequent contamination of ships by solid particles rather than water droplets, is not what ordinarily would be expected in naval atomic warfare on the high seas, although contamination by solid particles could be expected on ships in harbors or near land. Consequently, some of the following remarks on damage control measures have somewhat limited application in naval atomic warfare.

a. Especially in locations near (within about 50 miles of) ground zero, it is essential that damage control measures, including washdown, be placed in effect before and not after the fallout begins to reach the ship. This conclusion is based on BAIROKO's experience that in such locations fallout builds up very rapidly, (from 0.2 mr to 1R in less than 5 minutes).

b. Presently installed washdown systems using fine spray are only partially effective in removing relatively heavy, visible, solid particles. Heavier sprays or hoses with a large volume of water are necessary to effectively remove these particles. Further, improvements in drainage are desirable to remove the large volumes of water required.

c. Presently installed washdown systems are most effective when heading into the wind. Cross-wind headings result in much of the spray being blown from the ships structure. Zig-zagging helps in wetting all topside areas and in facilitating drainage.

d. Special measures, including more extensive washdown equipment and improved drainage, are necessary on bridge structures (especially horizontal surfaces) where critical command personnel normally are stationed. Commanding Officer BAIROKO received a relatively high dosage while conning his ship on 1 March.

10. The presently prescribed methods of decontamination, both material and personnel, were found to be effective.

11. The excellent report from BAIROKO, enclosure (4), is considered worthy of special mention. It is believed that BAIROKO, ESTES and PHILIP were the first active ships in the Navy to be exposed to radiological fallout on a relatively heavy scale.

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12. In addition to his final report to the Joint Task Force Commander on Operation CASTLE, CTG 7.3 plans to submit additional interim reports on unusual matters of naval interest, as appropriate.

H. C. BRUTON

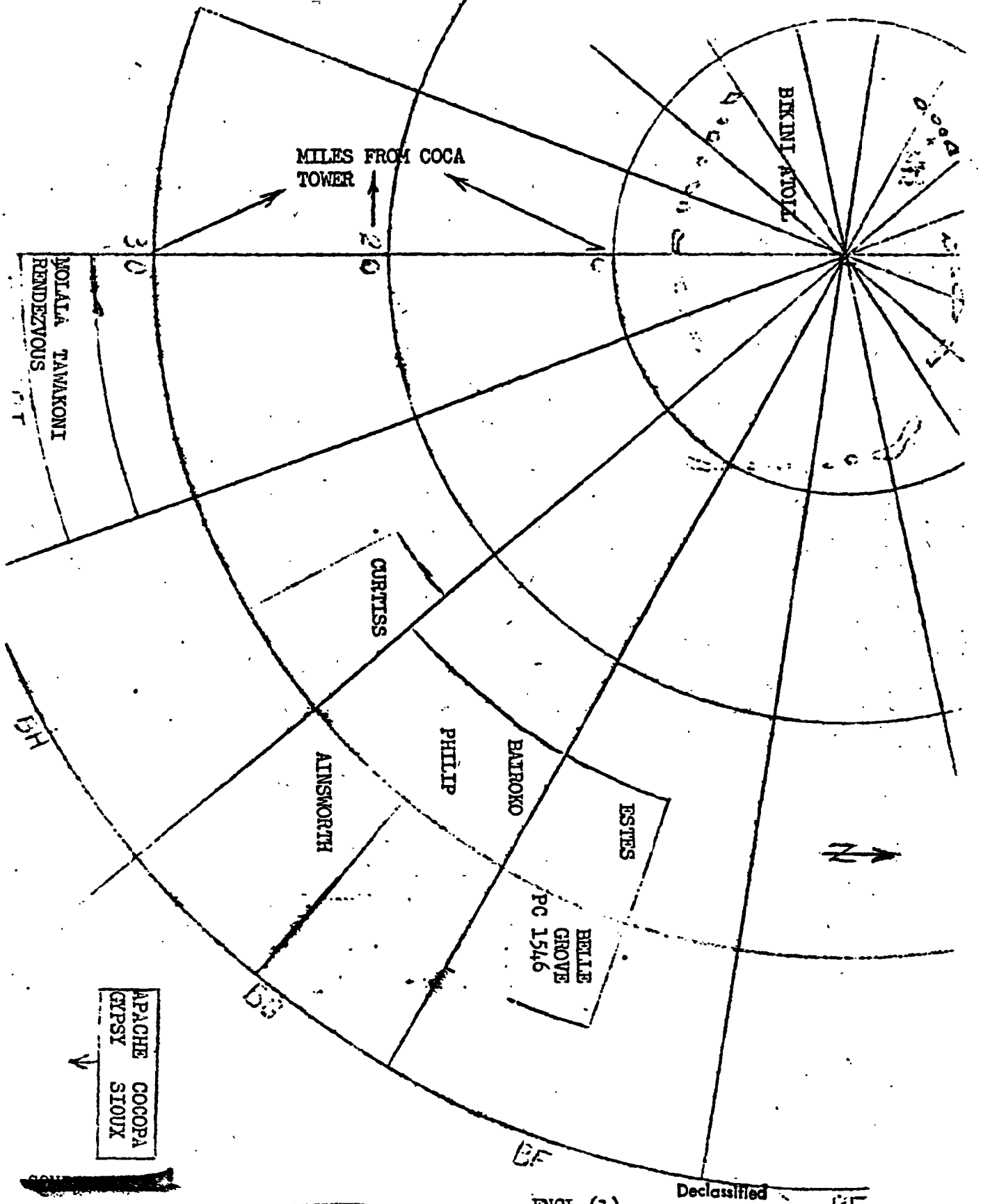
Copies to:
CINCPAC (3)
CINCPACFLT (Adv Copy)
CTG 7.1 (1)
CTG 7.2 (1)
CTG 7.4 (1)
CTG 7.5 (1)
COMCRUDESPAC (3)
COMSERVPAC (3)
COMAIRPAC (3)
COMPHIBPAC (3)
BUSHIPS (3)
CNO (OP 36) (Adv Copy) (1)
BUMED (3)
NRDL (1)
BAIROKO (1)

[redacted] DATA

[redacted]

[redacted]

Positions of TG 7.3 ships from BRAVO Hour until about 0815, 1 March 1954



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ENCL (1)

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Average topside radioactive intensities (in mr per hour) of Task Group 7.3 ships at various times following BRAVO

DATE	LOCAL TIME	CURTISS	ESTES	AINSWORTH	BELLE GROVE	COCOPA	APACHE	SIOUX	PC 1546	BAINBRIDGE	PHILIP	GYPSY
MAR.												
1	0900	8	400(e)	--	--	--	--	--	--	500	750	--
	1000	5	200(e)	--	--	--	--	--	--	500	265	--
	1100	3	150(e)	--	--	--	--	--	--	500	196	--
	1200	2	100	--	4	--	--	--	1	350	145	--
	1300	5	100	1	5	5	3	4	3	300	147	--
	1400	18	110	2	12	10	7	8	6	240	138	7
	1500	25	120	10	20	14	2	9	15	200	134	30
	1600	45	140	16	35	18	12	10	21	170	180	200
	1700	55	120	22	75	20	50	22	25	140	225	230
	1800	50	120	19	150	75	17	50	80	200	262	250
	1900	40	120	20	190	75	20	34	90	180	194	200
	2000	37	120	20	300	110	30	15	85	180	199	150
2	0000	30	120	20	80	75	30	40	80	160	188	130
	0400	25	120	20	60	70	30	30	50	145	156	110
	0800	20	80	20	60	30	25	12	40	134	111	80
	1200	15	50	20	50	20	10	10	30	108	78	45
	1600	10	30	12	50	20	10	9	20	36	60	40
	2000	10	20	10	20	18	10	7	15	30	47	35
3	0000	9	20	8	20	15	8	6	14	27	39	35
	0400	8	18	7	15	12	3	6	13	25	41	35
	0800	7	16	6	12	7	3	5	12	22	34	25
4	0800	3.2	7	5	8	5	2	4	6	14	17	20
5	0800	1.2	4	4	7	3	2	4	3	9	8	14
6	0800	1	4	3	5	2	2	4	2	6	7	12
7	0800	1	2.7	2	3	2	1	4	1	4	5	10
8	0800	1	2.1	1.5	2	1.5	1	4	1	3	4	8

All ships other than those listed in this enclosure received negligable contamination.

NOTE: (e) - estimated

[redacted]

TABULATION OF ACCUMULATED RADIOLOGICAL EXPOSURES OF TASK GROUP 7.3 PERSONNEL BY SHIPS AND UNITS AS OF 22 MARCH 1954

UNIT	EXPOSURE IN ROENTGENS 0.0 to 0.999	1.0 to 1.999	2.0 to 2.999	3.0 to 3.999	4.0 to 4.999	5.0 to 5.999	6.0 to 6.999	7.0 to 7.8	Over 7.8
TG 7.3 STAFF	10	47							
USS BAIROKO	448	227	40	54	64	9	1		
HMR-362		96	15	4	1				
USS CURTISS	709								
VP-29	432								
USS ESTES	145	376	115	3	5	7			
USS BELLE GROVE	166	148	22						
TG 7.3 BOAT POOL	104	96	17	8	4	1	1	3	3
USS LST 762	128								
USS LST 551	104								
USS EPPERSON	298								
USS NICHOLAS	292								
USS RENSHAW	259								
USS PHILIP	30	71	64	74	9	10	5		
USS PC 1546	53	6							
USS GYPSY	1	32	29	1					
USS MOLALA	86								
USS APACHE	83								
USS SIOUX	80								
USS TAWAKONI	76	1							
USS COCOPA	79								
USNS AINSWORTH	197								
YAG 39	47								
YAG 40	51								
TG 7.3 UNDERWATER DETECTION UNIT	22								
PROJECT 1.4 AIRCRAFT	8								
PROJECT 6.4 AIRCRAFT	8								
VC-3	20		23						
Total	3936	1100	325	144	83	27	7	3	3
Per Cent (Total)	69.9	19.5	5.8	2.6	1.5	0.5	0.12	0.05	0.05

ENCLOSURE (3)

[redacted]

ENCL (3)

Declassified DOD DIR 5200.10

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U. S. S. BAIROKO (CVE-115)
Fleet Post Office
San Francisco, California

EOB:TELM:rd
CVE115/M3-4
Ser: 0010
11 MAR 1954

[redacted]

From: Commanding Officer
To: Commander Task Group 7.3

Subj: Radioactive contamination; summary of for period 1-8 March 1954

Ref: (a) Appendix IV to Annex G, CTG 7.3 OpPlan 1-53
(b) CO, USS BAIROKO (CVE-115) sec ltr M3-4 ser 008 of 7 Mar 1954

Encl: (1) Tabulation of average intensities topside
(2) Copy of reference (b)

1. In accordance with reference (a) the following report of radioactive contamination is submitted for the period 3-8 March 1954. Reference (b) contained a report of contamination and decontamination efforts on 1 and 2 March 1954.

2. At 0830 on 3 March 1954 this ship entered BIKINI ATOLL and anchored in berth N-5. Helicopter operations were conducted throughout the day. The canvas bath tub for decontamination of aircraft was rigged on the flight deck, aft of number two elevator and all returning aircraft that had landed on the atoll were landed in the tub for monitoring and washdown with fresh water. Passengers were debarked in the tub, monitored, and processed through the forward personnel decontamination station, if necessary. No further efforts were made to decontaminate the flight deck, however, several details were busy all day cleaning out flight deck drains where high radiation reading were noted. The average intensity in these drains was between 80 and 100 milli roentgen per hour (gamma only) with one reading as high as 500 milli roentgen per hour (gamma only). Stoppages in these drains were caused, for the most part, by excess accumulation of wood splinters, rust flakes and paint chips jamming at the junction of two or more drain lines while fire hoses were being used to wash down the flight deck.

3. Decontamination work on the port and starboard gun sponsons was started after anchoring on 3 March 1954. The methods employed included hosing down with high pressure fire hoses, hosing and scrubbing with salt water and wiping down with fresh water. Number one motor whaleboat was decontaminated with a soap and water scrub down followed by a fresh water wipe down. The 40 MM gun and gun director canvas covers registered high radiation in spots where water from previous wash downs had collected in pools. By hosing and scrubbing with soapy water, the intensity of all canvas covers was reduced below 20 milli roentgen per hour (gamma only). The covers were then stowed in a void on the fantail to allow the intensity to reduce by natural decay. The average deck intensity on the starboard sponsons was reduced to 9 milli roentgen per hour (gamma only) by the end of the day. The only points of high radiation being two cocoa mat fenders which

ENCL (4)

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were left over the side as far removed from personnel as possible. Repeated hosings with salt water reduced their intensity from 125 to 30 milli roentgens per hour (gamma only).

4. On 4 March 1954, decontamination work on the port gun sponsons was completed. The methods used were similar to those employed on the starboard side. At the completion of the days work the average deck intensity on the port sponsons was 7 milli roentgen per hour (gamma only). The hot spots were ventilation duct screens and one cocoa mat fender, which had average readings of 30 milli roentgen per hour (gamma only). The vent screens were removed, placed on deck and scrubbed which reduced their intensity to 15 milli roentgen per hour (gamma only).

5. The average intensity on the hangar deck at 1600, 4 March 1954 was 2.7 milli roentgen per hour (gamma only). Decontamination efforts on this deck consisted mainly of swabbing up water which leaked through the roller curtain doors during hosing down operations on the weather decks. The average intensity in berthing spaces below the hangar deck was less than 2 milli roentgen per hour (gamma only) by 1600, 4 March 1954.

6. Decontamination efforts of 40 MM guns and gun directors were of minor nature. Exposed gun barrels, gun carriages, and director pedestals were scrubbed with soap and water and wiped down with fresh water. Contamination was highest in the bottom of the empty brass shutes under the elevation gear racks. The average reading was 5 milli roentgen per hour (gamma only) and the highest was 10 milli roentgen per hour (gamma only) on mount 45 which was uncovered during the period of fall out. The remainder of the work necessary on the guns and gun directors was routine maintenance to remove corrosive salt deposits.

7. While at anchor in BIKINI ATOLL the intensity reading on the salt water piping system did not exceed 2 milli roentgen per hour (gamma only). on 8 March 1954, the evaporator drain pump strainers were opened on all four evaporators. The intensity reading of the scale accumulations was found to be 5 milli roentgen per hour (gamma only). All fresh water samples from the evaporators tested by Task Group 7.1 have shown 1/5000 micro curries per milliliter or less.

8. Decontamination of the ship was considered completed at the end of the day on 4 March 1954. Decontamination of helicopters and personnel continues as required.

EMMET O'BEIRNE

Copy to:
CINCPACFLT (less Enclosure (2))
COMAIRPAC (Less Enclosure (2))

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ENCL (4)

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TIME	POSITION LAT. N	POSITION LONG. E	AVERAGE INTENSITY IN MILLI-ROENTGEN
010700 M	11°20.5'	165°47'	0.3
010800 M	11°19.5'	165°41'	0.3
010900 M	11°12'	165°41'	500
011000 M	11°14'	165°44'	500
011100 M	11°21'	165°43.5'	500
011200 M	11°12'	165°40'	350
011300 M	11°12.5'	165°41'	300
011400 M	11°13.5'	165°39'	240
011500 M	11°14'	165°41'	200
011600 M	11°16'	165°32'	170
011700 M	11°21.5'	165°39'	140
011800 M	11°21'	165°38'	200
011900 M	11°15'	165°31'	180
012000 M	11°18'	165°23'	180
012400 M	11°18.5'	164°22'	160
020400 M	11°19.5'	163°21'	145
020800 M	11°25.4'	162-31.2'	134
021200 M	11°24.2'	162°22.6'	108
021600 M	11°24.2'	162°22.6'	36
022000 M	11°24'	162°33'	30
022400 M	11°22'	163°34'	27
030400 M	11°20'	164°35'	25
030800 M	11°30'	165°32'	22
040800 M	11°32'	165°31.5'	14
050800 M	11°32'	165°31.5'	9
060800 M	11°32'	165°31.5'	6
070800 M	11°32'	165°31.5'	4
080800 M	11°32'	165°31.5'	3

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U. S. S. BAIROKO (CVE-115)
[redacted]
Fleet Post Office
San Francisco, California

EO:TELM:rd
CVE115/M3-4
Ser: 008

7 March 1954

[redacted]

From: Commanding Officer
To: Chief of Naval Operations
Via: (1) Commander Task Group 7.3
(2) Commander Joint Task Force SEVEN

Subj: U.S.S. BAIROKO (CVE-115); radiological contamination of

1. About 0800-M on 1 March 1954 this ship received a heavy fall-out of contaminated coral particles following the detonation of an atomic device on Bikini Atoll. At the time of the fall-out the ship was thirty-one (31) miles bearing 133°T from the shot site. The BAIROKO was in the process of launching five (5) helicopters at the time the fall-out was received and the wash-down equipment was layed out in the catwalks. One helicopter was in the air but was immediately recalled and landed. The first warning of fall-out was the report of approximately one (1) roentgen per hour on the flight deck. The order to set Material Condition ABLE was given at the first indication of fall-out and all ventilation, including ventilation to the engine room spaces was shut down and remained secured for approximately two (2) hours. This prevented contamination of real consequence of any spaces below the hangar deck, the engineering spaces rising to only eight (8) milli roentgens per hour, gamma only. The wash-down equipment was turned on as soon as Condition ABLE had been set but proved to provide an insufficient volume of water to handle the heavy fall-out of contaminated coral sand deposited on the flight deck, catwalks, island structure, forecastle and fantail. Operation of the wash-down equipment was continued for approximately two (2) hours and then secured. Monitoring of the flight deck at this time gave readings as high as five (5) roentgens per hour in many of the cross deck gutters and a high of twenty-five (25) roentgens per hour was recorded in the flight deck drain on the starboard side aft. Fire hoses were then broken out and used to washdown the exposed areas for the remainder of the day. The fire hoses proved to be much superior in washing away the comparatively large particles of coral sand which had been received and it was possible to reduce the flight deck count to approximately two-hundred (200) milli roentgens per hour, gamma only, or less by 1600-M.

2. A second fall-out was received starting at about 1600-M. This fallout was composed of very fine particles and increased the count on the flight deck and bridge to between two-hundred (200) and four-hundred (400) milli roentgens per hour, gamma only. The fire hoses were again used on the flight deck, forecastle and fantail and bridge structure until about 1845-M when the Task Unit 7.1 radiological personnel recommended sending all personnel who could be spared below decks because of the possibility of inhaling the extremely fine particles into the lungs. No further decontamination measures were taken on 1 March 1954.

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3-37495 A1

3. At 0800-M on 2 March 1954 the ship was completely monitored and the flight deck and bridge structure indicated from one-hundred (100) to two-hundred-twenty (220) milli roentgens per hour, gamma only. The hangar deck and rooms on the deck below the flight deck indicated from thirty (30) to fifty (50) milli roentgens per hour, gamma only. Decontamination efforts were commenced immediately after monitoring was completed and were carried on all day 2 March 1954. The flight deck was washed down several times using high pressure hoses, working parallel to the planking. The first wash-down resulted in an average reduction of 40-50 milli roentgens per hour, gamma only. This was followed by scrubbing with a detergent soap solution and salt water rinse, using high pressure fire hoses. The intensity on the flight deck was reduced below fifty (50) milli roentgens per hour, gamma only, except in a few scattered spaces, following repeated applications of this method. The average beta plus gamma reading on the flight deck before decontamination was one (1) r e p. The decontamination efforts utilized reduced this figure by at least 50% according to calculations of the Navy Radiological Decontamination Laboratory representatives.

4. A check on representative film badges of flight deck and other exposed personnel indicates that they received an average of from two (2) to three (3) roentgens total dose up to noon 2 March 1954. I consider that as a result of the decontamination measures taken the radiation level has been reduced to the point that the ship is entirely safe for continued occupancy by all personnel on board. I recommend that the BAIROKO continue with the operations in progress in preparation for the remainder of the tests.

5. A detailed report of the decontamination operations will be submitted at a later date.

EMMET O'BEIRNE

AEWL/HO

3-3249SRD

115

[redacted]

J-3/SRD-WNG-54(L)E 1st Ind 1 April 1954

SUBJECT: Radioactive Contamination of Ships and Radiological Exposure of Personnel of Task Group 7.3 due to BRAVO, the First Nuclear Explosion of CASTLE

Headquarters, Joint Task Force SEVEN, APO 187 (HOW), c/o Postmaster, San Francisco, California

THRU: Commander in Chief, U.S. Pacific Fleet, c/o Fleet Post Office San Francisco, California

TO: Chief of Naval Operations, Navy Department, Washington 25, D. C.

1. Basic letter from CTG 7.3, serial 00666, dated 22 March 1954, is forwarded for your information in accordance with request contained in CINCPACFLT dispatch 201912Z of March 1954.

2. Similar reports will be made on subsequent shots of the CASTLE series as required.

P. W. CLARKSON
Major General, U.S. Army
Commander

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BAIROKO

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