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SPECIAL INSTALLMENT FOR MIDE-SHOT
TASK GROUP 192.4, PROVISIGNAL
1 November 1952

DECLASSIFIED BY *Acting Chief 15CM*
SIGNATURE *John S. Bilye*

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AIR TASK GROUP PARTICIPATION

IN MIKE SHOT

1 NOVEMBER 1952



CALVIN C. GORHAM
Captain USAF
Historical Officer

Joint Task Force 132, Joint Chiefs of Staff

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Shortly after the Group Rehearsal for MIKE, as prescribed in Operations Order 2-52, another Operations Order, 3-52 for MIKE Shot was published to include and incorporate any changes found necessary by the Rehearsal. Following is a narrative account of Operations Order 3-52:

The participating Units of Task Group 132.4, Provisional, were: Task Unit 132.4.1, Commanded by Colonel Adolph E. Tokaz; Task Unit 132.4.2, Commanded by Colonel William E. Bertram; Task Unit 132.4.3, Commanded by Colonel Roy W. Nelson and Task Element 132.4.1.1, Commanded by Lieutenant Colonel Thomas T. Omohundro.

These Units of Task Group 132.4 were to participate in the MIKE test in support of the Commander, Joint Task Force 132. MIKE Device was to be detonated at Eniwetok Atoll, M.I., as directed by Commander, JTF 132.

Task Group 132.3 was to provide a Control Destroyer, USS O'BANNON, which was to serve as the position reference point in the Intermediate Refueling Area, 16° 30' North, 165° 00' East, assist the Intermediate Area Tankers in rendezvousing the fighters and assist the Tankers in Search and Rescue coverage as required. TG 132.3 would also furnish the USS RENDOVA to provide radar backup, air defense and search and rescue activities if required. They were also to make the Combat Information Center (CIC) of the USS ESTES available which would provide the Air Operations Center (AOC) afloat.

The mission of Task Unit 132.4.1 was to provide normal base

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support functions for the Units of TG 132.4. 1. y would assist TU 132.4.2 and YU 132.4.3 with decontamination operations by providing equipment and operators as needed. Then, in coordination with the Naval Station Departments, they would be prepared for Crash Crew and runway clearance operations, including rapid removal of wrecked aircraft so as to permit continuation of landing with a minimum of delay. Emphasis was to be placed on providing for the safety of personnel from radiological hazards.

Task Unit 132.4.1 was also to provide four C-47 aircraft and crews. One C-47 would be on a standby status to provide assistance to any Group aircraft forced to land at sites away from Kwajalein airfield. This aircraft was to carry an emergency team and equipment to cope with foreseeable emergencies such as fire, crash landings, injuries to personnel and other emergencies which might arise.

Two of the C-47's were to be provided for photographic purposes and one for fire-ball light detection at long range. In Operations Order 2-52 the requirement did not exist and was not called for. Also, a B-17 was to be maintained by this Unit as well as a crew for mission readiness as required. This was not a requirement in Operations Order 2-52 and was added to accomplish special reports requested in a letter from the Director of Operations.

Task Unit 132.4.2 was based at Kwajalein and was to provide and operate the following aircraft to perform the following missions:

1. One B-36D was to accomplish free air pressure and blast

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and thermal effects of the device.

2. One B-47B was to accomplish free air pressure and blast and thermal effects of the device.
3. Two B-29's were to perform ~~Canister Drops~~.
4. Two F-84G's were to assist in the sampling operations.
5. Fourteen F-84G's were to conduct sampling operations.
6. Two B-29's were to act as airborne controllers in the sampling area.
7. One B-36H was to function as airborne controller in the sampling area.
8. Ten KB-29P Tankers were to accomplish inflight refueling at the Intermediate and sampling refueling areas.
9. Two B-50D's were to make technical measurements and conduct air attenuation measurements.

Task Group 132.4.3 was to provide the following aircraft and perform the following missions:

1. Three C-54's were to be provided for use by TG 132.1 in obtaining technical and documentary photographs.
2. One RB-50 was to be used in obtaining documentary photographs for TG 132.1.
3. Ten WB-29's were to conduct air weather reconnaissance missions and collect cloud debris samples.
4. Two SA-16's would provide Search and Rescue activities.
5. Two SB-29's would provide Search and Rescue activities.
6. One H-19 Helicopter would be provided for local SAR coverage.

Task Element 132.4.1.1 at Eniwetok was to evacuate that Atoll

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as directed by Commander Task Group 132.2.

This Element was also to provide and support two H-19 Helicopters for airlift as required from the USS RENDOVA. They were also to provide for a re-entry team to furnish emergency facilities, protection and rescue in the event an aircraft was forced to land at Eniwetok during test operations.

FLIGHT PLANS

At H-4 Hours the Effects B-36 was to take off and go to an absolute altitude of 40,000 feet. The AOC at Kwajalein was to notify the AOC on the ESTES of the exact time of take-off. At H-1 Hour 30 Minutes he was to complete the wind data over the target area. The B-36 was to be 13.5 nautical miles horizontal range from Ground Zero on a southerly heading (away from Ground Zero) at H-Hour. In Operations Order 2-52 he was to be 18 NM slant range but this was changed for the actual Shot. At H-15 Minutes "APPROVAL" would release the B-36 and he was to return to Kwajalein. This aircraft had an allowable error of plus or minus 1,000 feet from its H-Hour position.

The B-47 Effects aircraft was to take off at H-2 Hours 15 Minutes and was to maintain an altitude of 35,000 feet. When 100 miles from Ground Zero he was to contact "APPROVAL". Upon contact, "APPROVAL" was to take full control of the aircraft and at H-30 Minutes the B-47 was to complete wind data and practice runs over the target area. It would then be directed to 11 NM horizontal range from Ground Zero at 35,000 feet absolute altitude at H-Hour. During the Group Rehearsal the B-47 was to be 15 NM slant range from Ground Zero but this was changed too for

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the actual Shot. After completion of its mission it was to be dispatched to Kwajalein in the same manner as the B-36. This aircraft was to have an allowable error of 1,000 feet from its H-Hour position.

The two Canister Drop aircraft were to start loading the Canisters and electronic equipment at H-18 Hours as directed by personnel of TG 132.1 and were to take off at H-5 Hours. This was changed from H-4 Hours as set up in Operations Order 2-52. The altitude of the planes was to be 30,000 feet above mean sea level. Positioning reports for these aircraft were to be effected and at H-2 Hours they were to make a double drift over Eniwetok. At H-1 Hour 29 Minutes, they were to make their first practice run over the target area. Two more practice runs were to be made and then at H-9 Minutes they would start the first Canister Drop. After the drop was made they would continue past Ground Zero and were to be approximately 41 miles from it at H-Hour. Following the completion of their mission they would make contact with "APPROVAL" and return to Kwajalein. The Canister Drop aircraft had an allowable error of plus or minus 30 seconds for the first drop and plus or minus 30 seconds in passing over Ground Zero. The actual error for these aircraft was nil on both the drop and passage over Ground Zero.

The two "Sniffer" F-84's, which were to determine the specific height and intensity of portions of the cloud so that the proper time for sampling operations could be determined, were to take off so as to rendezvous with the primary control B-29, about 50 miles southeast of Ground Zero at H-10 Minutes, altitude 40,

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000 feet. When the "Sniffers" reported, the Control Tanker would take control and after refueling of the "Sniffers" would vector them to the B-36 Control aircraft until visual contact was made. After H-Hour, upon direction from the B-36 Controller, the "Sniffers" would take samples of the cloud. Upon completion of their mission the "Sniffers" would request a vector from the B-36 to the Control B-29 in the Sampling refueling area. Upon visual contact the B-29 would take over. After refueling they would request a steer to the Intermediate tanker area and after making visual contact would proceed to Kwajalein for landing.

Three flights of four F-84's (Red, White and Blue in that order) were to obtain Particle and Gas Samples of the cloud as directed by the scientific observer in the Control B-36. This was to be done from H+1 Hour 30 Minutes to H+5 Hours 30 Minutes at an altitude from 30,000 feet to maximum for F-84G aircraft (about 45,000 feet).

The first flight (Red) was to depart Kwajalein so as to arrive in the sampling area at H+1 Hour 30 Minutes at an altitude of 40,000 feet for rendezvous with the Control B-29. They were to refuel at the intermediate refueling area over the Control Destroyer. After refueling the samplers would be vectored to the Control B-36 until visual contact was made and they would then be taken over by the B-36 for sampling operations. The fuel load for the sampling operation had to be watched closely. When the fuel load was down to 1,500 pounds, the fighter would descend from 45,000 feet to rendezvous with the Tanker aircraft.

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If he reached 1,000 pounds of fuel and the Tanker was not in sight, he was to land at Eniwetok. The F-84 uses approximately 1,200 pounds of fuel per hour at altitudes over 40,000 feet.

The story of one of the pilots who flew into the MIKE cloud would probably best describe the actual mission of the Sampler pilot. Lieutenant Colonel Virgil K. Moroney, Sampler Element Commander, led the first flight of four samplers, code name RED flight, and was first to enter the towering MIKE cloud. The bottom of the flat part of the mushroom-shaped cloud was estimated at 55,000 feet by the "Sniffers". So, Red flight could only enter the stem of the mushroom. The first penetration was made at near maximum altitude of 42,000 feet. Colonel Moroney was vectored from directly over the B-36 Control aircraft to enter a small segment extending from the stem of the cloud at approximately H plus one hour forty minutes. He and his wingman turned and flew towards the cloud for 15 minutes before making contact with it. Apparently the cloud was so massive that, although the controller aircraft seemed to be quite close to it, it was approximately 100 miles away. Upon entering the cloud, each pilot was going to be well occupied. First he had to fly the airplane on instruments. Then he had three radiation instruments to watch, remembering critical information so that he could report it to the scientists in the control ship and jot it down on his report sheet. And he had a stop watch so that he could time his stay in radiation over one Roentgen in intensity. Immediately upon entering the cloud, RED Leader

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[REDACTED]

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was struck by the redness of the cloud. It cast a red glow all over the cockpit. His rad-instruments "hit the peg". There was no way of knowing how much hotter it actually was than the capacity of his instruments. The hand on the Integrator, which showed the rate at which radioactivity was being accumulated, "went around like the sweep second hand on a watch.....And I had thought it would barely move!" Seeing "everything on the peg" and the red glow like the inside of a red hot furnace was staggering and Col Meroney quickly made a 90° turn to leave the cloud. When he came out, his stop watch showed that he had spent five minutes in radiation over one Roentgen. He reported to "DOG-2", the Control B-36, collected his wing man and then it was time for RED-3 and RED-4 to enter the cloud. RED Leader cautioned them not to go in too far and they disappeared into the cloud. Apparently from subsequent events, RED-4, flown by Capt J. P. Robinson, spun out shortly after entry into the cloud. RED Leader heard heavy breathing over the radio as someone inadvertently held their mike button down. Then Capt Robinson called, saying that he had "recovered at 20,000 feet." Col Meroney instructed RED-3 and RED-4 to get together and return to the B-36 and the tanker for refueling. After acknowledgement, RED-3 and RED-4 were switched to another radio channel for rendezvous instructions from the Control B-29, and Col Meroney did not hear the remainder of their story.²

2. Int of Lt Col V. K. Meroney, Sampler Element Commander, by Capt Gorham. on 10 Nov 52

8

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Red 3 and Red 4 each attempted to find the Control B-29 and the Tankers but they were both unsuccessful. The fighter's APX-6 equipment was not functioning properly and Red 4 was unable to pick up the Control B-29's radio beacon. Red 4 had reported that he was down to 1,000 pounds of fuel when he first contacted the B-29 Controller. After several tries at rendezvousing with the B-29 Controller, he was instructed to go down to 20,00 feet where he was given several steers and instructions to orbit when he was believed in the area of the tankers. At 1020 hours Red 3 had Eniwetok beacon on his radio compass and departed from the Control ship area for Eniwetok with 600 pounds of fuel remaining. He was approximately 95 miles north of Eniwetok. Shortly after this, Red 4 advised his radio compass was now operating and he had picked up Eniwetok Beacon. On instructions from the Control aircraft, he departed for Eniwetok. It was believed that he had between 400 and 500 pounds of fuel remaining at that time. The weather at Eniwetok was 7/10 overcast with base at 1,000 feet with rain squalls throughout the area. Red 4 was at 19,000 feet, in and out of the clouds, when he received his first steer of 116° from Eniwetok. Red 3 proceeded to Eniwetok, landing safely with zero fuel remaining. On his second DF steer Red 4 gave his altitude as 19,000 feet with fuel gauges showing empty but engine still running. The next transmission from Red 4 was to Eniwetok tower saying that his engine had just flamed out and he was at

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13,000 feet at the time. At 10,000 feet he reported that he thought he could make it. At this time he had the Atoll in sight. Another DF steer was given at 8,000 feet. This steer was 121°. At 5,000 feet he called the tower saying he didn't think he could make it and that he planned to bail out at 2,000 feet. At 3,000 feet he gave his last transmission. At this time he said "I have the helicopter in sight and am bailing out". The pilot of the helicopter first spotted Red 4 at approximately 800 to 500 feet altitude about ½ mile north of the Island of Glenn. They were on collision courses so the helicopter turned to follow him. The helicopter pilot estimated Red 4's airspeed at 150 knots in a level glide. Shortly after this the pilot of the helicopter observed the tip tanks of the F-84 release and possibly the canopy also. He was directly behind the F-84 on a heading of 090°. The aircraft continued in the same attitude hitting the water in a tail low attitude and slightly right wing low. The aircraft hit the water without having dive brakes, flaps or wheels down. The plane seemed to be under positive control all the way to the water. Upon contact the F-84 skipped 100 to 300 yards before striking the water again. On this contact the nose dug in and the plane flipped over on its back. The helicopter arrived over the aircraft approximately one minute after initial contact. The aft section of the F-84 was still visible but sinking. The helicopter continued patrolling the area, noting the position and calling for three more helicopters to join in the search. An SA-16 was also

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in the immediate area searching. The position of the sinking aircraft when it sank was approximately 3.4 miles from the approach end of runway 060° on a heading of 265° magnetic. An oil slick, one glove and several maps were sighted at the scene of the sinking.³

As of 10 October the pilot had not been found and there was an attempt in progress to raise the F-84.


When the sampling mission was completed the F-84's were to be given a vector to the sampling area tankers from the B-36. After refueling they were to proceed to the Intermediate refueling area, make visual contact and go on to Kwajalein. The same procedures were to be followed by the White and Blue flights, taking off at H/3 and H/4 Hours 30 Minutes respectively.

However, Blue 3 and 4 were held in the sampling area for additional sampling at the request of Dr. Plank. This required another refueling and the planes were in the air an additional hour and a half. Also, White 4 had a fuel malfunction and an inflight refueling malfunction and was forced to return to Kwajalein at 1104 after having completed only a part of its sampling mission. This aircraft was scheduled to return at 1300.

The mission of the B-29 Control aircraft was to direct, by the use of radar, the F-84 Samplers to and from the B-36 Controller for the sampling operations and to maintain lookout in the event the samplers were lost. They were also to coordinate refueling procedures and provide the samplers with navigational data.

The two B-29's were to depart Kwajalein with sufficient

3. For Acft Accd Board narrative, and conclusions see Tab "C".



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time to arrive at a point 50 miles southeast of Ground Zero at H-30 Minutes. The Primary Control aircraft was to fly at 20,000 feet and the Secondary Control aircraft was to fly at 17,000 feet in trail. The aircraft would orbit in the area and under the guidance of the AOC on the ESTES would never approach closer than 50 miles to Ground Zero. The two Controllers were to orbit over the point 50 miles southeast of Ground Zero as well as two Tankers, two "Sniffers" and the two SAR aircraft prior to H-Hour.

The scientific observer in the Control B-36 would vector the samplers in and out of the cloud. However, the Controller in the B-29 was to monitor all the instructions of the scientific observer to determine their feasibility from an operational and Flying Safety standpoint.

The mission of the B-36 control aircraft was to direct, at the request of the scientific observer, the penetration of the cloud by the "Sniffers" and the Samplers. This aircraft was to take off so as to arrive at the point 50 miles southeast of Ground Zero at H-30 Minutes.

The B-36 would be at an altitude of 40,000 and would fly a pattern downwind from Ground Zero, consisting of a four minute leg, make a 180° turn and a four minute leg on a reciprocal heading. The B-36 would fly this pattern throughout the sampling operations.

The B-36 Controller was not to take control of the samplers or the "Sniffers" until informed by the B-29 to do so and visual

contact was made. Then, at the end of the sampling operations the B-36 would notify the B-29 and control would revert to the B-29.

The mission of the KB-29 Tanker aircraft was to provide in-flight refueling for the F-84 Sampler aircraft. To do this two refueling areas were set up--one in the sampling area and the other at an Intermediate point 10° 30' North, 165° 00' East. Seven tankers, five in the sampling area and two at the intermediate refueling point would take part in the actual operation.

The first two tankers were to leave Kwajalein in time to arrive 50 miles from Ground Zero at H-30 Minutes at an altitude of 15,500 feet directly below and behind the Control B-29. The tankers were to fly the same pattern as the Control B-29, deviating only for actual refueling.

The next three tankers were to depart Kwajalein so as to arrive in the sampling area at H+2 Hours 30 Minutes. These three tankers would remain in the sampling area until the completion of the sampling operations.

The two Tankers for the intermediate refueling area were to depart Kwajalein to arrive in the refueling area at H+30 Minutes. The lead tanker was to be designated as the control aircraft in the area and was to fly at an altitude of 15,500 feet with the second tanker in trail and stacked down position. The pattern to be flown would consist of four minute legs parallel to the course from Kwajalein to the sampling area. The planes would orbit over the USS O'BANNON. The planes would stay in the refueling area until the last F-84 returned from the mission.

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The mission of the Weather Reconnaissance aircraft was merely routine weather reconnaissance which started on M-20 days and was to continue until M-1.

The information on the desired tracks to be flown was to be received from the Weather Central at Eniwetok. The first leg of each track was to be flown at 1,500 feet with a complete report to be given every 100 Nautical Miles. The second leg on the track was to be flown at 700 MB (usually 10,500 feet) to the second turning point and the final leg of each track was to be flown at 1,500 feet. The weather reconnaissance mission was to be completed 100 NM from Kwajalein. After landing and post flight the weather forecaster would report to the Base Weather Station and turn in his weather map prepared on the mission.⁴

On M-Day two WB-29's were to participate in air sampling activities under the direction of AFOAT-1. The Field Director for AFOAT-1's program seven point three was to be responsible to provide the necessary instruments and operators for the two aircraft.

The first plane was to take off at H-3 Hours 22 Minutes and climb to 13,000 feet. He was to retain this altitude throughout the mission. When 50 NM north of Ground Zero the aircraft was to orbit in that area until H/30 Minutes when he would be maneuvered in order to stay north of the visible cloud but not in the radioactive area. At H/2 Hours or at such times

4. For further info see Tab "D".

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as the APOBT-1 Director aboard the aircraft determined that sampling activities could begin the plane would be directed for the sampling mission.

The second WB-29 was to take off at H-3 Hours 20 Minutes and climb to an altitude of 21,000 feet and remain at that altitude during the mission. The flight plan and the maneuvers were the same as above landing at Kwajalein at H-7 Hours 30 Minutes.

One WB-29 was to be utilized on M-Day to report all rain shower activity and significant weather data from a fixed point between FLORA and PARRY islands directly upwind for 60 miles, covering a 10 mile zone on both sides of the flight path. This plane was to take off at H-3 Hours 40 Minutes and would accomplish its mission and land at Kwajalein H-2 Hours 20 Minutes.

It was the mission of the Air Attenuation aircraft to obtain data over the MIKE target in order to provide Task Group 132.1 with information required to forecast the transmission of thermal energy through the atmosphere and to test Indirect Bomb Damage Assessment (IBDA).

The Air Attenuation aircraft was to take off at H-3 Hours 30 Minutes and arrive over JANET (Engebi) at 25,000 feet absolute altitude and was to determine winds until H-30 Minutes. At that time the plane was to position itself for an Air Attenuation reading to be accomplished by H-15 Minutes. Remaining at 25,000 feet the aircraft was to proceed so as to be in a position 42 NM southeast of Ground Zero at H-Hour.

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At H-Hour scope photography was to be done to evaluate the indirect bomb damage. Upon completing the mission they were to return to Kwajalein. The allowable error for this plane was 2,000 feet slant range from Ground Zero at H-Hour. The mission was accomplished with actual error of 1,000 feet.

It was to be the mission of the three C-54 photo aircraft to conduct photographic coverage of MIKE Shot to provide TG 132.1 with the required still and motion pictures. The three aircraft were to take off prior to H-Hour and climb to 10,000 feet absolute altitude in formation. When approximately 60 miles from Ground Zero the Controller was to station one 40 NM southwest of Ground Zero, one 40 NM south of Ground Zero and one 40 NM northeast of Ground Zero. Under no conditions was the controller to allow the aircraft to proceed closer than 38 miles to Ground Zero. At H-Hour the aircraft were to proceed with the photographs, cloud or crater, as requested by the Chief Photographer, subject to the concurrence of the aircraft commander. The ESTES was to provide Air Radex on request.

actual

During the photographic mission one C-54 was instructed to take pictures of the MIKE crater. The plane made two passes over the crater and on the third pass flew too near and went through the fall-out area at approximately 1,500 feet. All crew members of the aircraft received a small amount of radiation but it was not a dangerous dose. When this plane returned to Kwajalein it was placed on the Decon Ramp and was later decontaminated.

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The allowable error for these planes was plus or minus 2 NM about range from their H-Hour position. The actual error of the planes was 2 NM, 1 NM and 1 NM in that order.

The RB-50 was to take off so as to arrive at an orbit point 50 miles southeast of Ground Zero at H-30 Minutes. This plane was to climb to 22,000 feet and proceed on a direct heading for this orbit point. Upon contact with APPROVAL he was to be vectored to the orbit point, where he would orbit with the two Control B-29's and Tankers. The RB-50 was to maneuver so as to turn and be head-on to Ground Zero at H-Hour. This final turn was not to be made before H-3 Minutes and not later than H-2 Minutes. The RB-50 was to accomplish photography from the front of the aircraft. Immediately following H-Hour the plane was to take the required cloud photographs and then proceed to photograph the MIKE crater when conditions permitted. This would probably be between H+30 minutes and H+2 Hours. He was to make contact with APPROVAL and provide the controller with an ETA at Kwajalein and effect his landing.

actual

The crew of this aircraft was destined for bad luck when it arrived at Kwajalein on 15 October. During a normal landing at Eniwetok on 23 October the No. 3 engine stopped. When a restart was attempted, the engine torched, touching off an explosion in the center wing tank vent line which ruptured the bombay gas tank. The crew tumbled out with minor injuries; a sprained wrist and slight abrasions when two men jumped out a window about 14 feet above the runway. The aircraft was con-

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pletely destroyed by fire.⁵

Another RB-50 was promptly requested from SAC and a crew left Ramey AFB, Puerto Rico, on 25 October to ferry the replacement to Kwajalein. They landed at Hickam on Sunday, 26 October, after feathering one propeller about three hours out. When it became obvious, after two days work, that the engine could not be repaired in time, a new engine was installed on Wednesday and Thursday, 29 and 30 October.⁶

actual

Thursday evening, which was actually the night before MIKE, the aircraft was test hopped at 1800 hours. The ferry crew wanted to proceed to Kwajalein because the RB-50 was scheduled to take off at 0510 the next morning and there would have to be time for post and preflight inspections by the original crew. However, regulations required them to land and refuel before leaving Hawaii. They finally took off at 2100 and arrived at Kwajalein at 0430. The tight take off schedule of MIKE aircraft kept them from landing until 0505.⁷

It was then too late for the first part of their mission, photos of the fireball and cloud but the principal part of their mission, crater photography, could still be carried out, so the aircraft was checked, refueled and prepared for the mission.

The crew of the original RB-50, under Major Thomas P. Hammond, then taxied to the end of the runway for take off and

5. Int of Maj T.P. Hammond by Capt CC Gorham on 4 Nov 52

6. Int of Capt R.A. Pownall, A/C Ferry crew by Capt Gorham 1 Nov 52

7. Ibid

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No. 3 engine went out with carburetor trouble. So the RB-50 never did get off on H-Day. A mission was flown on November 2nd and the cloud cover prevented the taking of pictures. On 9 November the crew flew approximately a 10 hour mission with good photo coverage accomplishing a large part of the mission.⁸

Two C-47 aircraft were to perform photo missions to document the size, shape and rate of rise of the atomic cloud. At H-3 Hours the aircraft were to take off, climb to 10,000 feet and establish a direct heading for their respective positions. One plane was to station itself 85 miles east of Ground Zero and the other was to be stationed 85 miles south of Ground Zero. When in position they were to report to the APPROVAL Controller who would give them time hacks down to zero. The planes were to take photos of the cloud at one minute intervals until H+1 Hour and following completion of the mission they would contact APPROVAL and proceed as directed to Kwajalein for landing. The allowable error for these two aircraft was plus or minus 5 NM slant range from their H-Hour position and the actual error was three miles and one mile respectively.

One C-47 aircraft was to be provided by TU 132.4.1 along with the crew and was to take off at H-4 Hours. The mission of this aircraft was to collect certain data in the vicinity of Kwajalein pertaining to the detection of fireball light from a distance during MIKE Shot. This plane was to circle Kwajalein at 10,000 feet and after getting the necessary

8. Int of Lt W.W. Witten, RB-50 Electronic Counter Measure Officer by Capt C.C. Gerber on 10 Nov 52

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readings on their instruments a few minutes after H-Hour were to land and stand by for any required emergency operations.

Three Cloud Tracking WB-29's, Call Sign WILLIAM FIVE, SIX and SEVEN, were to traverse certain designated areas to establish the existence or non-existence of radioactive fallout to the east of the Eniwetok area. As a secondary mission these aircraft were to perform such sampling operations as would be feasible. The three WB-29's were to meet the following schedule:

	<u>WILLIAM FIVE</u>	<u>WILLIAM SIX</u>	<u>WILLIAM SEVEN</u>
On Stations	H/10 Hrs	H/22 Hrs	H/34 Hrs
Departs Kwajalein	H/12 Hrs	H/24 Hrs	H/36 Hrs
Arrives On Station	H/14 Hrs	H/26 Hrs	H/38 Hrs
ETE	12/0 Hrs	12/0 Hrs	12/0 Hrs
Lands	H/24 Hrs	H/36 Hrs	H/48 Hrs

All planes were to take off and climb straight ahead to 1,000 feet and then turn to on course and climb to an operating altitude of 15,000 feet. Upon reaching the designated area the aircraft was to execute a "W" type flight pattern tracking from west to east, traversing the entire length and breadth of the search area as designated prior to take off.

When a radioactive fallout area was contacted the aircraft was to track the edges of the area to determine its extent. This was to be done under the direction of the B/99 Cloud Tracking equipment operator. Particular emphasis was to be placed on establishing the leading (western most) edge of the fallout area and establish its rate of movement. Penetration of the radioactive area was to be directed by message to the aircraft commander from JTF 132 Rad Safety Officer. Such penetrations were to be made for the purpose of establishing the intensity of the radioactive fallout.

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Upon completion of the mission the cloud tracking aircraft would return to Kwajalein as scheduled above.

Air Operations Centers

The Air Operations Center in the Combat Information Center (CIC) of the USS ESTES, was to be responsible for the control of all JTF 132 aircraft operating in the test area during the operation and for the control of all JTF SAR operations during the test.

The Control aircraft was to be responsible for the direct control of all F-84 Sampler aircraft while they were operating in the sampling area.

The Air Operations Center on Kwajalein would be responsible for the scrambling of aircraft as directed by Commander Task Group 132.4 afloat, or his representative on Kwajalein and maintain a plotted picture of the air operations.

The mission of the CIC would be to track, by radar, all Task Group 132.4 aircraft in the test area in order to insure that all predetermined flight paths were made good. They would also direct any changes made necessary by the exigencies of the situation.

They would also maintain a plotted picture of the air situation during IVY so the Commander TG 132.4 could continually analyze airborne phases of the operation and make any changes necessary. Also to control the SAR operations during IVY.

The mission of the Air Operations Center on Kwajalein would be to maintain a status board reflecting the status of all Task

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Group aircraft engaged in IVY and to keep the C. on the ESTES informed as to the current air status of all TG 132.4 aircraft on Kwajalein.

They were also to dispatch the TG 132.4 aircraft from Kwajalein as directed by CTG 132.4 or his Director of Operations on Kwajalein. They would also maintain current air operations boards to reflect the position of all TG 132.4 aircraft engaged in the mission.

Radiological Safety

It was to be the responsibility of the aircraft commander, or of the Rad-Safety monitor aboard multi-engined aircraft, for the safety of the crew personnel against radiological hazards during flight. To insure the safety, the aircraft commander was to obtain, prior to take off, a forecast of the RADEX from the weather office. The aircraft monitor, a crew member, was to obtain one film badge for each member aboard the aircraft and necessary radiaic equipment (dosimeter, charging boxes, and radiation detection instruments) to accomplish the mission. The Personnel Decontamination Center (PDC) was to be open continuously from H-24 Hours.

At the completion of the mission the aircraft were to be parked in the designated area. The crew was to be met by a monitor and accompanied to the Personnel Decontamination Center for monitoring and decontamination as required. Materials and equipment were to be returned to the PDC together with the exposure records and data observed during the mission.

The decontamination of the aircraft was to be accomplished by trained crews of the using organization under the supervision of a Decon Specialist from TU 132.4.1. Priority for decontamination of aircraft was to be established by the Commanding General or his representative. No one was to be permitted to approach or enter a contaminated aircraft without the approval of the Group Rad Safety Officer and then only when accompanied by a qualified monitor. The Group Rad Safety Officer was to notify the organization of those aircraft which had been decontaminated and declared safe for normal operations.

The WB-29 Cloud Tracking aircraft were to make reports at one hour intervals, or more frequently if necessary, to the Weather Central on the ESTES on the movement and position of the Atomic Cloud. The reporting code forms were to be prepared and submitted to the aircraft commander at briefing and the position of the cloud was to be submitted by grid letters and not to be reported in numerical degree of longitude or latitude. The completed forms were to be turned in at de-briefing as permanent data.

The Task Group 132.4 Rad Safety Representative aboard the ESTES was to prepare the Air Radox for significant altitudes, maintain a plot of the current air radiological situation and be prepared to advise the CTG 132.4 and Senior Air Controller of the existing situation. He would also keep liaison with the JTF 132 Technical Operations Officer and the Director of Program Seven and was to be prepared to assist them when called upon.

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The Rad-Safety Representative was also to decode unciphered messages from the F-84 cloud sampling aircraft, the WB-29 aircraft and the weather reporting islands, and was to make this information available to the JTF 132 Technical Operations Officer and the TU-u Rad-Safety Center aboard the USS RENDOVA, and the AOC on Kwajalein as requested.

On M-2 days the Rad-Safety Office commenced activities by plotting an Air Radex from predicted winds aloft at Eniwetok. Air Radex was a prediction of the location of the radioactive cloud formation at various altitudes. It was based on the best available predicted winds aloft and utilized to determine the feasibility of a detonation at the scheduled time. Also from this information pilots were briefed and impending hazards determined.

actual

A location for Rad-Safety operations was established in the AOC at Kwajalein. A plotting board with a map of Eniwetok and 600 miles of the surrounding area was mounted in full view of everyone concerned. The purpose of this board was to plot the cloud sampling aircraft and cloud tracking WB-29's.

Final coordination was made with the Weather Reconnaissance Radiological Officer as to the reporting code to be utilized by the WB-29's in cloud tracking operations. On M-1 day the Air Radex was again plotted from later wind predictions. This Radex was superimposed on the map in the AOC.

Reports were received from the Rad-Safety NCO on the ESTES as to the Air Radex situation there. These reports were used

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for comparison purposes.

Communications were established with the Radiological Safety Section operating on the line so as to advise of the estimated time of arrival of the incoming aircraft which were to be monitored with radac instruments.

actual
At H-7 Hours a final air Radox prediction was made for H+3 Hours from winds aloft predicted for H-Hour. This prediction was utilized for pilot briefing and with the aid of plastic slides a complete picture of the cloud formation up to 60,000 feet was plotted. It was later learned that this information was accurate.

At approximately H+6 Hours the first reports were received from the cloud sampling aircraft as to the position and intensity of the cloud.

These reports were plotted on the above mentioned map and a graphic picture of the cloud's formation, position and direction of movement and intensity was constantly maintained. During this time a Background Counting Instrument was making recordings of the radioactive intensity at Kwajalein. Also, reports were monitored from the weather islands in the surrounding vicinity to determine if any significant rise in radioactivity intensity was occurring.

A survey maintained of the Rad Safety situation for a period of 48 hours after H-Hour showed that the radioactive hazard was non-existent and operations in the AOC were concluded and attention was turned to problems of personnel and aircraft decontamination.


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The TG 132.4 Rad Safety representative aboard the ESTES arrived on M-2 Days and was immediately engaged in arranging for communications (air-to-ground) and placing briefing charts in the space that was available for this purpose. On the same day a conference was held between persons manning the other stations of the Rad Safety organization and the TG 132.4 representative. The purpose of this meeting was to acquaint those concerned with the various functions performed by individuals in the program.

After H-Hour, the first reports to come in were from the Control B-36. These reports were preliminary estimates of cloud height and direction of travel and were received for approximately 1 hour after detonation.

The second group of reports were from the cloud sampling aircraft. These were received aboard the ESTES concurrently with the Control B-36.

The reports were instrumental in giving a picture of the cloud at 35,000 to 45,000 feet in the first few hours. This enabled the Program 7 Director to make preliminary estimates of the direction and rate of travel.

actual
Approximately half-way through the manned sampling by F-84's the WB-29 aircraft reports commenced. These first reports were of primary interest to Program 7. The first two WB-29's were engaged in B-31 sampling for AFOAT-1. Reports received indicated success in this mission and aircraft returned to Kwajalein.

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Following MIKE Shot, 25 aircraft and 650 men went through the Rad Safety decontamination process. No men were hospitalized and no aircraft were made inoperative by the contamination received.⁹

The maximum radiation received by an individual was the 17.8 Roentgens taken by a member of the SA-16 crew. The C-54 received the maximum dosage of any aircraft, 29 Roentgens.

central

The C-54 received its radiation while taking pictures of the crater at approximately H Hour plus 70 minutes. The first two passes over the crater were completed without noticeable contamination, but on the third pass the aircraft got too near the crater and flew through the fall-out and the radioactive coral dust at about 1,500 feet. All crew members received a harmless dosage.

The SA-16 was flying north of Eniwotok with the F-84's and the tankers when it received instructions to search for the downed F-84 directly on the opposite side of the shot area. Since speed meant the possibility of saving the life of the F-84 pilot, the SA-16 flew through the shot area at about 1015. Although nearly three hours after the shot, the aircraft picked up between 20 and 25 Roentgens.

Following the mission all aircraft were to be given a decontamination priority. Those needed most urgently were decontaminated first. Since the C-54 and the SA-16 were not needed they were the last aircraft decontaminated.

9. The following information was obtained by interview of Capt W.W. Gabriel, OIC, Lt V.W. Shain and LT E.C. Drake of the TU 132.4.1 Rad Safe Section by A/3C D.F. Saunders, 10 Nov 52.


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Aircraft decontaminated were: 10 F-84's; 3 AB-29's; 3 WB-29's; 2 B-29's; 1 C-54; 1 SA-16; 1 SB-29 and 1 B-36 (Control aircraft).

Although Colonel Bertram received more radiation than any other F-84 pilot, 6.4 Roentgens, his aircraft received only 22 milliroentgens. His plane was the first off the Decor Ramp, being released on Saturday, just a few hours after its return. The remaining F-84's and the tankers were next off the line. The SA-16 and the C-54 were not fully decontaminated until the weekend of KING I-Ray.

More aircraft were contaminated than expected, due to the scope and magnitude of the Shot.

The greatest problem encountered by Rad Safety had to do with training. Monitors were assigned to the Rad Section without adequate training or a working knowledge of their job. Crew chiefs and crew members were also improperly trained and ignorant of the effects of radiation on themselves and their aircraft. Most of the monitors had not attended a Rad Safety school.

Training received by the monitors at Kwajalein gave them enough working knowledge to successfully carry out the decontamination mission for MIKE.

The experience received in MIKE was expected to increase the efficiency of Rad Safety members for KING.

On MIKE day monitors did not wear any means of identification. When a plane landed they would drive up, place a "Contaminated" sign in front of it and drive off. Thus the crews

were uncertain as to the degree of contamination of their aircraft, whether they could re-enter it for instruments or what they should do. Henceforth, the monitors would wear arm-bands for identification and give the crew chief immediate instructions about what to do with an aircraft after it was monitored.

decontamination
of A/C

There were three phases to the aircraft decontamination process: (1) washing with a solution of gunk (one part aircraft cleaning fluid to six parts kerosene) sprayed through a power hose at 250 to 300 pounds pressure; (2) washing it with hot water and Tide (five pounds of Tide to 400 gallons of water); and (3) rinsing with hot water. The aircraft was then monitored again. If found hot the process was repeated. An aircraft seldom went through the decon process more than three times. By that time, the remaining radiation was too small to do any harm and would eventually disappear by decay.

The personnel decontamination process was simply hot, soapy showers and monitoring until the individual had a zero reading. Their clothes were washed until free of radiation if only slightly contaminated. If washing did not remove the contamination they were buried.

It was felt by all participating agencies of Task Group 132.4 that the MIKE Shot phase of OPERATION IVY was a complete success, with the exception of a life being lost. In the words of Major General P. W. Clarkson during an address to the officers and men of Task Group 132.4, the job of the Air Force Agency of Joint Task Force 132 was "well done."

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NA/C TYPE	CALL SIGN	ETD POS. 1	POS 2	POS 3	POS 4	ETA 5 ATA 5	POS 6	POS 7	POS 8	POS 9
P2V	7CC	2000				2030				0525
P2V	8CC	2300				2300				0515
P2V	10CC	2200				0050				0505
P2V	9CC	0100				0130				0500
P2V	3CC	0100				0130				0500
P2V	1CC	0100				0130				0500
P2V	12CC	0100				0130				0500
B29	EASY-3	0340			0348	0415	0728		0728	0711
B29	EASY-4	0342			0349	0415	0725		0725	0713
B36	EASY-1	0342			0342	0415	0725		0725	0714
54	PETER-2	0345			0449	0545	0845		1041	1110
54	PETER-3	0345			0447	0545	0824		0950	1025
54	PETER-4	0345			0447	0545	0800		0931	1010
B29	W-1	0345	0501		0445	0535	0700			0940
50	JIM-1	0440	0440		0454	0515	0730		0814	0855
47	SS-1	0445				0445	0817		1027	1109
47	SS-2	0445				0445	0815		1003	1043
47	SS-3	0445				0445	0815		1003	1057
47	SS-3	0445				0445	0815		1003	1057
B36	DOG-2	0533			0533	0533	1415			1754
47	SS-2	0533				0533	1415			1754
A16	SUGAR	0600			0600	0645	1150		1410	1659



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SA 1650
 B29 CHAS
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 KB29 TANE
 KB29 TANE
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 KB29 TAK
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A/C TYPE	CALL SIGN	ETD POS. 1	POS 2	POS 3	POS 4	ETA 5 POS 5	POS 6	POS 7	POS 8	ETA POS 9	REMARKS:
SAB	SUGAR 2	0440 0440	0516							1500 1515	Acc. W
B29	CHAS. 1	0445 0446	0518			0645 0645	1445 1445			1545 1550	
B29	CHAS. 2	0446 0446	0523			0645 0645	1445 1445			1550 1600	
B29	TARE 1	0447 0448	0525			0645 0645	1330 1330		1139	1240 1240	
B29	TARE 2	0448 0448	0529			0645 0645	1330 1330			1240 1240	
B47	EASY 2	0455 0456	0546			0545 0555	0739		0800	0805 0805	
B29	SUGAR 4	0510 0525	0557			0545 0545				0810 0821	
B17	SS 5	0535 0535	0610			0715			1045	1115 1117	
B29	SUGAR 3	0545 0545	0615	0630		0815 0815	1530			1710 1710	
H19	RUFUS 1	0550 0550								0820 0820	
B29	FOX 2	0610 0610	0624			0705 0705			0932	0910 0910	
B29	TARE 5	0635 0636								1230 1237	
B29	TARE 6	0636 0637							1528	1520 1520	
B29	TARE 7	0637 0637								1525 1525	
B29	W 2	0645 0645				0745 0745				1530 1530	
B29	PEB RED	0705 0705				0815 0815				1600 1600	
B29	TARE 3	0725 0725				0845 0845	1459		1620	1600 1600	
B29	TARE 4	0725 0725				0845 0845	1459			1600 1600	
B29	TARE 8	0737 0737				0845 0845	1500			1600 1600	
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B29	PEB BLU	0845 0845	1059			1155 1155	1320		1530	1530 1530	
B29	W 3	1304 1304								1600 1600	

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FIXED WEATHER SUPPORT FOR "M" DAY

A dissertation of approximately six hundred words on the fixed weather support furnished by Weather Reporting Element 132.4.3.2 on "M" Day of Operation "IVY" [REDACTED]

Prepared 7 November 1952

Edited and approved by:

Lt. Col. William S. Barney, USAF, Cmdg. Off.

Prepared by:

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DISTRIBUTION:

- 1 cy - TC 132.4 Operations Section
- 1 cy - TC 132.4 Historical Officer
- 5 cys - TE 132.4.3.2

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FIXED WEATHER SUPPORT FOR MIKE DAY

Weather Reporting Element 132.4.3.2, an element of Test Services Unit 132.4.3 and Task Group 132.4, provided fixed weather support for MIKE Day. The element operates weather stations at Eniwetok, Bikini, Majuro, Kusaie, and Ponape; plus a headquarters at Kwajalein. The Eniwetok station is the Joint Task Force Weather Central.

The Weather Central was charged with the responsibility of providing forecasts for the operation on MIKE Day. The main body of the Weather Central, ten (10) officers and thirty (30) airmen, were evacuated to the Command Ship U.S.S. ESTES on 28 October. These personnel continued to operate the Weather Central aboard the ship. Five (5) officers and twelve (12) airmen of the Weather Central were evacuated by air to Kwajalein, where they augmented personnel of the Navy Aerological Station and operated a secondary weather central. The Eniwetok rawinsonde section was not evacuated with other personnel, but remained to provide on the spot upper air data until their evacuation by helicopter four (4) hours prior to shot time.

The element Commanding Officer presented four (4) planning and operational forecast briefings to Commanding General Task Group 132.4 and his Staff Officers, and the Commanders and Operations Officers of Test Aircraft Unit, Test Support Unit and Test Services Unit. The Weather Officers augmenting the Aerological Station briefed all Task Group Aircraft Commanders participating in the operation. All forecasts used in briefing

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were issued by weather Central, which conducted all briefings at Lniwetok with the same forecasts. In addition, the aerological station at Kwajalein issued terminal forecasts during the operation.

Special services were provided for the AOC at Kwajalein during the operation by one (1) Weather Officer and five (5) airmen of Headquarters, Weather Reporting Element 132.4.3.2.

The Officer had direct voice communication on EASY channel with a WB-29 and directed the operations of this aircraft. The aircraft orbited in an area covering the entire southeast quadrant from Kwajalein to a point one hundred (100) miles out. The plane was directed to take observations in areas from which information was desired, thus obtaining an up-to-date picture of all weather occurring in the area. All the numerous showers passing to the south of Kwajalein were well pinpointed. The few lighter showers passing to the north of and directly over the station were tracked in their approach and their movement indicated they would not affect the airstrip when jet aircraft were arriving. Observations of the Altostratus layer to the East and South indicated refueling operations would not be affected. All aircraft observations of showers were plotted on a large display board in the AOC, for use of the Controller.

One (1) airman posted latest storm detection reports for Kwajalein on the same board with aircraft reports. A navi-

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gater from Task Element 132.4.3.1 maintained and operated the AN/APQ-13 radar set after 0600 hours.

Two (2) airmen posted latest surface and upper air reports on display boards in the AOC. These reports were from the Command Ship, Kwajalein, Wake, Truk, Bikini, Majuro, Kusaie, and Ponape. Upper air reports were also available from Eniwetok until evacuation of the Rawinsonde Section.

Two (2) airmen were assigned to the Communications Center to expedite the flow of information to the Aerological Station. Many reports were delayed and missing after 0400 hours because of atmospheric interference. The Aerological Station received reports from many more stations than those posted in the AOC. These were from Air Weather Service, United States Weather Bureau, and Naval Aerological Stations in the Pacific area, from which data is normally obtained for plotting weather charts. All reports were via radio-teletype, except those from Bikini, Majuro, Kusaie, and Ponape, which were via CW.

Personnel augmenting the Aerological Station worked eight hour shifts before, during, and after the operation, while Headquarters personnel providing special services worked continuously. The fixed weather support was furnished from midnight 31 October until the last jet landed at 1600 hours 1 November.

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