

"CONFIDENTIAL"

DECLASSIFIED

Authority **NND 760063**

By **AB** NARA Date **10/18/05**

"CONFIDENTIAL"

S E C R E T

ANNEX

M

CONSOLIDATED MISSION STATISTICAL SUMMARY

* PREPARED BY: *
* * * * *
* STATISTICAL SECTION *
* XX BOMBER COMMAND *

S E C R E T

SECRET

XX BOMBER COMMAND
 CONSOLIDATE MISSION STATISTICAL SUMMARY

SECRET
 By Authority of the
 Commanding General:
 11-11-44 *SR*
 Date Initials

Mission Number Fifteen
 5 November 1944

Table I - Aircraft Participating **

Group	Mission No.	Field Order No.	*** No. of A/C Taking Off	Airborne A/C Failing to Bomb Designated Primary Target								Time Of First Takeoff	*Time Of Latest Return	Av. Time of Flight*	
				Total No.	Percent	Reason					A/C Bombing Primary			Airborne A/C Not Bombing Primary	
						Mech.	Pers.	Wea.	Not in Form	Misc.					Unknown
40th	15	15	17	3	17.6%	3						1616Z	1013Z	17:11	12:36
444th	15	15	19	6	31.6%	4				2		1628Z	1051Z	16:56	8:50
462nd	15	15	20	8	40.0%	8						1615Z	1024Z	17:16	5:45
468th	15	15	20	6	30.0%	3				2	1	1628Z	0940Z	16:27	11:50
TOTAL	15	15	76	23	30.3%	18				4	1	1615Z	1051Z	16:57	8:54

* Excludes aircraft which landed at other fields.
 ** Mission was run from Rear Area Bases.
 *** Field Order #15 required each group to have 15 aircraft airborne on mission.

SECRET

SECRET

XX BOMBER COMMAND
 CONSOLIDATED MISSION STATISTICAL SUMMARY

Mission Number Fifteen
 5 November 1944

SECRET
 By Authority of the
 Commanding General
 11-12-44 *LR*
 Date Initials

Table II - Bombing Runs

Group	No. of A/C Bombing	Target Bombed	Time of Release		Altitude of Release		Visual Bombing A/C Sighting For		Rader Bombing A/C Sighting For		On the Leader	Aircraft Dropping On	
			Earliest	Latest	Highest	Lowest	R & D	Range	R & D	Range		AFCE	Manual
40th	14	Singapore	0114Z	0220Z	21,300	19,900	7				7	6	8
	1	Pangkalanbradan	0034Z	0034Z	19,900	19,900	1					1	1
	1	Taungup	2153Z	2153Z	17,300	17,300			1				1
	1	Opportunity	0042Z	0042Z	18,000	18,000	1						
444th	13	Singapore	0147Z	0218Z	23,100	21,000	3				10	3	10
	3	Pangkalanbrandan	0021Z	0100Z	22,400	21,000	3					3	
462nd	12	Singapore	0132Z	0208Z	21,550	19,900	4				8	4	8
	2	Taungup	0001Z	0124Z	20,000	10,000	1			1		2	
468th	14	Singapore	0130Z	0200Z	22,000	19,800	6			1	7	5	9
	3	Pangkalanbrandan	2353Z	0057Z	22,250	20,200	3					3	
TOTAL	53	Singapore	0114Z	0220Z	23,100	19,800	20			1	32	18	35
	7	Pangkalanbrandan	2353Z	0100Z	22,400	19,900	7					6	1
	3	Taungup	2153Z	0124Z	20,000	10,000	1			2		3	
	1	Opportunity	0042Z	0042Z	18,000	18,000	1						1

SECRET

SECRET

XX BOMBER COMMAND
 CONSOLIDATED MISSION STATISTICAL SUMMARY

Mission Number Fifteen
 5 November 1944

SECRET
 By Authority of the
 Commanding General:

11-12-44 *SK*
 Date Initials

Table III - Bomb and Gasoline Loading

Group	* Type of Bombs	Bomb Loading				On Target				Bomb Disposal			Av. Gross Wt Per A/C Before Takeoff	Av. Gals Gas Loaded Per A/C Before Takeoff	Av. Gals Consumed On Mission		Av. Gals Remaining In A/C After Mission	
		Fusing		Av. No. Loaded Per Airborne A/C	Tot. No. Loaded In A/C Airborne	Singa-pore	Pang-kalan-bran-dan	Taun-gup	Op-por-tun-ity	Jet-tison	Re-turn	Un-known			Per A/C Bombing Primary	Per A/C Not Bomb. Primary	Per A/C Bombing Primary	Per A/C Not Bombing Primary
		Nose	Tail															
40th	1000#Gp	.1	.025	2.4	41	32	3	2	3		1		132,255	7,854	7,252	5,880	584	2,060
444th	1000#Gp	***	.025	3.0	58	40	7			11			133,794	7,912	7,082	4,225	813	3,692
462nd	** 500#Gp	.1	.025	.7	14	5		3		4	2		133,133	7,846	7,326	3,306	534	4,522
	1000#Gp	.1	.025	2.9	58	36		4		4	14							
468th	500#Gp	.1	.025	2.3	45	28	8			5		4	134,288	7,835	7,150	5,050	693	2,170
	1000#Gp	.1	.025	2.8	56	42	8		4		2							
TOTAL	500#Gp	.1	.025	.8	59	33	8	3		9	2	4	133,406	7,861	7,200	4,352	657	2,968
	1000#Gp	.1	.025	2.8	213	150	18	6	3	19	15	2						

* 500#Gp - AN-M43)
 AN-M64) Actual weight may average over 500 pounds.

1000#Gp - AN-M44)
 AN-M65) Actual weight may average around 1019 pounds.

** Carried one M-18 incendiary which was returned.

*** Did not fuse the nose.

SECRET

SECRET

SECRET
By Authority of the
Commanding General:
11-12-44 AK
Date Initials

XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY

Mission Number Fifteen
5 November 1944

Table IV - Aircraft Lost and Damaged

Aircraft Lost

Group	Serial Number	Unknown	Accident	Explanation
462nd	6444		X	Crashed 25 miles from field after takeoff. Loss of #3 engine.
			1	
468th	6370	X		Cause Unknown - Believed to have ditched near Andaman Islands.
		1		
GRAND TOTAL		1	1	

Aircraft Damaged

Minor Damage

Group	Serial Number	E/A	A/A	Own Guns	Explanation
40th	6237	X	X		Numerous holes, flak hole in #3 nacelle and in floor of radar compartment, and underside of right inboard wing.
	24503		X		Flak hole in bomb bay and R.T. door inside.
	6290	X			#3 prop, right hand horizontal stabilizer.
		*2	2		
444th	24524	X			2 holes in #4 engine and one hole in nose of aircraft.
		1			
462nd	24475		X		Horizontal stabilizer (on top).
	24581			X	Forward left bombay door.
	6338		X		Fuselage.
	24456		X		Wing - #2 engine nacelle
			3	1	
468th	24429		X		#3 nacelle and wing flap.
	6265		X		Minor flak damage.
			2		
GRAND TOTAL		*3	7	1	

* One aircraft was hit by both flak and enemy aircraft.

SECRET

DECLASSIFIED

Authority NND 760063

By AB NARA Date 10/18/05

S E C R E T

XX BOMBER COMMAND
 CONSOLIDATED MISSION STATISTICAL SUMMARY

Mission Number Fifteen
 5 November 1944

S E C R E T
 By Authority of the
 Commanding General
 11-12-44 SR
 Date Initials

Table V - Attacks and Passes by Enemy Aircraft

DIRECTION	ALTITUDE												TOTAL			
	HIGH				LOW				LEVEL				40th	444th	462nd	468th
	40th	444th	462nd	468th	40th	444th	462nd	468th	40th	444th	462nd	468th				
0800	1		1					1					1		1	1
0900	1				1		2			1		1	2	1	2	1
1000	1		1		2		1			1	1		3	1	3	
1100	3	4	2	2	3		3				3		6	4	8	2
1200	1		1	1	1	1	1	2	1	1			3	2	2	3
0100				1	2	2						1	2	2		2
0200		1						1						1		1
0300	1										1		1		1	
0400			1		1								1		1	
0500		3								1				4		
0600					2							1	2			1
0700	1				1			1					2			1
TOTAL	9	8	6	4	13	3	7	5	1	4	5	3	23	15	18	12

SECRET

XX BOMBER COMMAND
 CONSOLIDATED MISSION STATISTICAL SUMMARY

Mission Number Fifteen
 5 November 1944

SECRET
 By Authority of the
 Commanding General:

11-12-44 *AK*
 Date Initials

Table VI - Personnel Losses

Crew Position	Killed				Missing				Seriously Injured				Slightly Injured				Total Casualties				Total Participating			
	40	444	462	468	40	444	462	468	40	444	462	468	40	444	462	468	40	444	462	468	40	444	462	468
Pilot								1												1	17	19	22	20
Co-Pilot								1												1	17	19	20	20
Navigator								1												1	17	19	20	20
Bombardier								1												1	17	19	20	20
Flt. Engr.								1												1	17	19	20	20
Radar								1												1	17	19	20	20
Radio			1					1											1	1	17	19	20	20
CFC Spec.								1					1				1		1	1	17	19	20	20
Right Gnr.								1											1	1	17	19	20	20
Left Gnr.								1											1	1	17	19	20	20
Tail Gnr.								1												1	17	19	20	20
* War Cor- respondent								1												1				2
R C M																					1	2		2
Others																								
TOTAL			1					12					1	3			1	4	12		188	211	222	224

* Casualty not in military service.

SECRET

S E C R E T

XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY

Mission Number Fifteen
5 November 1944

S E C R E T
By Authority of the
Commanding General
11-12-44 *SR*
Date Initials

Table VII - Expenditures of Ammunition and Claims Against Enemy Aircraft

Group	Ammunition Expended Per Plane In Combat Flying					Total Expended	Claims Against Enemy Aircraft					
	Upper Front	Lower Front	Upper Rear	Lower Rear	50 Cal. Tail		Destroyed	Probably Destroyed	Damaged	Per 1000 Rounds Expended In Combat		
										Destroyed	Probably Destroyed	Damaged
40th	25	32	21	27	20	2105	1	0	2	.48	0	.95
444th	18	6	16	31	12	1575	0	1	1	0	.64	.64
462nd	28	33	37	28	20	2765	0	0	1	0	0	.36
468th	16	20	26	15	25	1945	0	0	1	0	0	.51
TOTAL	22	22	25	25	19	8390	1	1	5	.12	.12	.60

S E C R E T

DECLASSIFIED
Authority NND 760063
By AS NARA Date 10/18/05

SECRET

SECRET
By Authority of the
Commanding General:

11-12-44 *RR*
Date Initials

XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY

Mission Number Fifteen
5 November 1944

Table VIII - Airborne Aircraft Failing to Bomb Primary Target

Group	Serial No.	Mech.	Unknown	Pers.	Reason
40th	63394	X			#1 Engine cutting out
	24582	X			#1 Engine started back-firing and cutting out
	24508	X			Bad oil leak in #3 engine
		3			
444th	65202	X			Engine failure
	24464	X			Engine failed on takeoff
	24524			X	Low on gasoline
	24580			X	Low on gasoline
	6267	X			Supercharger trouble and blown blister
	24510	X			Engine overheating
		4		2	
462nd	93830	X			#3 Engine cutting out intermittently
	6329	X			#3 Engine cutting out, carburetor trouble
	24463	X			#4 Engine cutting out
	24461	X			#3 Prop governor out, #1 oil leak
	6285	X			#2 Engine caught fire
	6299	X			All 4 engines cutting out intermittently, feathered #1
	6444	X			#3 Engine failed, crashed just after takeoff
	63386	X			#4 prop governor out, #1 supercharger out
		8			
468th	6208	X			Oil temperature up, feathered prop #4 engine
	6370		X		Missing - believed to have ditched near Andaman Islands
	6284			X	Running low on fuel, pilot decided to bomb secondary target
	6365	X			Upper forward & upper aft turrets inoperative. Decided to bomb secondary target
	6407 24429	X		X	#1 Engine running rough Running low on fuel, pilot decided to bomb secondary target
		3	1	2	
GRAND TOTAL		18	1	4	

SECRET

DECLASSIFIED

Authority NND 760063
By AB NARA Date 10/18/05

S E C R E T

ANNEX

N

FIELD ORDERS

*** ** *
* All Field Orders Material in the following *
* Annex originally classified TOP SECRET, is *
* hereby reclassified to SECRET..... *
* By authority C.G., XX Bomber Command. *
* 15 Nov 44 JDG *
* Date Initials *
*** ** *

DECLASSIFIED

Authority NND 760063

By AB NARA Date 10/18/05

SECRET

SECRET

Auth: CG XX BC
Initials: *AB*
Date: 1 November 1944

NOT TO BE TAKEN INTO THE AIR

ON COMBAT MISSION

FIELD ORDER)
NUMBER 15)

XX BOMBER COMMAND
APO 493
1 November 1944 - 0800Z

MAPS: AAF Aeronautical Charts, 1:1,000,000 #557, 558, 675, 676, 679, 678, 798, 799, 800, 859, 920, 860.
AAF Long Range Navigation Charts, 1:3,000,000 INDIA #26 BENGAL #38.
AAF Special Charts, 1:5,000,000 WESTERN AUSTRALIA to INDIA.
Naval Aviation Charts, V-30 Series, 1:2,188,800, #41, #55.
H.O. 3131. H.O. 5591.

1. Omitted. (See Annex No. 1, Intelligence Summary.)
2. This Command conducts a daylight attack on D-Day against AAF Target No. 92.2-20; see Annex No. 1, Intelligence Summary and Annex No. 2, Radar Folder.

ROUTE OUT: BASE AREA - ASSEMBLY POINT (BENKALIS ISLAND, 01°36'N, 101°59'E) - IF (PISANG ISLAND, 01°28'N, 103°15'E) - TARGET.

Aircraft will fly at 3000' indicated until at approximately 04°30'N, 100°00'E (weather permitting), at which point they will start climb to bombing altitude.

ROUTE BACK: Direct.

AXIS OF ATTACK: 89° Magnetic.

AIMING POINT: NW end of sliding caisson at entrance to naval drydock.

METHOD OF BOMBING: By 3-plane formations from proscribed bombing altitudes.

3. a. The 40th Bombardment Group, dispatching its aircraft as rapidly as possible from its India base beginning at 1615Z on D minus one, will bomb from 20,000' pressure altitude.
 - b. The 444th Bombardment Group, dispatching its aircraft as rapidly as possible from its India base beginning at 1627Z on D minus one, will bomb from 21,000' pressure altitude.
 - c. The 462nd Bombardment Group, dispatching its aircraft as rapidly as possible from its India base beginning at 1614Z on D minus one, will bomb from 20,000' pressure altitude.
 - d. The 468th Bombardment Group, dispatching its aircraft as rapidly as possible from its India base beginning at 1628Z on D minus one, will bomb from 21,000' pressure altitude.
 - x. (1) PRIMARY RADAR TARGET: AAF Target No. 92.2-17, see Annex No. 2, Radar Folder.
 - (2) SECONDARY TARGET: AAF Target No. 94.1-33, see Annex No. 1, Intelligence Summary, and Annex No. 2, Radar Folder.
 - (3) LAST RESORT TARGET: XX Bomber Command Target No. 82.2-C, see Annex No. 1, Intelligence Summary and Annex No. 2, Radar Folder.
 - (4) Each Group will dispatch a minimum of 15 aircraft loaded with a minimum per aircraft of two 1000 pound GP (TNT or Amatol filled) bombs. Fuzed .1 second nose and .025 second tail.
 - (5) Strike photos will be obtained by as many aircraft as possible.
 - (6) Aircraft will circle at Assembly Point no more than one time to join formation, proceeding on course to the target individually, if necessary.
 - (7) Altimeters will be set at 29.92 except for take-offs and landings.
4. Administrative and supply details: No change.
 5. a. (1) Signal Communications: See Annex No. 3, Signal Instructions.
 - (2) RCM: See Annex No. 4, RCM Instructions.

DECLASSIFIED

Authority NND 760063
By AB NARA Date 10/18/05

SECRET

b. Command Post: Headquarters, XX Bomber Command, APO 493.

By command of MAJOR GENERAL LEMAY:

JOHN E. UPSTON
Brigadier General, U. S. A.
Chief of Staff

OFFICIAL:

Joseph J. Preston
JOSEPH J. PRESTON
Colonel, Air Corps
Deputy Chief of Staff,
Operations

ANNEXES:

1. Intelligence summary
2. Radar Folder
3. Signal Instructions
4. RCM Instructions

DISTRIBUTION:

- 1 - CG, Twentieth Air Force
- 1 - CG, AAF, IBS, CBI, (less Annex No. 1)
- 1 - CBI, AAF Evaluation Board
- 1 - CG, XX Bomber Command
- 1 - Chief of Staff, XX Bomber Command
- 1 - D/CS, Operations
- 2 - Chief, Intelligence Section
- 2 - Chief, Opns, Plans & Tng Section
- 3 - CO, 40th Bomb Group
- 3 - CO, 444th Bomb Group
- 3 - CO, 462nd Bomb Group
- 3 - CO, 468th Bomb Group

. 2 -

SECRET

DECLASSIFIED

Authority NND 760063

By AB NARA Date 10/18/05

SECRET

.....
:: SECRET ::
:: By auth of the C.G. ::
:: XX Bomber Command ::
:: 3 Nov '44 G.D.M. ::
:: Date Initials ::
.....

NOT TO BE TAKEN INTO THE AIR
ON COMBAT MISSIONS

ANNEX NO. 1 TO FIELD ORDERS NO. 15, XX BOMB COMD

I. INTELLIGENCE SUMMARY

SECTION I: ENEMY GROUND SITUATION

For most recent changes in battle line and order of battle refer to radiogram extract reports sent out by this Headquarters, dated 29 October and 1 November 1944.

SECTION II: ENEMY ORDER OF BATTLE - SEA

No major enemy naval units are known to be operating in the Bay of Bengal, the Andaman Sea, or the Straits of Malacca. It is believed that some units of the Japanese Fleet, damaged in the recent naval engagements in the Phillipines Waters, may have proceeded to Singapore for repairs. Exact numbers and types are unknown. Any additional information obtained will be disseminated by secret radio prior to final mission briefing.

SECTION III: ENEMY ORDER OF BATTLE - AIR

For the Enemy Air Order of Battle in Burma, see Secret Letter this Headquarters, Subject: "Air Estimate - Burma", dated 27 October 1944. No known fighters are permanently maintained in either the Andaman or Nicobar Islands, Upper Malaya or the Kra Peninsula. From Northern and Eastern Sumatra, a few fighters are believed to carry out patrols over the Straits of Malacca as well as between the Andaman-Nicobar area and the shores of Lower Burma and Upper Malaya, but this fighter strength is not considered sufficient to make feasible any interception of bomber formations. In the target area, an estimated 75 to 100 single engined fighters may be encountered. Of this total estimated maximum, it is believed that no more than 50 or 60 would be operationally capable of interception. In Southern Sumatra, particularly the Palembang area, there are an estimated 150 single and twin engined fighters. These aircraft, in all probability will not enter the operational area of this mission. Enemy interception en route to and from the target area should be nil to weak; and in the immediate target area should range from weak to moderate. The types of enemy aircraft most likely to be seen are Oscars, Tojos, Zekes, Rufes, and possibly a few Nicks.

SECTION IV: ENEMY AIRCRAFT:

For new types of enemy aircraft which might be encountered, see "Technical Air Intelligence Center Summary #5," dated September 1944.

SECTION V: ENEMY AIRFIELDS

For complete data on enemy airfields in Burma, refer to "The Provisional Airfield List, Southeast Asia, Report No. 3," dated 25 July 1944 (Confidential) published by Washington and "Air Estimate - Burma" disseminated by this Headquarters, dated 27 October 1944.

For the latest available information on enemy airfields in Lower Burma and Malaya, see "Provisional Airfield List, Report No. 3" dated 25 July 1944 (Confidential) published by Washington.

- 1 -

SECRET

DECLASSIFIED

Authority NND 760063

By AB NARA Date 10/18/05

SECRET

SECTION VI: ENEMY ANTI-AIRCRAFT

Primary Target: Partial photo cover of 30 October 1944 shows at least seven heavy anti-aircraft guns. Meagre and inaccurate heavy anti-aircraft fire will be encountered above 15,000 feet. Automatic weapons and heavy anti-aircraft fire will be encountered under 15,000 feet, probably moderate and accurate under conditions of good visibility.

Secondary Target: Photo coverage of 3 August 1943 shows eight heavy anti-aircraft guns, plus a possible six additional heavy guns. The defenses are now probably stronger. No heavy anti-aircraft fire or search lights were encountered by two aircraft of this Command on 10 August 1944, through 8/10 to 10/10 undercast. Meagre and inaccurate heavy anti-aircraft fire was encountered on 3 August 1943.

Last Resort Target: Refer to Flak information for Taungup area distributed for Mission No. 14.

SECTION VII: ESCAPE AND EVASION

Refer to bulletin from this Headquarters, subject, "Evasion in Malaya" and to material on "Evasion in Sumatra" both dated 2 November 1944; and to "Bulletins on Escape and Evasion" numbers 7 and 11 of 19 May and 5 October respectively.

SECTION VIII: PRISONER OF WAR CAMPS

None known to be in target areas. Refer to "Japanese P.O.W. Camps" issued by P.O.W. Unit, XX Bomber Command and distributed in July.

SECTION IX: AIR SEA RESCUE

Bay of Bengal: Surface units and aircraft of the R.A.F. based in the Calcutta and Chittagong areas have been alerted and will be on patrol and at station for immediate action. Exact details as to location and communication procedure will be dispatched by secret radio prior to final mission briefing.

Straits of Malacca: The Royal Navy has been requested to alert any British submarines patrolling near our course and to have them monitor 500 Kcs. Last minute information regarding locations of any available rescue submarines or surface craft will be dispatched by secret radio prior to final mission briefing.

South China Sea: The U.S. Navy has been requested to alert submarines in the waters to the East of Singapore. The code names and geographical reference point will be dispatched by secret radio prior to final mission briefing. Normal S.C.I. will be in effect.

SECTION X: NAVIGATOR'S AID CHART

No navigator's aid chart will be supplied for this mission.

II. TARGET INTELLIGENCE

SECTION I: LIST OF VISUAL TARGET DATA

Primary Target:

6 copies Target Data Sheet 92.2 - 15 to 25
15 Photos R.

SECRET

15 Photos S.
40 Target Chart No. 92.2 - 17.

Secondary Target:

Pangkalan Brandan material previously delivered.

Last Resort Target:

Taungup material previously delivered.

SECTION II: LIST OF RADAR MATERIAL

Primary Target:

40 copies Radar Scope picture Sheet, R-92.2-15-25, Sheet A.
40 copies Radar Scope picture Sheet, R-92.2-15-25, Sheet B.
40 copies Radar Approach Chart, B-15.

Secondary Target: (Pangkalan Brandan area)

34 copies Radar approach chart - Pangkalan Brandan area.
40 copies Radar scope chart - Point "X" Pangkalan Brandan area.

By command of MAJOR GENERAL LEMAY:

J. E. UPSTON,
Brigadier General, U.S.A.,
Chief of Staff.

OFFICIAL:

James D. Garcia
JAMES D. GARCIA, *MC*
Colonel, Air Corps,
Chief, Intelligence Section.

- 3 -

SECRET

DECLASSIFIED

Authority NND 760063

By AB NARA Date 10/18/05

SECRET

SECRET

.Auth: CG XX BC.

.Initials *WJ*

.Date 1 Nov 1944.

NOT TO BE TAKEN INTO THE AIR

ON COMBAT MISSION

ANNEX NO. 2 TO FIELD ORDERS NUMBER 15, XX BOMBER COMMAND

RADAR FOLDER

1. Lead Crew radar operators using the AN/APQ-13, will employ the standard radar-bombsight procedure against the target. Lead and Deputy lead radar operators will operate radar equipment continuously. All other radar operators in formation will operate the equipment periodically as a navigational aid, to check equipment and for the purpose of taking scope pictures. All operators except the lead operator and in aircraft equipped with scope cameras will switch the AN/APQ-13 to "Stand-by" on the bombing run if the lead aircraft signals interference difficulty.

2. Scope cameras will be installed in deputy lead, second deputy lead and as many other aircraft as possible, commensurate with the number of scope cameras available. Radar scope photographs will be taken as presently prescribed, at approximately one-mile intervals while on the bomb run, at the instant of bomb release, and at approximately one-mile intervals after leaving the target.

3. The SCR-729 and SCR-695 will be operated in accordance with the Tactical Doctrine and the current SOI, with IFF on code position 2 on the outbound flight and code position 1 on the inbound flight. In addition, the SCR-729 may be used to home on IFF installed in air-sea rescue craft when necessary.

4. The extreme western tip of BENGKALIS ISLAND, located at $01^{\circ} 36' N$ and $101^{\circ} 59' E$, is the final turning point for all groups. From this point all aircraft will fly a course of $95^{\circ} M$ to the I.P., PISANG ISLAND, located at $01^{\circ} 28' N$ and $103^{\circ} 15' E$. From this point all aircraft will fly the axis of attack of $89^{\circ} M$ to the target, the DRYDOCK and WEST WALL AREA, SINGAPORE NAVAL BASE, SINGAPORE, MALAYA, located at $01^{\circ} 28' N$ and $103^{\circ} 50' E$.

5. The I.P., PISANG ISLAND, is actually a small mountain, rising approximately 600 feet out of the STRAIT OF MALACCA. There are three smaller islands adjacent to the I.P. Two of these islands are west and one is east of the I.P. The combination of these will be seen at a distance of over twenty (20) miles with PISANG ISLAND easily discernible in the group. It is forty (40) statute miles from the I.P. to the target.

6. The target is located at the bulge in the center of the northern side of SINGAPORE ISLAND. It is on the south shore of JOHORE STRAIT and in the western portion of the Naval Base Area. Due to its construction, size and proximity to other targets, it will be lost in the general return from the surrounding objects. The aiming point is the sliding steel caisson at the entrance of the 1000 foot long dry dock.

7. Scope photograph sheets, "A" and "B", and radar navigation map B-15 have been furnished for study. In addition, target chart, AAF TC 92.2 - 20, will be furnished prior to mission take-off. A detailed study of this material will show the exact location of the target, the appearance of surrounding objects and the fact that it will be difficult to pick up the causeway.

-1-

SECRET

DECLASSIFIED

Authority NND 760063

By AB NARA Date 10/18/05

S E C R E T

8. The secondary target is the PANKALAN BRANDAN REFINERY, PANKALAN BRANDAN, SUMATRA, located at 04° 01' N and 98° 17' E. Predicted scope drawing "X", on an axis of attack of 181° M, and a radar navigation map are furnished for study.

9. The PANKALAN BRANDAN REFINERY should appear as a bright signal approximately 4 nautical miles inland from the coastline and southwest from the mouth of the V shaped river outlet into the STRAIT of MALACCA. The town of PANKALAN SAESOE, a bright signal some distance to the north of the target and on the southern side of AROE BAY, should not be mistaken for the Refinery. AROE BAY together with SEMBILAN ISLAND and the town of PANKALAN SAESOE should serve as good check points regardless of the axis of attack. The attack to the target should be made on an approach from the STRAIT of MALACCA since an approach from the west would cause the mountains to interfere with the picture presented on the radar scope.

By Command of MAJOR GENERAL LEMAY:

JOHN E. UPSTON
Brigadier General, USA
Chief of Staff

OFFICIAL:

Francis B. Morgan
FRANCIS B. MORGAN
Major, Sig Corps
Actg Communications Officer

Exhibits:

"A" - Scope photo sheets "A" and "B" and radar navigation map B-15 for:

DRYDOCK and WEST WALL AREA, SINGAPORE NAVAL BASE,
SINGAPORE, MALAYA 92.2 -20

"B" - Scope Drawing "X" and radar navigation map 4.75 for:

PANKALAN BRANDAN REFINERY, PANKALAN BRANDAN,
SUMATRA 94.1 - 33

S E C R E T

.....
SECRET
.Auth: CG XX BC.
.Initials *4/1/44*
.Date 1 Nov 44
.....

NOT TO BE TROWN INTO THE AIR

ON COMBAT MISSION

ANNEX NO. 1 TO ANNEX NO. 2 TO FIELD ORDERS NUMBER 15,
XX BOMBER COMMAND

R.I.D.R FOLDER

1. The primary radar target is the FOURTH SENOKO OIL DEPOT, SINGAPORE, ILLUM., located at $01^{\circ} 27' N$ and $103^{\circ} 49' E$.

2. This target is located on a small hill approximately 6000 feet south-west of the DRYDOCK. It is 5000 feet south of the southern shore of the JOHORE STRAIT at the northern bulge of SINGAPORE ISLAND. A study of scope photo sheet "A", part of Exhibit "A", and target chart IFTO 92.2 - 17, to be furnished prior to take-off, will show the location of this oil tank farm with reference to surrounding target returns.

By Command of MAJOR GENERAL L. L. LINDY:

JOHN H. UPSTON
Brigadier General, USA
Chief of Staff

OFFICIAL:

Francis B. Moran
FRANCIS B. MORAN
Major, Sig Corps
Actg Communications Officer

-1-

S E C R E T

DECLASSIFIED

Authority *NND 760063*

By *AB* NARA Date *10/18/05*

S E C R E T

EXHIBITS TO ANNEX NO. 2

Mission No. 15
5 November 1944

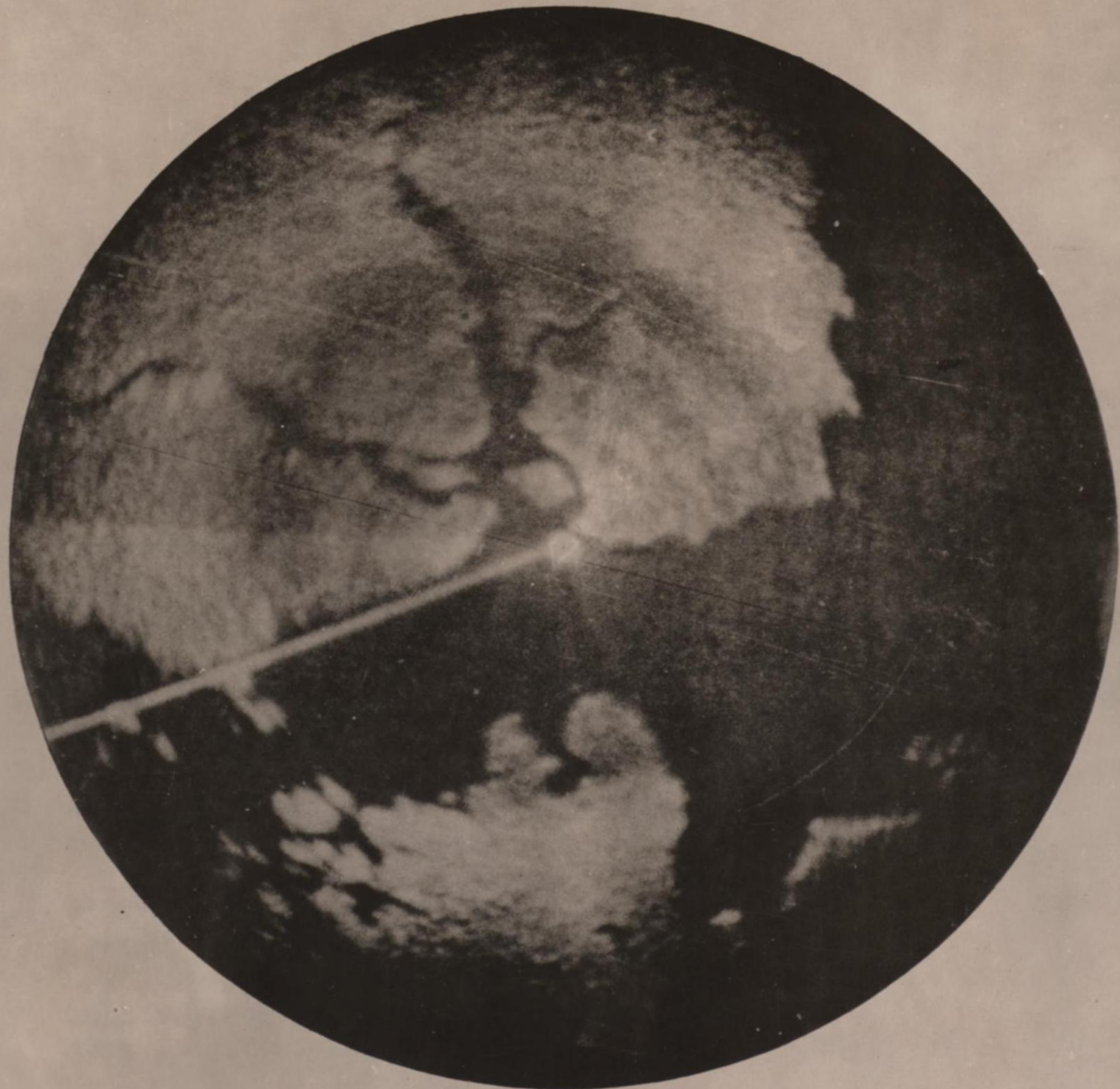
Exhibits to Annex No. 2, Field Order No. 15, are listed below in sequence as used, with their approximate original size.

<u>Sequence</u>	<u>Title or Description</u>	<u>Approximate original size - inches</u>
1.	Radar Scope Photographs, Singapore area, Sheet A	8 x 16
2.	Radar Scope Photographs, Singapore area, Sheet B	16 x 22
3.	Radar Approach Chart, Malay States, Singapore Area, Chart B-15.	16 $\frac{1}{2}$ x 16 $\frac{1}{4}$
4.*	Probable Appearance at Point X, (Pangkalanbrandan)	8 x 16
5.*	Radar Approach Chart, Pangkalanbrandan area	18 $\frac{1}{2}$ x 18 $\frac{1}{2}$

* For radar exhibits on Pangkalanbrandan see Annex M, Field Orders, Tactical Mission Report Number 5, XX Bomber Command.

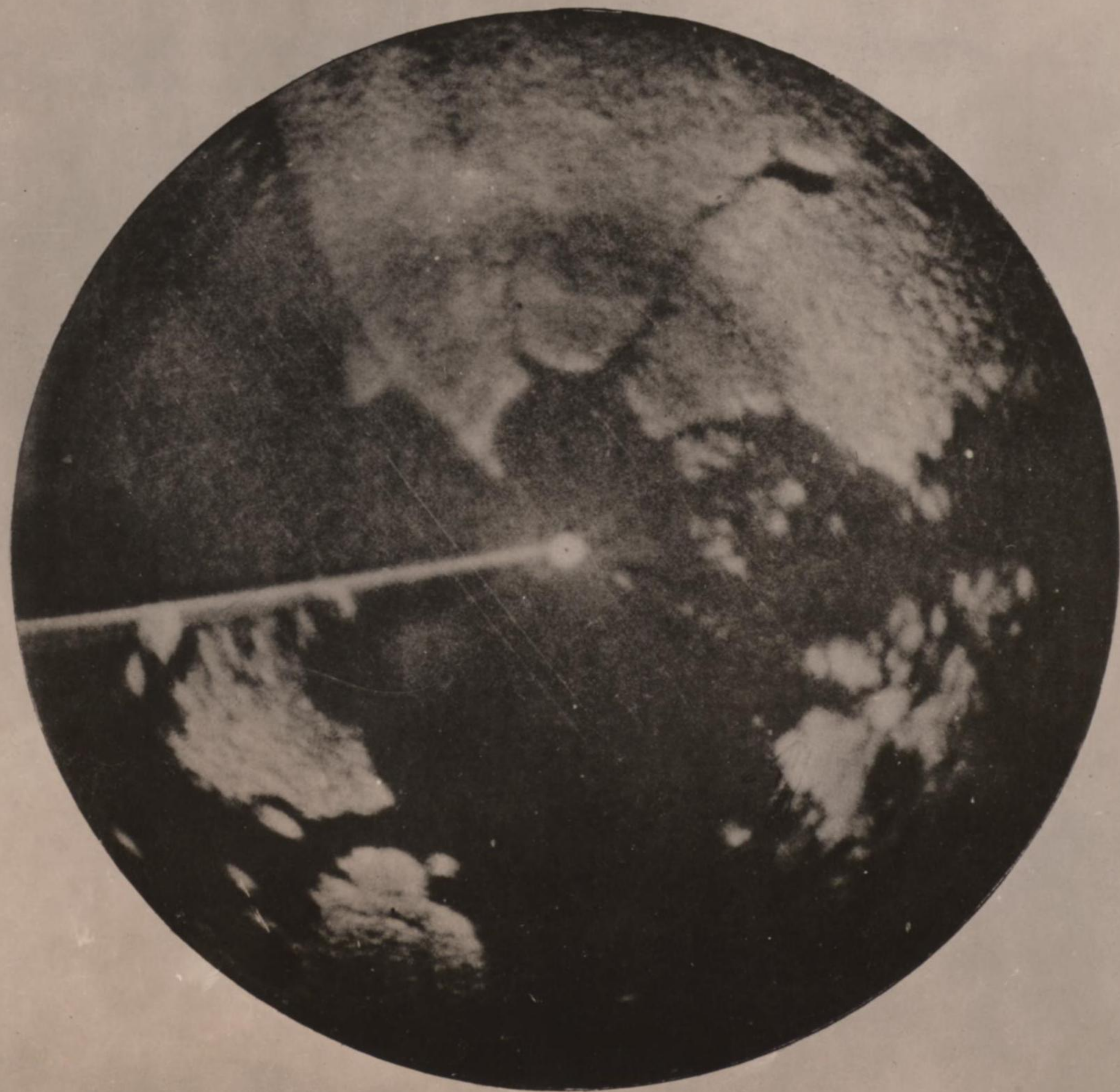
S E C R E T

RADAR SCOPE PHOTOGRAPHS SINGAPORE AREA



COURSE 249°15'M (250°00'T)
SWEEP 20 MILES

1°20'N
104°04'E



COURSE 261°15'M (262°00'T)
SWEEP 20 MILES

1°12'N
103°40'E

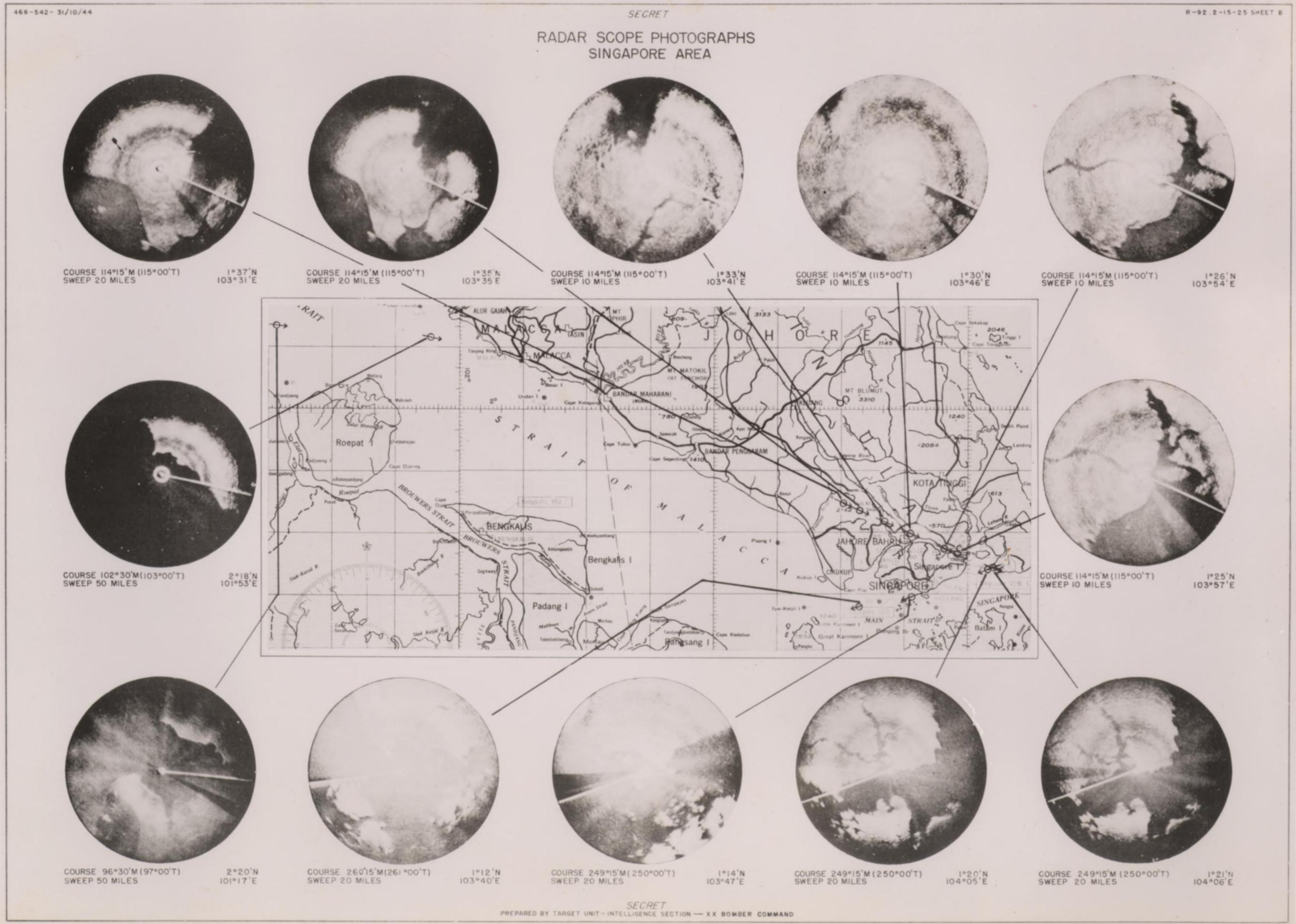
SECRET

PREPARED BY TARGET UNIT-INTELLIGENCE SECTION—XX BOMBER COMMAND

DECLASSIFIED

Authority NND 760063

By AB NARA Date 10/18/05



SINGAPORE AREA

RADAR APPROACH CHART - MALAY STATES

CHART NO. B-15 RESTRICTED



TARGET UNIT INTELLIGENCE SECTION
XX BOMBER COMMAND

RESTRICTED

STATUTE MILES

RESTRICTED

COMPILED AND REPRODUCED BY
NAVY AIR FORCE TOPIC 10
SEPTEMBER 1944

DECLASSIFIED

Authority **NND 760063**

By **AB** NARA Date **10/18/05**

SECRET

SECRET
Auth: CG XX 76
Initials:
Date: 1 Nov 44

NOT TO BE TAKEN INTO THE AIR ON

COMBAT MISSIONS

ANNEX NUMBER 3 TO FIELD ORDERS NUMBER 15 IX BOMBER COMMAND

SIGNAL INSTRUCTIONS

1. Air-ground communication will be conducted between aircraft and ground station of Group to which aircraft is assigned. Frequencies authorized are those assigned in SOI effective on date of mission.
2. Group ground stations will use call signs assigned in SOI effective on date of mission. Aircraft will use serial number type call signs as indicated in list published in accordance with IX Bomber Command Memorandum 100-17.
3. Hijli Aircraft Control Center will standby, as an alternate ground station, using call signs and frequencies listed in SOI effective on date of mission. Airplane commander may authorize contact with this station at any time he desires.
4. All messages which aircraft are hereinafter directed to transmit will be relayed, by the most expeditious means available, to the Hijli Aircraft Control Center, immediately upon receipt by the ground stations. Messages received in the clear will be relayed in the clear. Messages received in code will be relayed as received.
5. Aircraft will maintain radio silence from takeoff until target area is reached, when if intercepted, "Attack message" will be sent.
6. "Bombs away" message will be sent immediately after bombing has been accomplished.
7. "Attack messages" and "Bombs away" messages will be prepared and transmitted as is done on Guam based missions. Refer to Part I, Section VIII - Communications - current Tactical Doctrine.
8. On return flight aircraft will transmit encoded position report when crossing the line between Pagoda Point and the northern tip of the Andaman Islands or an extension of that line.
9. Aircraft in distress will have available the following Strategic Air Force distress frequencies during hours indicated:
 - a. 4030 kilocycles - 0900 to 1900 Indian Standard Time
3195 kilocycles - 1901 to 1859 Indian Standard Time
 - b. If contact cannot be established on above listed frequencies, following frequencies may be used during times indicated:

4575 kilocycles - 0700 to 2100 Indian Standard Time.
3105 kilocycles - 2101 to 1859 Indian Standard Time.

SECRET

DECLASSIFIED

Authority NND 760063

By AB NARA Date 10/18/05

SECRET

- c. 500 kilocycles is also available for passing distress traffic.
- d. Distress messages will give position of aircraft and nature of distress, and if time permits will be encoded.
- e. Distress messages will also , if time permits, be transmitted to group ground stations or Hijli Aircraft Control Center.

10. Air-to-air command communication will be conducted on Group air-to-air command frequencies as assigned in SOI effective on date of mission.

11. Air-sea rescue craft will be available. Necessary data for contacting rescue craft will be announced at Final Briefing.

12. All messages requiring encoding will be encoded in current Series Rekoh CD 0251, which will be carried in aircraft during the mission.

13. IFF will be operated in accordance with instructions contained in SOI effective on date of mission. Use of IFF is mandatory.

14. Following code words will be used in transmitting landing and takeoff reports, as is done on China based missions: 40th Group - PATRONYMIC; 444th Group - BANKRUPTCY; 462nd Group - DICTAPHONE; 468th Group - BICEPHALUS.

15. Airplane commanders are cautioned not to depend on enemy radio stations as navigational aids. They are also advised, however, that any India broadcasting station may be used for this purpose.

16. Signal supply: no change.

17. Index 1-15 to SOI will be in effect.

By command of MAJOR GENERAL LEMAY:

JOHN E. UPSTON
Brigadier General, USA
Chief of Staff

OFFICIAL:

Francis B. Moran
FRANCIS B. MORAN
Major, Signal Corps
Acting Chief, Communications Section.

SECRET

SECRET
ATTN: CG, XX BC
INITIALS: mwp
DATE: 1 Nov. 44

NOT TO BE TAKEN INTO THE AIR
ON COMBAT MISSION

ANNEX NO. 4 TO FIELD ORDERS NO. 15 XX BOMB COMD

RCM INSTRUCTIONS

1. Each Group will furnish two (2) RCM equipped aircraft, each with one RCM Observer.
2. The Bombardment Groups will search the following bands:
 - A. 40TH BOMBARDMENT GROUP.
One (1) aircraft will search from 70-330 Mc. One (1) aircraft will search from 300-1000 Mc.
 - B. 444TH BOMBARDMENT GROUP
One (1) aircraft will search the 70-330 Mc. band. One (1) aircraft will search from 1000-3300 Mc.
 - C. 462ND BOMBARDMENT GROUP
One (1) aircraft with D/F antenna if available, will search the 70-220 Mc. band. One (1) aircraft will search the 300-1000 Mc. band.
 - D. 468TH BOMBARDMENT GROUP
One (1) aircraft with D/F antenna if available, will search the 70-220 Mc. band. One (1) aircraft will search the 1000-3300 Mc. band.
3. Particular attention will be given to possible searchlight and fire-control frequencies in the 180-230 Mc. band.

By Command of MAJOR GENERAL LEMAY:

JOHN E. UPSTON
Brigadier General, USA
Chief of Staff

OFFICIAL:

Francis B. Morgan
FRANCIS B. MORGAN
Major, Air Corps
Acting Communications Officer

SECRET

DECLASSIFIED

Authority NND 760063

By AB NARA Date 10/18/05

S E C R E T

ANNEX

0

SUPPLEMENTAL INFORMATION

I. Intelligence Telegrams *

II. Target Information

- A. Singapore
- B. Pangkalan Brandan**
- C. Taungup***

III. Antiaircraft Information, Taungup***

IV. Determination of Bomb Load****

* Mission No. 15 involved no intelligence telegrams to Groups.

** For target information on Pangkalan Brandan see Annex M, Field Orders, Tactical Mission Report No. 5, XX Bomber Command.

*** For target and antiaircraft information on Taungup see Tactical Mission Report No. 14, Annex P, Supplemental Information.

**** Prepared by Operations Analysis Section, XX Bomber Command.

S E C R E T

DECLASSIFIED

Authority NND 760063
By AB NARA Date 10/18/05

NOT TO BE TAKEN INTO THE AIR ON COMBAT MISSIONS

C O N F I D E N T I A L

TARGETS NO. 15 to 23

OBJECTIVE FOLDER NO. 92.2

TARGET DATA

1. OBJECTIVE:

SINGAPORE NAVAL BASE.

2. COORDINATES AND ELEVATION: (Target No. 20)

Latitude: 01° 28' N.
Longitude: 103° 50' E.
Elevation: Approximately Sea Level

3. LOCATION AND IDENTIFIABLE FEATURES:

a. Location:

The Naval Base is located on the North side of Singapore Island. The base extends approximately 4 miles eastward from Johore Causeway and inland about 1 1/2 miles, and faces on the STRAITS of JOHORE. Elevation ranges from approximately sea-level to 130'.

b. Description:

The base is treated as a coordinated group of separate targets, numbered from 15 to 23 inclusive, and arranged from west to east. Heart of the base is an L-shaped area including graving docks, workshops, and storehouses. (Targets 20 and 21).

TARGETS AT SINGAPORE NAVAL BASE

<u>Target No.</u>	<u>Target Name</u>	<u>Coordinates</u>	<u>Description</u>
15	Shell Oil Co. Facilities	01° 27'N; 103° 46'E.	Consists of: (a) Conspicuous storage tanks on high ground, 140,000 barrels capacity; (b) the hulk, Ruthenia, about 1500' east of the Causeway; (c) the Shell Oil Co. Jetty 900' east of the Ruthenia.
16	Ammunition Depot Jetty Area	01° 28'N; 103° 48'E.	Includes: (a) armament stores building; (b) jetty; (c) assembly shop, bulk mine stores building, component stores building and miscellaneous buildings.
17	Fourth Senoko Oil Depot	01° 27'N; 103° 48'E.	Consists of 39 large conspicuous tanks on high ground, capacity 3,275,000 barrels, and two pumping stations.

C O N F I D E N T I A L

DECLASSIFIED

Authority NND 760063
By AB NARA Date 10/18/05

C O N F I D E N T I A L

<u>Target No.</u>	<u>Target Name</u>	<u>Coordinates</u>	<u>Description</u>
18	Naval Base Radio Station	01° 28'N; 103° 49'E.	Powerful transmitting and receiving station. Three 600' masts form equilateral triangle. Three 180' masts in line to north; transmitting building in between.
19	Sembawang River Area	01° 28'N; 103° 49'E.	Piers, warehouses, RR spurs, and a large installation apparently a cement plant.
20	Drydock and West Wall Area	01° 28'N; 103° 50'E.	Includes: (a) large graving dock 1000' long, concrete and steel construction, 132' wide; adjustable sliding caisson housed in small dock at right angles to graving dock; water, air, electrical, and steam connections alongside graving dock, RR spur runs on either side; two 50 ton travelling cranes on dock walls. (b) West Wall Docks, 2200' of berthing space, with RR spurs and 250 ton crane.
21	Workshop Area	01° 28'N; 103° 50'E.	Electric power station and workshops in line, running NNE-SSW, about 2700' long. Includes locomotive shed, boiler shop, foundry, 2 metal-working shops, plumber's shop, machine shop, bending floor, electrical engineering shop, and submarine battery shop all completely equipped and capable of handling any ship's work.
22	North Wharf Area	01° 28'N; 103° 50'E.	Includes dock with 2700' of berthing space, RR spurs, sailmaker's shop, carpenter shop, and boat-house. Usually moored are 2 floating drydocks, one 855' long and 172' wide, capacity 50,000 tons; the other a smaller dock of 5000 tons capacity; and a floating 100-ton crane.
23	Naval Stores Basin Area	01° 28'N; 103° 50'E.	Large basin equipped with RR spurs, cranes, and big warehouses.

4. IMPORTANCE:

The SINGAPORE NAVAL BASE is of obvious importance to the operations of the Japanese fleet in southern waters. The anchorage is large enough to shelter any number of ships, has ample fueling and supply facilities, and is capable of performing any repair work.

5. AIMING POINT:

The sliding steel caisson at the entrance to the drydock. (Target No. 20).

2 NOVEMBER 1944

TARGET UNIT, INTELLIGENCE
XX BOMBER COMMAND.

C O N F I D E N T I A L

DECLASSIFIED

Authority NND 760063
By AB NARA Date 10/18/05

S E C R E T

EXHIBITS TO SUPPLEMENTAL INFORMATION

Mission No. 15

5 November 1944

Target data exhibits used on Mission 15 are listed below in sequence as used, with their approximate original size.

<u>Sequence</u>	<u>Title or Description</u>	<u>Approximate original size - inches.</u>
1.	Photo "R"	11 x 16
2.	Photo "S"	11 x 16
3.	Target Chart No. 92.2-17	22 x 29
4.*	Pangkalan Brandan Refinery annotated photograph	8 $\frac{1}{2}$ x 16 $\frac{1}{4}$
5.*	Pangkalan Brandan Area-Chart No. 24	16 $\frac{1}{4}$ x 17 $\frac{3}{8}$
6.*	Target model pictures (Pangkalanbrandan)	8 x 16
7.*	Target model picture (Pangkalanbrandan)	7 $\frac{1}{4}$ x 15 $\frac{3}{4}$
8.*	Target model picture (Pangkalanbrandan)	5 $\frac{1}{2}$ x 16
9.**	Taungup, annotated photograph	23 $\frac{7}{8}$ x 20

* See Tactical Mission Report No. 5, Annex M, Field Orders, Exhibits to Fields Orders, XX Bomber Command.

**See Tactical Mission Report No. 14, Annex P, Supplemental Information.

S E C R E T

DECLASSIFIED

Authority NND 760063

By AB NARA Date 10/18/05

PHOTO Q ... Singapore Naval Base TARGET 16 Ammunition Depot, Jetty Area (Looking SE).



PHOTO R ... Singapore Naval Base TARGET 17 Fourth Senoko Oil Depot TARGET 18 Naval Base Radio Station (Looking ESE).

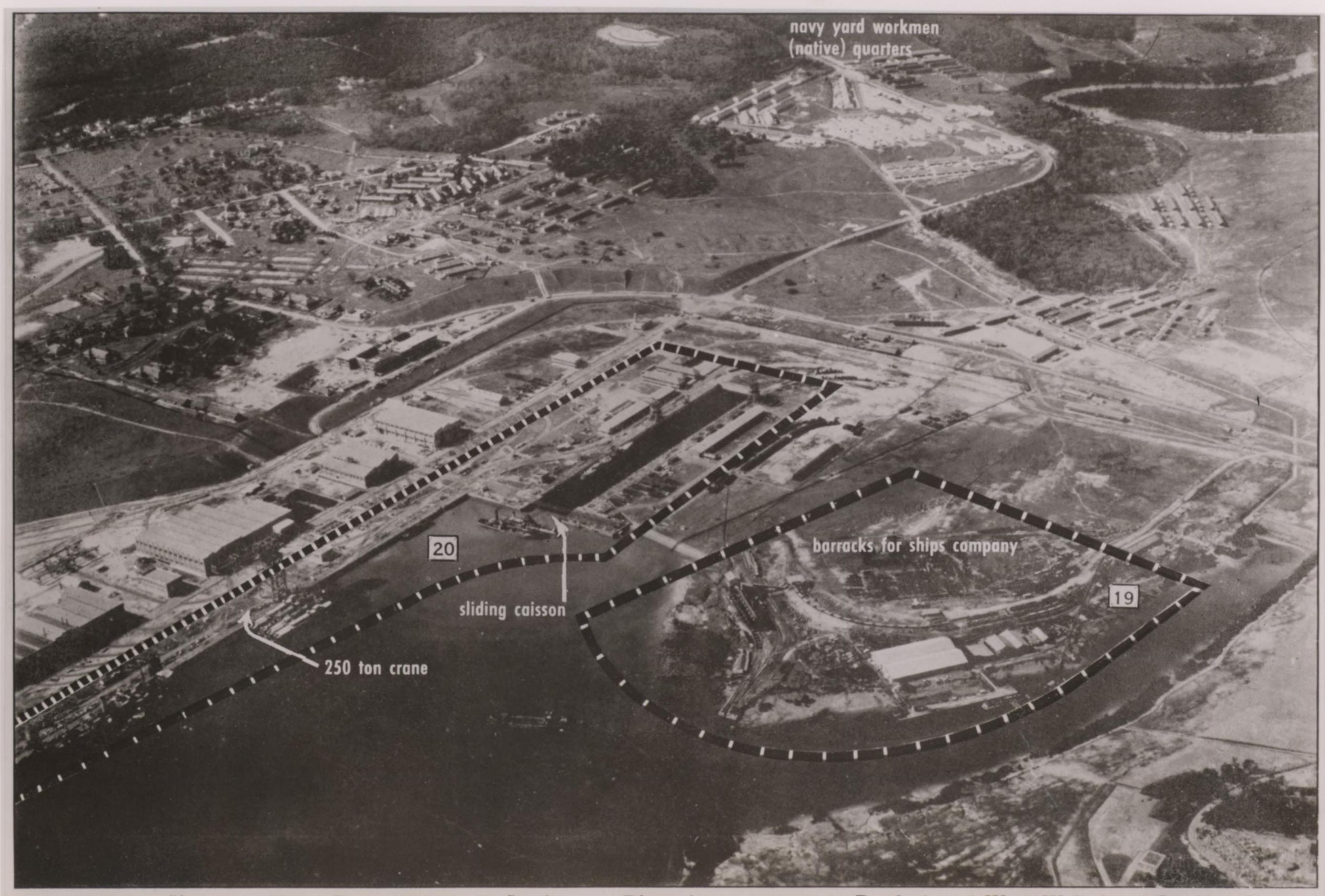
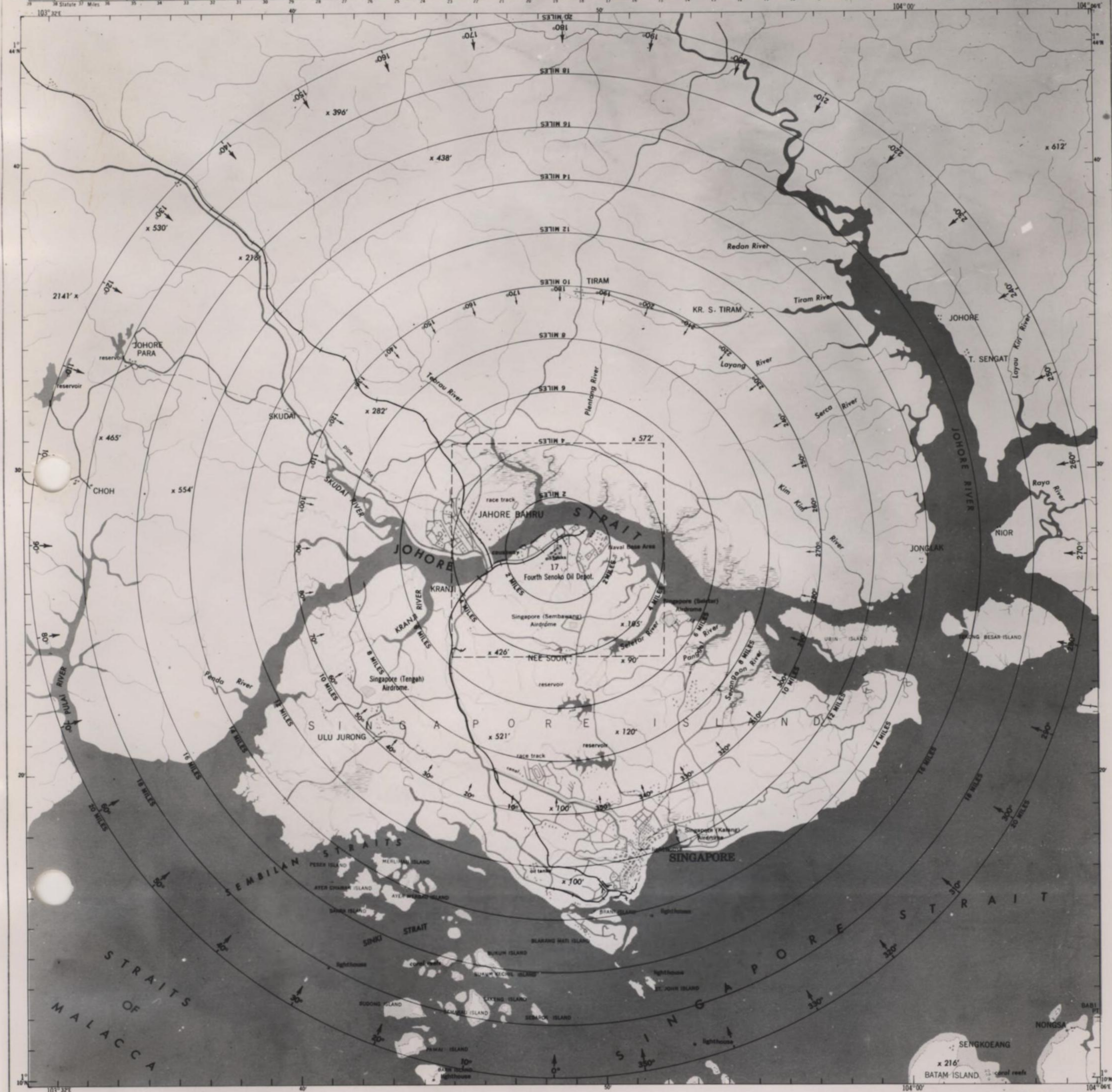


PHOTO 5... Singapore Naval Base TARGET 19 Sembawang River Area TARGET 20 Drydock and West Wall Area (Looking S)



THE ONLY TARGET APPEARING UPON THIS SIDE OF THIS CHART IS TARGET NO. 17, ON WHICH THE CHART IS CENTERED. OTHER PRINCIPAL TARGETS WITHIN A FOUR MILE RADIUS ARE SHOWN ON THE LARGE SCALE CHART ON THE REVERSE SIDE AND MAY BE PLOTTED HEREON, AS DESIRED, BY MAKING REFERENCE TO DETAIL OR DISTANCE AND BEARING FROM THE SAME CENTER TARGET AS SHOWN ON THE REVERSE SIDE.

TARGETS AND OBJECTIVE AREAS ARE NUMBERED FROM ONE TO INFINITY WITHIN EACH COUNTRY. THESE NUMBERS ARE COMBINED INTO CODES SHOWING THE COUNTRY, OBJECTIVE AREA, AND TARGET. FOR EXAMPLE, 81.1 IS INDICATES BRITISH PACIFIC ISLANDS (81), BORNED NORTH AREA (1), AND TARGET 1, BRITISH PACIFIC ISLANDS SERIES. TARGET NUMBERS BEAR NO RELATION TO LOCATION WITHIN COUNTRY OR TO IMPORTANCE OF TARGETS.

DASHED OUTLINE IN BLACK INDICATES AREA COVERED BY RECOGNITION CHART ON THE REVERSE SIDE.

THIS CHART IS PREPARED FOR USE IN DAYLIGHT, UNDER WHITE, ULTRA-VIOLET, RED, AND AMBER LIGHT.

COMPASS ROSE INDICATES MAGNETIC BEARING TOWARD THE TARGET.

LEGEND	
	Primary Highways
	Secondary Highways
	Single Track Railroad
	Double Track Railroad
	Electric Railroad
	Power Lines
Elevations in Feet	
60'	Center Target Elevation
2141'	Highest Known Elevation
Polyconic Projection Scale 1:125,000	

RESTRICTED

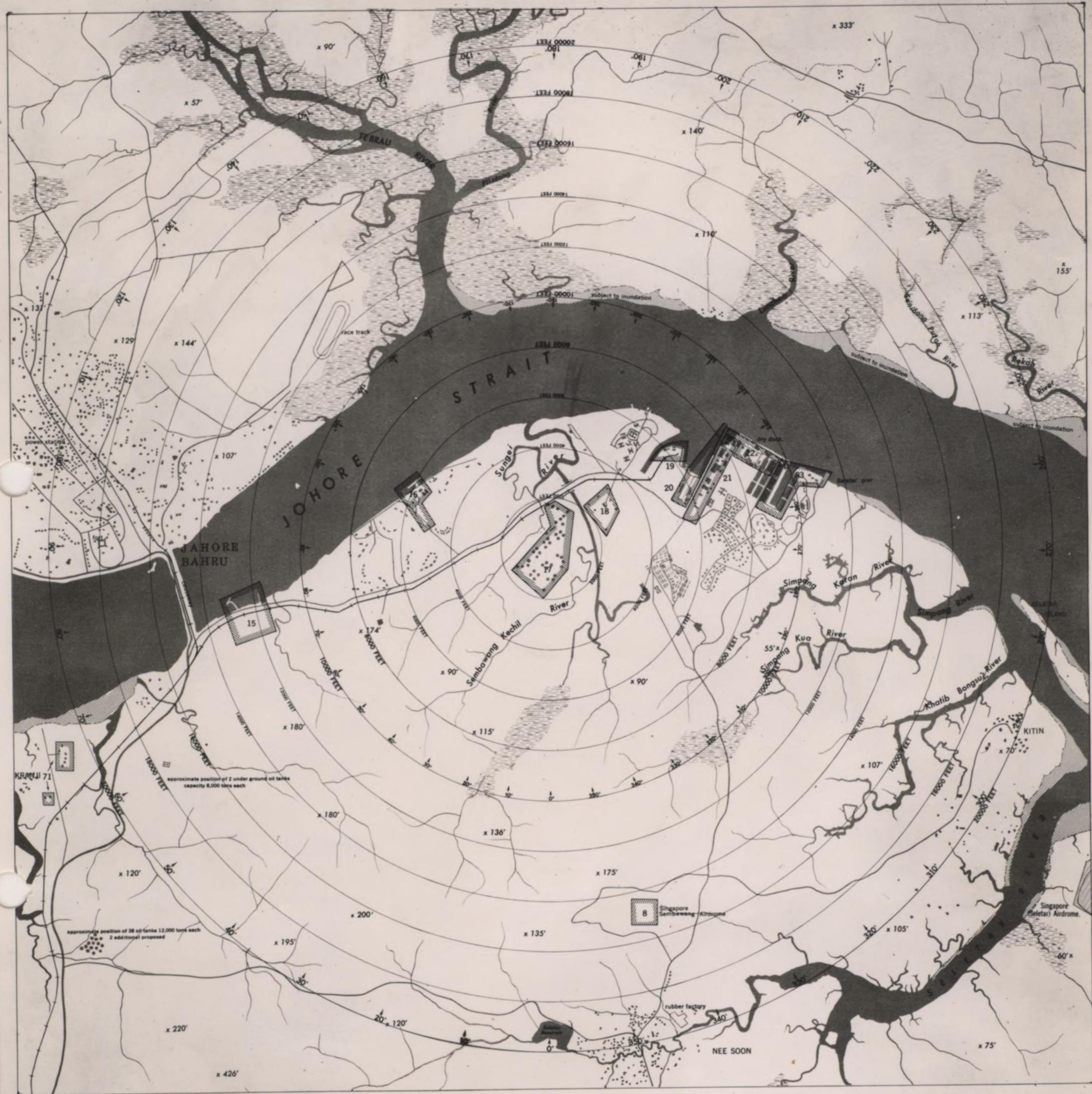
48

RESTRICTED

DECLASSIFIED

Authority **NND 760063**

By **AB** NARA Date **10/18/05**



AAF TC 92.2-17

TARGET NUMBER	TARGET DESIGNATION	TARGET ELEVATION
TARGETS LYING WITHIN 4 MILES OF CENTER OF CHART		
17	Fourth Senoko Oil Depot	60'
8	Singapore (Sembawang) Airbase	150'
15	Shell Oil Company Facilities	15'
16	Ammunition Depot Jetty	10'
18	Naval Base Radio Station	15'
19	Sembawang River Area	10'
20	Drydock and West Wall Area	10'
21	Workshop Area	15'
22	North Wharf Area	15'
23	Naval Stores Basin Area	15'
71	Kranji Tank Farm	15'



THIS CHART IS PREPARED FOR USE IN DAYLIGHT, UNDER WHITE, ULTRA VIOLET, RED, AND AMBER LIGHT.

LEGEND

- Primary Highways
- Secondary Highways
- Single Track Railroad
- Double Track Railroad
- Electric Railroad
- Power Lines

Elevations in Feet

- 60' Center Target Elevation
- 426' Highest Known Elevation

Scale 1:25,000

INTELLIGENCE SERVICE U.S. ARMY AIR FORCES WASHINGTON, D. C.

MARCH 1943

For use by War and Navy Department Agencies only Not for sale or distribution

RESTRICTED

COMPILED FOR THE U.S. ARMY AIR FORCES BY THE U.S. GEOLOGICAL SURVEY WASHINGTON, D. C.

AAF TC MALAY STATES NO. 92.2 - 17

DECLASSIFIED

Authority NND 760063

By AB NARA Date 10/18/05

RESTRICTED

5
P

RESTRICTED

DECLASSIFIED

Authority **NND 760063**

By **AB** NARA Date **10/18/05**

SECRET

IV - DETERMINATION OF BOMB LOAD

Mission No. 15

5 November 1944

A. The field order specified that each aircraft would be loaded with a minimum of two 1000-pound G.P. (TNT or Amatol-filled) bombs, fuzed .1 second nose and .025 second tail delay. In complying with this order it was possible for a Group to load either the AN-M44 type or the AN-M65 type, both of which are 1000-pound G.P. bombs. The only significant difference between the two bombs is that the case of the AN-M65 has been drilled and tapped in such a manner that it will accommodate either the normal tail fuzes or a hydrostatic tail fuze.

B. In order to permit aircraft whose potential bomb-carrying capacity was not fully utilized by 1000-pound G.P.'s, to carry a maximum load, a radiogram was sent to the Groups permitting them to reduce this weight differential by loading 500-pound G.P. bombs in addition to the maximum number of 1000-pound bombs which the aircraft could load and carry. In explanation the radiogram stated that 500-pound G.P. (TNT or Amatol-filled) bombs, fuzed .1 second nose and .025 second tail delay, could be carried on the front racks under the horizontal tank installation in the same bomb bay with a 1000-pound G.P. bomb. If it were found desirable for the purpose of providing a safe clearance between the nose of the 1000-pound G.P. and the tail of the 500-pound G.P. the use of a nose fuze in the 1000-pound G.P. could be omitted and the nose plug retained. In this way an attempt was made to overcome the weight restrictions imposed by auxiliary fuel cells and the otherwise uneconomical loading of the 1000-pound G.P. bombs.

C. It was not anticipated that the 500-pound G.P. bombs would be particularly effective against the sliding steel caisson, but since they were to be carried at no sacrifice to the number of 1000-pound G.P.'s. loaded, they would serve to increase the probability of destruction, particularly on installations adjacent to the aiming point. Released from 22,000 feet altitude at a true air speed of 300 mph the 1000-pound bombs employed (either the AN-M44 or the AN-M65) have an actual time of flight of 38.66 seconds and a trail of 64 mils. Under similar conditions of release the 500-pound bombs (either the AN-M43 or the AN-M64), have an actual time of flight of 39.13 seconds and a trail of 86 mils. Calculations indicated that if bombs of each type were released simultaneously under the given conditions, the 500-pound bombs could be expected to have a point of impact approximately 277 feet short of the 1000-pound bombs. Inasmuch as the aiming point and the axis of attack were favorably located for inflicting incidental damage in adjacent installations (such as the drydock control house, a possible ship shored up in the drydock, or vital electrical, steam and water conduits), this difference in expected points of impact of salvoed bombs was considered negligible since it in no way affected the execution of the attack against the sliding steel caisson with 1000-pound bombs. Bombardiers, of course, were briefed to use the 1000-pound AN-M44 bombing tables.

D. Since it was not known whether the sliding steel caisson would be in open or closed position at the time of attack, or whether the drydock would be

O-IV-1

SECRET

DECLASSIFIED

Authority NND 760063

By AB NARA Date 10/18/05

S E C R E T

full, partially full, or devoid of water, the Operations Analysis Section recommended that the aiming point be the northwestern end of the sliding steel caisson and that 1000-pound G.P. bombs (fuzed .1 second nose and .025 second tail delay) be employed. The actual target, the sliding steel caisson, was only 132 feet long and an estimated 10 feet wide. However, by employing the specified aiming point, bombs, and fuzing, the vulnerable range dimension of the target was increased to 264 feet since a direct hit on the recess into which the caisson slides would prevent movement of the caisson and the dry dock would be rendered inoperative.

E. In the event that the drydock was devoid of water at the instant of attack, it was calculated that a 1000-pound G.P. released from approximately 22,000 feet at a true air speed of 300 mph would achieve a striking velocity of 1040 feet per second and would strike at about 19° obliquity. It was considered that a direct hit on the sliding steel caisson with a 1000-pound G.P. bomb fuzed at .1 second nose and .025 second tail delay would cause detonation within the caisson, since with such a small angle of obliquity from the perpendicular, the bomb probably would not be deflected. If the drydock were devoid of water and a 1000-pound G.P. had a point of impact ten feet or less from the inside of the sliding steel caisson on the concrete and granite floor of the drydock (assuming that the floor had roughly 3000 pounds per square inch compressibility), it was estimated that a 1000-pound G.P. was capable of penetrating three feet with a cratering and blast effect sufficient to rupture the caisson, damage the tracks, or permit water to enter the drydock between the caisson and the floor.

F. From the point of view of bombing accuracy, bomb-load, target dimensions, and the probability of a direct hit, it was considered likely that the hydraulic ramming effect caused by underwater detonation of the bomb would be most effective in rupturing the sliding steel caisson, if it happened to be in a closed position at the time of attack. An approximate estimate of the peak pressure exerted by a near miss within 10 feet of the caisson was placed at about 15,000 plus pounds per square inch on the face of the caisson. Irregular application of such peak pressures, combined with the normal pressure exerted by the head of water on the outside of the caisson, would result in severe strain on the retaining walls or slots into which the caisson fits and might well result in serious leakage or rupture of the sliding steel caisson itself.

O-IV-2

S E C R E T

DECLASSIFIED

Authority NND 760063
By AB NARA Date 10/18/05

S E C R E T

HEADQUARTERS
XX BOMBER COMMAND
APO 493

DISTRIBUTION - MISSION NO. 15

5 November 1944

Copy No.

1	Commanding General, Twentieth Air Force
2	Commanding General, XX Bomber Command
3	Chief of Staff, XX Bomber Command
4	Chief, Intelligence Section, XX Bomber Command
5	Commanding Officer, Forward Echelon Detachment, Headquarters XX Bomber Command (Attention: Intelligence Officer)
6	Commanding Officer, 40th Bombardment Group
7	Commanding Officer, 444th Bombardment Group
8	Commanding Officer, 462nd Bombardment Group
9	Commanding Officer, 468th Bombardment Group
10 - 39	Commanding General, Army Air Forces, Attention: AC/AS, Intelligence, Collection Division
40	Assistant Chief Air Staff, Intelligence
41	CINCPA (Thru DEPCOMAF Twenty)
42	COMGENPOA (Thru DEPCOMAF Twenty)
43	Air Commander, Eastern Air Command, Attention: DCAS, OPTI
44	Chief, Air Evaluation Board, Headquarters, Army Air Forces, United States Forces, India Burma, .
45	Commanding General, Tenth Air Force
46	Commanding General, Fourteenth Air Force
47	DEPCOMAF Twenty
48	Chief of Staff, Twentieth Air Force
49	Joint Intelligence Collection Agency
50	ALUSLO, c/o XX Bomber Command
51	Statistical Control, XX Bomber Command
52	Communications (Radar), XX Bomber Command
53	Photo Interpretation, XX Bomber Command
54	Operational Analysis, XX Bomber Command
55	Special Projects, XX Bomber Command
56	Historical Officer, XX Bomber Command
57	Operational Intelligence, XX Bomber Command

S E C R E T

DECLASSIFIED

Authority NND 760063
By AB NARA Date 10/18/05

9475

HEADQUARTERS
TWENTIETH AIR FORCE
ADJUTANT GENERAL



NOV 24 1944

DECLASSIFIED

Authority NND 760063

By AB NARA Date 10/18/05

