

UNCLASSIFIED

410279

DTIC

NOTICE

This document has been withdrawn from the DTIC
bulk storage. It is the responsibility of the
recipient to promptly mark it to indicate de-
classification action shown herein.

Technical Report

BEST COPY AVAILABLE

distributed by



**Defense Technical Information Center
DEFENSE LOGISTICS AGENCY**

Cameron Station • Alexandria, Virginia 22314

UNCLASSIFIED

NOTICE

We are pleased to supply this document in response to your request.

The acquisition of technical reports, notes, memorandums, etc., is an active, ongoing program at the Defense Technical Information Center (DTIC) that depends, in part, on the efforts and interests of users and contributors.

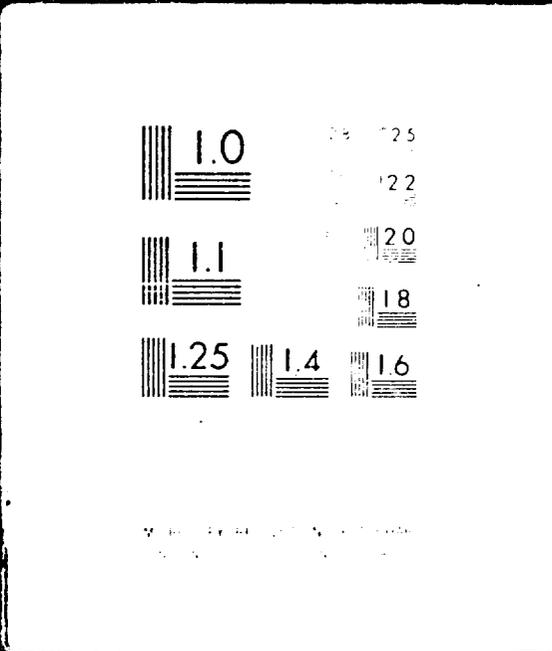
Therefore, if you know of the existence of any significant reports, etc., that are not in the DTIC collection, we would appreciate receiving copies or information related to their sources and availability.

The appropriate regulations are Department of Defense Instruction 5100.38, Defense Technical Information Center for Scientific and Technical Information (DTIC); Department of Defense Instruction 5129.43, Assignment of Functions for the Defense Scientific and Technical Information Program; Department of Defense Directive 5200.20, Distribution Statements on Technical Documents; Military Standard (MIL-STD) 847-A, Format Requirements for Scientific and Technical Reports Prepared by or for the Department of Defense; Department of Defense Regulation 5200.1-R, Information Security Program Regulation.

Our Acquisition Section, DTIC-DDA-1, will assist in resolving any questions you may have. Telephone numbers of that office are: (202) 274-6847, 274-6874 or Autovon 284-6847, 284-6874.

1 OF 1

AD
A995080



UNCLASSIFIED

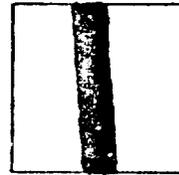
PHOTOGRAPH THIS SHEET

ADA995080

DTIC ACCESSION NUMBER



LEVEL



INVENTORY

Aircraft Decontamination

DOCUMENT IDENTIFICATION

[June 54]

DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited

DISTRIBUTION STATEMENT

ACCESSION FOR	
NTIS	GRA&I <input checked="" type="checkbox"/>
DTIC	TAB <input type="checkbox"/>
UNANNOUNCED	<input type="checkbox"/>
JUSTIFICATION	
BY (June 1954)	
DISTRIBUTION	
AVAILABILITY CODES	
DIST	AVAIL AND OR SPECIAL
A	

Released

DTIC ELECTED

APR 9 1981

D

DATE ACCESSIONED

DISTRIBUTION STAMP

UNANNOUNCED

81 4 8 160

DATE RECEIVED IN DTIC

PHOTOGRAPH THIS SHEET AND RETURN TO DTIC-DDA-2

UNCLASSIFIED

UNCLASSIFIED

~~UNCLASSIFIED~~

TEMPO TA018478-I
Cy 2

AIRCRAFT
DECONTAMINATION

ADA995080

#614

~~This Document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, U. S. C., Sections 793 and 794. Its transmission or the revelation of its content in any manner to an unauthorized person is prohibited by law.~~

Classification (Cancelled) ~~SECRET~~
By Authority of ~~SECDEF/OPC + DAD/DWA~~
Date ~~26 JUN 1987~~

Statement A
Approved for public release;
Distribution unlimited.

This Document Consists of
46 Page(s) No. 16 of
20 Copies B Series.

~~UNCLASSIFIED~~



3. 86205RD

UNCLASSIFIED

UNCLASSIFIED

UNCLASSIFIED

GENERAL  ELECTRIC

T E M P O

GENERAL ELECTRIC COMPANY
1200 MARBLE AVENUE, SUITE #5
ALBUQUERQUE, NEW MEXICO 87110 TEL: 266-2757

CENTER FOR
ADVANCED TECHNOLOGY
TEMPO/A-F-M-030-90

16 May 1980

Director
Defense Nuclear Agency
Attn: TITL (Ms. Betty L. Fox)
Washington, DC 20375

Dear Sir:

Our research efforts associated with the NTPR OCEANIC contract (D43031-79-C-0472) have produced a document containing detailed radiological data on decontaminating selected aircraft in the CASTLE series. This type of data is particularly applicable to the scope of our studies in that it represents an operational project peculiar to USAF activities. It is hereby requested that the document entitled, "Aircraft Decontamination," undated, be reviewed for security declassification/sanitization.

Two copies of this document are enclosed—one for the requested security action and one for your files. Our opinion is that the document does not currently contain SECRET/RESTRICTED DATA material since its probable date of origin was in the May-June 1954 timeframe. (with a source copy) of the Air Force Weapons Laboratory (AFWL) at Kirtland Air Force Base. It is considered appropriate to mention that the cooperation afforded GE-TEMPO by Dr. W. Alan Minge, AFWL Historian, has been singularly outstanding.

Very truly yours,


Robert H. Miller, Ph.D.
Senior Research Analyst

js
Enclosures

cc: Dr. W. A. Minge, AFWL/HO
Mr. Kenneth Kaye, DNA/NTPR
Mr. E. Martin, GE-TEMPO
(enclosures to addressee only)

UNCLASSIFIED

FROM BELONGS TO THE CLASSIFIED
ENTIRE AS THE DISCRETION OF THE
RELEASING OFFICIAL

UNCLASSIFIED

UNCLASSIFIED

INDEX

AIRCRAFT DECONTAMINATION

- I. MISSION
- II. PERSONNEL
- III. SUPPLY
- IV. PROCEDURES
- V. TEST SHOT INFORMATION

Part I. Shot "ERAVO"

- a. Tabular Presentation of Decontamination Activities (B-36)
- b. Tabular Presentation of Decontamination Activities (F-84)
- c. Tabular Presentation of Decontamination Activities (WB-29)
- d. Materials Consumption Chart
- e. Equipment List

Part II. Shot "ROMEC"

- a. Tabular Presentation of Decontamination Activities (B-36)
- b. Tabular Presentation of Decontamination Activities (F-84)
- c. Tabular Presentation of Decontamination Activities (WB-29)
- d. Material Consumption Chart
- e. Equipment List

Part III. Shot "KOON"

- a. Tabular Presentation of Decontamination Activities (B-36)
- b. Tabular Presentation of Decontamination Activities (F-84)
- c. Tabular Presentation of Decontamination Activities (WB-29)
- d. Materials Consumption Chart
- e. Equipment List

Part IV. Shot "UNION"

- a. Tabular Presentation of Decontamination Activities (B-36)
- b. Tabular Presentation of Decontamination Activities (F-84)
- c. Tabular Presentation of Decontamination Activities (WB-29)
- d. Materials Consumption Chart
- e. Equipment List

Part V. Shot "YANKEE"

- a. Tabular Presentation of Decontamination Activities (B-36)
- b. Tabular Presentation of Decontamination Activities (F-84)
- c. Tabular Presentation of Decontamination Activities (WB-29)
- d. Materials Consumption Chart
- e. Equipment List

Part VI. Shot "NECTAR"

- a. Tabular Presentation of Decontamination Activities (B-36)
- b. Tabular Presentation of Decontamination Activities (F-84)
- c. Tabular Presentation of Decontamination Activities (WB-29)
- e. Equipment List

Part VII. Decontamination Pad

UNCLASSIFIED



UNCLASSIFIED

AIRCRAFT DECONTAMINATION SECTION

I. MISSION:

The mission of the aircraft decontamination section during Operation CASTLE was to operate a decontamination center for the purpose of removing residual radioactive matter from contaminated aircraft assigned to Task Group 7.4 and assist if necessary in decontamination of Task Group 7.3 aircraft.

II. PERSONNEL:

In planning for Operation CASTLE it was determined that the number of personnel required for aircraft decontamination exceeded the number of personnel authorized and assigned to the 4926th Test Squadron (SAMPLING). During the early planning it was decided at a Task Group 7.4 planning conference that the additional personnel required would be obtained by utilizing aircraft maintenance crews and by attaching TDY personnel to the section as necessary.

During the build-up phase one officer was attached and placed in charge of the section. Three airmen were already assigned. Two of the assigned airmen had had considerable experience in aircraft decontamination during the previous three operations and were assigned as supervisory NCO's.

From the experience gained following shot "ERAVO" in decontamination of assigned aircraft it was apparent that the techniques and utilization of personnel must be revised. Entirely too much time was used to decontaminate aircraft and excessive exposures were being accumulated by aircraft maintenance personnel who participated in decontamination.

The entire procedure for utilization of personnel was revised with maintenance crews no longer to participate in decontamination but rather, as a result of a joint agreement between the commanders of the 4930th Test Support Group and Test Aircraft Unit (Prov), non-maintenance personnel would be utilized for all future aircraft decontamination operations. Personnel were drawn from all non-maintenance activities within the 4930th Test Support Group and were assigned to teams of fifteen men each to operate on a six hour basis. At this time the operational control of the aircraft decontamination section, which had previously been under the control of the 4930th Test Support Group, reverted to the operational control of the Nuclear Applications Division, Test Aircraft Unit (Prov). This placed all radiological activities under one center and proved to be the best method of operation for an atomic Task Group.

Additional augmentation for the section was received from the 4930th Test Support Group and the Test Aircraft Unit (Prov). With the additional support, both from the use of non-maintenance personnel and the augmentation mentioned above, much greater speed was achieved in aircraft decontamination on shot "ROMEO".

Personnel requirements for each shot are discussed in the appropriate shot section.

III. SUPPLY:

The original requirements for supplies and material in support of aircraft decontamination were requested by the Nuclear Applications Division, 4926th Test Squadron (Sampling) prior to overseas movement and while stationed at Kirtland Air Force Base, New Mexico. Requisitions were placed with Task Group 7.4. Material and supplies were to be placed in the forward area upon arrival of the unit.

For specific breakdown of materials consumed during each shot refer to the Material Consumption Chart included in each shot section.



UNCLASSIFIED

[REDACTED] UNCLASSIFIED

A list of equipment used during the operation is included in the appropriate shot as an inclosure.

IV. PROCEDURES:

Procedures followed are listed below in chronological sequence of execution.

a. On D-Day, sampler F-84's, WB-29's and B-36's were parked in designated "HOT" decay area.

b. All other aircraft were checked upon landing for evidence of radiological contamination. If an aircraft was contaminated above 25 mr/hr it was isolated and posted.

c. The Sampler B-36's were parked on the decontamination pad and checked for radiation intensities by the same monitor used in "A" and "B" above.

d. Unless urgency necessitated, no aircraft decontamination was attempted until D+1 day, at which time the B-36's were decontaminated first.

e. As soon as the radiation intensities were reduced to tolerable levels, determined by the Aircraft Decontamination Officer, the B-36's were returned to their normal parking area.

f. Second priority for decontamination were F-84 sampler aircraft.

g. Third priority for decontamination were WB-29 aircraft.

h. Fourth priority for decontamination were those aircraft accidentally contaminated. See photograph no.

i. Before aircraft were cleared for flying the intensity of radiation at crew level positions had to be less than 10 mr/hr.

j. As aircraft were decontaminated, they were released to maintenance, until all aircraft had been released from the Aircraft Decontamination Section. In some cases, maximum readings were higher than 10 mr/hr when released to maintenance. However, provisions of i, above, were then complied with before flying.

k. Where readings increased rather than decreased, following decontamination, three primary causes were responsible:

1. Collection of wash water in cowling.
2. Faulty instruments.
3. Readings indicated in the Tabular Presentation of Decontamination activities were in each case, the highest reading obtained.

l. Hours to decon does not include time required to remove cowling and tow into position on pad.

m. The discussion of procedures followed for each individual shot is discussed in the appropriate shot section.

V. TEST SHOT INFORMATION:

PART 1 — Shot "BRAVO"

1. Personnel and procedures used in aircraft decontamination for Shot "BRAVO" were as follows:

[REDACTED] UNCLASSIFIED

a. Personnel:

- (1) One (1) officer and two (2) NCO supervisors (Rad-Safe personnel);
- (2) Eleven (11) B-36 maintenance personnel/aircraft.
- (3) One (1) water heater operator.
- (4) Four (4) truck drivers/shift.

b. Utilizing the personnel above, the following procedures were used:

- (1) After the completion of the mission and the aircraft had landed they were parked in an isolated area and allowed to decay for a specified length of time. In this instance, the period was 20 hours after the initial exposure.
- (2) Stands were placed in position, cowling removed and a gunk-kerosene mixture in the ratio 1:5 applied over the exterior surface of the aircraft and engines. Following this, a warm water and detergent mixture was applied to remove the emulsion formed by the gunk. This in turn was followed by a warm water wash to remove all residues. The surfaces of the aircraft were allowed to drain for 30 minutes and then readings were made of the radiation levels.
- (3) Maintenance personnel were utilized throughout the decontamination of their aircraft, in this particular case 18 hours. Other personnel were used on a 12 or more hour shift basis.
- (4) AN/PDR-39C radiac instruments were used to read levels of gamma contamination. Caution must be used in making these observations as an accumulation of water in certain parts of the cowling will cause these areas to read higher following decontamination than before.
- (5) The entire procedure, above, was repeated for a second time. It was found that if an aircraft was thoroughly cleaned in two (2) washings it was impossible to bring the contamination level down to any noticeable extent by further washings.

c. Evaluation of the aircraft decontamination program following Shot "BR-VO" revealed the following discrepancies:

- (1) Insufficient number of personnel assigned for the decontamination of aircraft.
- (2) Maintenance crews assigned to the aircraft should not be used for decontamination because of the limited exposure allowed during this operation.
- (3) Immediate maintenance facilities should be available for the repair of the decontamination equipment. Approximately (6) six hours were lost due to breakdown of equipment, all of which was new.
- (4) Improper scheduling of aircraft and wash crews resulted in approximately four (4) hours per aircraft lost for meals.
- (5) Adequate lighting facilities for night operations were not available.
- (6) Safety features for wash crews working on top of B-36 wings were not available.


 TABULAR PRESENTATION
 OF
 DECONTAMINATION ACTIVITIES (B-36)

Aircraft No.	1083	1086
1st Survey	1 Mar 1120, 1400 mr/hr	2 Mar 0900, 1100 mr/hr
Type of Decon	Decay	Decay
2nd Survey	4 Mar 0245, 500 mr/hr	2 Mar , 800 mr/hr
Type of Decon	Gunk	Gunk
3rd Survey	4 Mar 1130, 280 mr/hr	2 Mar , 400 mr/hr
Type of Decon	Gunk	Gunk
4th Survey	5 Mar , 80 mr/hr	3 Mar , 400 mr/hr
Type of Decon	Released	Released
Hours to Decon	19 hours	18 hours
Personnel	17	17
Manhours Required	306 hours	306 hours
Water Used	3200 gallons	3200 gallons
Gunk Used	220 gallons	220 gallons
Soapy Water Used	2000 gallons	2000 gallons
Kerosene Used	1010 gallons	1010 gallons
Truck Maint, Required	Minor	Minor



TABLE PRESENTATION OF DECONTAMINATION ACTIVITIES (F-84)

Aircraft No.	039	032	033	037	038
1st Survey	1 Mar 1400, 2800 mr/hr	1 Mar 1400, 2800 mr/hr	1 Mar 1400, 3800 mr/hr	1 Mar 1400, 3400 mr/hr	4 Mar 1435, 9 mr/hr
Type of Decon	Decay	Decay	Decay	Decay	Citric acid
2nd Survey	4 Mar 0945, 105 mr/hr	2 Mar 0950, 45 mr/hr	4 Mar 0955, 130 mr/hr	4 Mar 0940, 120 mr/hr	4 Mar 1515, 28 mr/hr
Type of Decon	Citric acid	Citric acid	Citric acid	Citric acid	Gunk
Survey	4 Mar 1400, 105 mr/hr	4 Mar 1127, 18 mr/hr	4 Mar 1135, 49 mr/hr	4 Mar 1205, 30 mr/hr	5 Mar 1500, 20 mr/hr
Type of Decon	Gunk	Gunk	Gunk	Gunk	Released
4th Survey	5 Mar 0830, 60 mr/hr	Released	5 Mar 0815, 34 mr/hr	Released	Released
Type of Decon	Released	Released	Released	Released	Released
Hours to Decon	1:00 hours	0:30 hours	1:00 hours	0:30 hours	1:00 hours
Personnel	16	16	16	16	16
Manours Required	16:00 hours	8:00 hours	16:00 hours	8:00 hours	16:00 hours
Water Used	150 gals	100 gals	200 gallons	100 gallons	200 gallons
C : Used	5 gallons	0	10 gallons	0	9 gallons
Soapy Water Used	100 gallons	0	100 gallons	0	50 gallons
Kerosene Used	50 gallons	0	50 gallons	0	45 gallons
Track Matrt. Required	Minor	Minor	Minor	Minor	Minor
Citric acid Used	34 gallons	34 gallons	34 gallons	34 gallons	34 gallons



Part 1, Inclosure B



TABULAR PRESENTATION
 OF
 DECONTAMINATION ACTIVITIES (WB-29)

aircraft No.	7335
1st Survey	4 Mar 0830, 12000 mr/hr
Type of Decon	Gunk
2nd Survey	4 Mar 1510, 65 mr/hr
Type of Decon	
3rd Survey	Released
Type of Decon	
4th Survey	
Type of Decon	
Hours to Decon	
Personnel	
Manhours Required	
Water Used	
Gunk used	
Soapy Water Used	
Kerosene Used	
Truck Maint, Required.	

No other information available for aircraft decontamination of
 Shot "ERLVO".

Part I, Inclosure C



[REDACTED]

MATERIAL CONSUMPTION CHART

The materials listed below were consumed on Shot "BRAVO" for decontamination of twelve (12) F-84's, four (4) WB-29's and three (3) B-36 type aircraft.

Water, gallons	11,900
Kerosene gallons	2,320
Gunk, gallons	594
Detergent	14 lbs.
Brushes	15
Filter, Respirator	280
Rubber Gloves	12 prs.
Aprons	3

Part 1, Inclosure D

[REDACTED]

[REDACTED]

[REDACTED]

EQUIPMENT LIST

<u>NOMENCLATURE</u>	<u>CLASS</u>	<u>STOCK NO.</u>
Five (5) Decontamination apparatus Power, Driven Trucks, Mounting Liquid Agent, Truck 6X6	50-A	5091-240035-NL
Three (3) Heaters, Water, M-1	CWS	E-5-59-2
One (1) 32,000 gal Water Tank		
Portable Lights		
Brush, aircraft	AF-29	6700-123175
Maintenance Stands, various types		
Compound, Cleaning aircraft	AF-07	7306-190100
Kerosene	AF-06	7300-395000
Suit, H.B.T.	AF-13B	8320-818100
Capt, Mechanic, H.B.T.	AF-13B	8320-125000
Drawers, Cotton	AF-13B	8320-275000
Undershirt, Cotton	AF-13B	8320-930000
Socks, Cotton	AF-13B	8320-810000
Shoes	AF-13B	8340-860000
Boots, Hip	AF-13B	8340-135000
Shield, Face	AF-13A	8310-007500-555
Apron, Rubber	AF-13A	8310-700825
Gloves, Rubber	AF-13A	8310-296325
Respirator, Dust	AF-13C	8330-682000
Detergent, Powder	AF-07	7300-NL

[REDACTED]

Part 1, Inclosure #

[REDACTED]

MONTHLY PRESENTATION OF DECONTAMINATION ACTIVITIES (F-84)

Aircraft No.	030	032	033	037	038	042
1st Survey	27Mar1200, 5500mm/hr	27Mar1433, 1200mm/hr	27Mar1030, 10000mm/hr	27Mar0955, 22000mm/hr	27Mar1025, 1700mm/hr	27Mar1335, 2200mm/hr
Type of Decon	Decay	Decay	Decay	Decay	Decay	Decay
2nd Survey	29Mar1840, 220mm/hr	29Mar1520, 65mm/hr	29Mar1850, 345mm/hr	27Mar1525, 600mm/hr	29Mar1845, 440mm/hr	29Mar1720, 840mm/hr
Type of Decon	Citric Acid	Citric Acid	Citric Acid	Citric Acid	Citric Acid	Citric Acid
3rd Survey	29Mar2130, 170mm/hr	29Mar1700, 48mm/hr	29Mar2045, 165mm/hr	29Mar1915, 450mm/hr	29Mar2130, 300mm/hr	29Mar1845, 80mm/hr
Type of Decon	Gunk	Gunk	Gunk	Gunk	Gunk	Gunk
4th Survey	30Mar2450, 110mm/hr	30Mar2445, 60mm/hr	30Mar2445, 130mm/hr	30Mar2435, 400mm/hr	30Mar2445, 220mm/hr	30Mar2445, 60mm/hr
Type of Decon	Released	Released	Released	Released	Released	Released
Hours of Decon	0:45 hours	0:45 hours	0:45 hours	0:45 hours	0:45 hours	0:45 hours
Manpower	25	25	25	25	25	25
Manhours required	30:10 hours	30:10 hours	30:10 hours	30:10 hours	30:10 hours	30:10 hours
Water Used	167 gallons	167 gallons	167 gallons	167 gallons	167 gallons	167 gallons
Gunk Used	9 gallons	9 gallons	9 gallons	9 gallons	9 gallons	9 gallons
Copy Water Used	25 gallons	25 gallons	25 gallons	25 gallons	25 gallons	25 gallons
Cresosol Used	35 gallons	35 gallons	35 gallons	35 gallons	35 gallons	35 gallons
Tuck Main Repair	Minor	Minor	Minor	Minor	Minor	Minor
Citric Acid Used	96 gallons	96 gallons	96 gallons	96 gallons	96 gallons	96 gallons

Part II, Inclosure B

PART II -- Shot "ROMEO"

1. Personnel and procedures used in aircraft decontamination for Shot "ROMEO" were as follows:

- a. One (1) officer and three (3) NCO supervisors (Rad-Safe Personnel).
- b. Fifteen (15 non-aircraft personnel/6 hour shift).
- c. Three (3) heater operators (1 per eight hour shift).
- d. Five (5) truck drivers per eight hour shift.
- e. One (1) fuel truck operator per twelve hour shift.
- f. One (1) automotive mechanic, 24 hour call.
- g. One (1) clerk, administrative (12 hour shift).

2. Utilizing the personnel above, the following techniques were used:

- a. The first major change in technique for operation "ROMEO" was to allow the aircraft to decay for approximately 44 hours rather than the previous 20 hours. This reduced personnel exposures by approximately 25-44%.
- b. The entire procedure for utilizing personnel was changed. Maintenance crews removed cowling and prepared aircraft for decontamination, but did not participate in the washing. Personnel were taken from other jobs for this purpose. Wash crews were divided into four (4) groups and put on a 24 hour a day basis. For the six (6) hour shift no breaks were given. This eliminated delays previously encountered due to meals, occasional change of clothes and coffee breaks. One (1) truck and equipment mechanic was kept on 24 hour call in case of breakdown.
- c. Another improvement was the installation of "telephone pole lighting". This did away with the necessity of spot lights for night work and the consequential blinding effects.
- d. Installation of a trapeze-type safety harness for airmen working on top of B-36 wings was a safety factor that increased the effectiveness of scrub personnel.
- e. A minor function accomplished was the drilling of small holes in drain area of cowling which eliminated accumulation of contaminated wash water.
- f. Supply of hot water was increased by putting two (2) additional heaters into operation.

3. In summation, aircraft were decontaminated in one-half to one-third the time of "ROMEO" as compared to "ERAVO". Maintenance crews did not accumulate excessive doses of radiation and were able to perform maintenance without undue fatigues.

[REDACTED]

TABULAR PRESENTATION
OF
DECONTAMINATION ACTIVITIES (B-36)

	1083	1086
Aircraft No1		
1st Survey	27 Mar 1600, 250 mr/hr	27 Mar 1210, 3200 mr/hr
Type of Decon	Decay	Decay
2nd Survey	29 Mar 1200, 60 mr/hr	29 Mar 0540, 220 mr/hr
Type of Decon	Gunk	Soap & Water
3rd Survey	29 Mar 1453, 34 mr/hr	29 Mar 1145, 120 mr/hr
Type of Decon		Gunk
4th Survey	30 mr/hr	29 Mar , 60 mr/hr
Type of Decon	Released	Released
Hours to Decon	2:20 hours	5:30 hours
Personnel	26	26
Manhours Required	61 hours	163 hours
Water Used	950 gallons	3650 gallons
Gunk Used	83 gallons	140 gallons
Soapy Water Used	1400 gallons	3000 gallons
Kerosene Used	321 gallons	560 gallons
Truck Maint. Required	Minor	Minor

Part II, Inclosure A

[REDACTED]

[REDACTED]

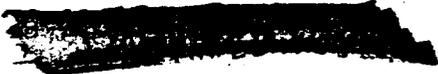
TABLE 3. PRESENTATION OF DECONTAMINATION ACTIVITIES (F-84)

Aircraft No.	045	046	053	054	055
1st Survey	27Mar1330, 2000mr/hr	27Mar1340, 600mr/hr	27Mar1215, 5500mr/hr	27Mar1210, 6000mr/hr	27Mar1052, 3900mr/hr
Type of Decon.	Decay	Decay	Decay	Decay	Decay
2d Survey	29Mar1515, 80mr/hr	29Mar1530, 30mr/hr	29Mar1705, 180mr/hr	29Mar1710, 300mr/hr	29Mar1954, 150mr/hr
Type of Decon.	Citric Acid	Citric Acid	Citric Acid	Citric Acid	Citric Acid
3rd Survey	29Mar1700, 90mr/hr	29Mar1720, 22mr/hr	29Mar1900, 100mr/hr	29Mar1905, 300mr/hr	30Mar2440, 60mr/hr
Type of Decon.	Gunk	Gunk	Gunk	Gunk	Released
4th Survey	30Mar2440, 75mr/hr	30Mar2430, 20mr/hr	30Mar2435, 90mr/hr	30Mar2447, 240mr/hr	
Type of Decon.	Released	Released	Released	Released	
Hours to Decon	0:45 hours	0:45 hours	0:45 hours	0:45 hours	0:45 hours
Personnel	25	25	25	25	25
Manhours Req'd	30:10 hours	30:10 hours	30:10 hours	30:10 hours	30:10 hours
Water Used	167 gallons	167 gallons	167 gallons	167 gallons	167 gallons
Gunk Used	9 gallons	9 gallons	9 gallons	9 gallons	0
Sooty Water Used	25 gallons	25 gallons	25 gallons	25 gallons	0
Kerosene Used	35 gallons	35 gallons	35 gallons	35 gallons	0
Truck Maint Req'd	Minor	Minor	Minor	Minor	Minor
Citric Acid Used	96 gallons	96 gallons	96 gallons	96 gallons	96 gallons


 TABULAR PRESENTATION
 OF
 DECONTAMINATION ACTIVITIES (WB-29)

Aircraft No.	2195	7740	1819
1st Survey	27Mar1005,2000cpr/hr	27Mar1600,600cpr/hr	29Mar2145,1000cpr/hr
Type of Decon	Decay	Decay	Decay
2d Survey	30Mar2450,1000cpr/hr	27Mar2400,50cpr/hr	29Mar2400,170cpr/hr
Type of Decon	Gunk	Gunk	Gunk
3rd Survey	30Mar0545,175cpr/hr	30Mar0220,18cpr/hr	30Mar0150,44cpr/hr
Type of Decon	Gunk		
4th Survey	Released	Released	Released
Type of Decon			
Hours to Decon	5:00 hours	1:30 hours	2:00 hours
Personnel	26	26	26
Manhours Required	130:00 hours	39:00 hours	52:00 hours
Water Used	250 gallons	250 gallons	250 gallons
Gunk Used	72 gallons	72 gallons	72 gallons
Soapy Water Used	1320 gallons	1320 gallons	1320 gallons
Kerosene Used	356 gallons	356 gallons	356 gallons
Truck Maint Required	Minor	Minor	Minor

Part II, Inclosure C

MATERIAL CONSUMPTION CHART

The materials listed below were consumed on Shot "Romco" for decontamination of twelve (12) F-84's, three (3) WP-29 and two (2) B-36 type aircraft.

Water, gallons	5,852
Kerosene, gallons	2,375
Gunk, gallons	475
Detergent	14 lbs 7 oz
Brushes	15
Filter, Respirator	120
Rubber, Gloves	8 prs
Aprons	4

Part II, Inclosure D

[REDACTED]

EQUIPMENT LIST

<u>NOMENCLATURE</u>	<u>CLASS</u>	<u>STOCK NO.</u>
Six (6) Decontamination Apparatus Power, Driven Trucks, Mounting Liquid Agent, Truck 6x6	50-A	5001-240035-NL
Five (5) Heaters, Water, M-1	CWS	E-5-59-2
One (1) 32,000 gal Water Tank Brush, Aircraft	AF-29	6700-123175
Maintenance, Stands, various types Compound, Cleaning Aircraft	AF-07	7300-190-100
Kerosene	AF-06	7300-395000
Suit, HBT	AF-13B	8320-818100
Cap, Mechanic, HBT	AF-13B	8320-125000
Drawers, Cotton	AF-13B	8320-275000
Undershirt, Cotton	AF-13B	8320-930000
Socks, Cotton	AF-13B	8320-810000
Shoes	AF-13D	8340-860000
Boots, Hip	AF-13D	8340-135000
Shield, Face	AF-13A	8310-007500-555
Apron, Rubber	AF-13A	8310-700825
Gloves, Rubber	AF-13A	8310-296325
Respirator, Dust	AF-13C	8330-682000
Detergent, Powder	AF-07	7300-NL
One (1) Truck, Fuel Servicing	50-A	5001-770050-435

Part II, Inclosure E

[REDACTED]

[REDACTED]

[REDACTED]

Part III — Shot "Koon"

1. Personnel and procedures used in aircraft decontamination for Shot "Koon" were as follows:

- a. One (1) officer and two (2) NCO Supervisors (Rad-Safe Personnel).
- b. Fifteen (15) non-aircraft personnel/6 hour shifts.
- c. Two (2) heater operators, one per 6 hour shift.
- d. Six (6) truck drivers per 6 hour shift.
- e. One (1) fuel truck operator per 12 hour shift.
- f. One (1) automotive mechanic on twenty-four (24) hour call.
- g. One (1) clerk, administrative on 12 hour shift.

2. Utilizing the personnel above, the following procedures were used:

- a. All aircraft were allowed to decay approximately twenty (20) hours, instead of forty-four (44) due to possible early turn-around. This time allowed for decay was sufficient as aircraft were only slightly contaminated.
 - b. Two (2) fifteen (15) man work crews were used to decontaminate two (2) B-36's, one (1) WB-29 and twelve (12) F-84's.
 - c. In summation, aircraft decontaminated in eleven (11) hours due to a low degree of contamination. All aircraft were released to maintenance with readings below maximum possible.
- [REDACTED]
- [REDACTED]

[REDACTED]

TABULAR PRESENTATION
OF
DECONTAMINATION ACTIVITIES (8-36)

Aircraft No.	1083	1086
1st Survey	7 Apr 1340, 220 mr/hr	7 Apr 1425, 800 mr/hr
Type of Decon	Decay	Decay
2d Survey	8 Apr 1110, 100 mr/hr	8 Apr 0620, 260 mr/hr
Type of Decon	Gunk	Gunk
3rd Survey	8 Apr 1340, 66 mr/hr	8 Apr 0940, 230 mr/hr
Type of Decon		
4th Survey	Released	Released
Type of Decon		
Hours to Decon	2:25 hours	4:00 hours
Personnel	26	26
Manhours Required	78 hours	104 hours
Water Used	3350 gallons	2050 gallons
Gunk Used	150 gallons	200 gallons
Soapy Water Used	350 gallons	300 gallons
Kerosene Used	650 gallons	600 gallons
Truck Maint Required	Minor	Minor

[REDACTED]

Part III, Inclosure A

[REDACTED]

T. ILL. PRESENTATION OF DECONTAMINATION ACTIVITIES (A-84)

Aircraft No.	030	033	037	038
1st Survey	7 Apr 1050, 800 mr/hr	7 Apr 1000, 460 mr/hr	7 Apr 1045, 800 mr/hr	7 Apr 1140, 305 mr/hr
Type of Decon	Decay	Decay	Decay	Decay
2d Survey	8 Apr 1540, 44 mr/hr	8 Apr 1454, 35 mr/hr	8 Apr 1555, 105 mr/hr	8 Apr 1535, 39 mr/hr
Type of Decon	Soap and Water	Soap and Water	Soap and Water	Soap and Water
3rd Survey	8 Apr 1635, 38 mr/hr	8 Apr 1530, 23 mr/hr	8 Apr 1630, 100 mr/hr	8 Apr 1605, 35 mr/hr
Type of Decon	Released	Released	Released	Released
4th Survey				
Type of Decon	1:05 hours	1:05 hours	1:05 hours	1:05 hours
Hours to Decon	116 gallons	116 gallons	116 gallons	116 gallons
Water Used	None	None	None	None
Gunk Used	50 gallons	50 gallons	50 gallons	50 gallons
Spongy Matter Used	None	None	None	None
Kerosene Used	6	6	6	6
Persulfate	6:30 hours	6:30 hours	6:30 hours	6:30 hours
Manhours Required	Minor	Minor	Minor	Minor
Truck Maint Required				

Part III, Inclsure B

TABLE OF CONTAMINATION OF DECONTAMINATION ACTIVITIES (F-84)

Aircraft No.	046	049	051	053
1st Survey	7 Apr 1120, 180 mr/hr	9 Apr 1210, 7 mr/hr	7 Apr 1048, 225 mr/hr	7 Apr 1125, 200 mr/hr
Type of Decon	Decay	Soap and Water	Decay	Decay
2d Survey	8 Apr 1538, 42 mr/hr	9 Apr 1330, 5 mr/hr	8 Apr 1600, 12 mr/hr	8 Apr 1452, 24 mr/hr
Type of Decon	Soap and Water	Released	Soap and Water	Soap and Water
3rd Survey	8 Apr 1600, 40 mr/hr	Released	8 Apr 1640, 8 mr/hr	8 Apr 1532, 20 mr/hr
Type of Decon	Released	Released	Released	Released
4th Survey	1:05 hours	1:05 hours	1:05 hours	1:05 hours
Type of Decon	116 gallons	116 gallons	116 gallons	116 gallons
Hours to Decon	None	None	None	None
Water Used	50 gallons	50 gallons	50 gallons	50 gallons
Gunk Used	None	None	None	None
Soapy Water Used	None	None	None	None
Kerosene Used	6	6	6	6
Personnel	6:30 hours	6:30 hours	6:30 hours	6:30 hours
Manhours Required	Minor	Minor	Minor	Minor
Truck Maint Required				

[REDACTED]

TABULAR PRESENTATION
OF
DECONTAMINATION ACTIVITIES (WB-29)

Aircraft No.	7269
1st Survey	7 Apr 1130, 240 mr/hr
Type of Decon	Decay
2d Survey	8 Apr 1420, 21 mr/hr
Type of Decon	Gunk
3rd Survey	8 Apr 1515, 11 mr/hr
Type of Decon	
4th Survey	Released
Type of Decon	
Hours to Decon	0:35 hours
Personnel	26
Manhours Required	15:00 hours
Water Used	50 gallons
Gunk Used	50 gallons
Soapy Water Used	600 gallons
Kerosene Used	200 gallons
Truck Maint Required	Minor

[REDACTED]

Part III, Inclosure C

[REDACTED]

[REDACTED]

MATERIAL CONSUMPTION CHART

The materials listed below were consumed on Shot "Koch" for decontamination of twelve (12) F-84's, one (1) WB-29 and two (2) B-36's.

Water, gallons	8,100
Kerosene, gallons	7,250
Gunk, gallons	1,450
Detergent	14 lbs 5 oz
Brushes	15
Filter, Respirator	70
Rubber Gloves	5 prs
Aprons	3

[REDACTED]

Part III, Inclosure D

[REDACTED]

[REDACTED]

EQUIPMENT LIST

<u>NOMENCLATURE</u>	<u>CLASS</u>	<u>STOCK NO</u>
Six (6) Decontamination Apparatus Power Driven Trucks, Mounting Liquid Agent, Truck 6x6	50-A	5001-240035-NL
Five (5) heaters, Water, M-1	CWS	E-5-59-2
One (1) 32,000 gal Water Tank		
Brush, Aircraft	AF-29	6700-123175
Maintenance stands, various types		
Compound, cleaning aircraft	AF-07	7300-190100
Xerosene	AF-06	7300-395000
Suit, HBT	AF-13B	8320-818100
Cap, Mochanic, HBT	AF-13B	8320-125000
Drawers, Cotton	AF-13B	8320-275000
Undershirt, Cotton	AF-13B	8320-930000
Socks, Cotton	AF-13	8320-810000
Shoes	AF-13	8340-860000
Boots, Hip	AF-13D	8340-135000
Shield, Face	AF-13A	8310-007500-555
Apron, Rubber	AF-13A	8310-700825
Gloves, Rubber	AF-13A	8310-296325
Respirator, Dust	AF-13C	8330-682000
Detergent, Powder	AF-07	7300-NL
One (1) Truck, Fuel Servicing	50-A	5001-770050-435

[REDACTED]

Part III, Inclosure E

[REDACTED]

[REDACTED]

PART IV — Shot "Union"

1. Personnel and procedures used in aircraft decontamination for shot "Union" were as follows:

- a. One (1) officer and two (2) NCO supervisors (Rad-Safe Personnel).
- b. Fifteen (15) non-aircraft personnel/6 hour shifts.
- c. Two (2) heater operators per six (6) hour shifts.
- d. Six (6) truck drivers per six (6) hour shifts.
- e. One (1) fuel truck operator per twelve hour shift.
- f. One (1) automotive mechanic on 24 hour call.
- g. One (1) clerk, administrative, on twelve hour shift.

2. Utilizing the personnel above, the following procedures were used:

a. There was one change in decontamination scheduling because of a possible early turn-around, for one (1) B-36 Control Ship. Removal of cowling was started ten (10) minutes after landing and decontamination began immediately after all cowling was removed; because of low readings one washing was all that was required. All other aircraft were allowed to decay for 26 to 44 hours before decontamination procedures were begun.

b. Aircraft required for next shot were decontaminated after 26 hours decay. Because of heavy contamination, such aircraft was washed twice. Readings could not be brought down to levels required by Operations Order, therefore were released to maintenance with readings as high as 400 mr/hr.

c. Remaining aircraft were decontaminated after 44 hours of natural decay. Readings were still very high on these aircraft and were also returned to maintenance with readings as high as 200 mr/hr. The contamination on the nose of one (1) WB-29 could not be removed, even with five (5) washings, because of soft putty material used to seal joints, which seemed to hold Gamma and Beta radiation.

3. Erratic scheduling of aircraft for decontamination caused waste of manhours. Intermittent showers hampered decontamination operations.

[REDACTED]

[REDACTED]

[REDACTED]

TABULAR REPRESENTATION
OF
DECONTAMINATION ACTIVITIES (B-36)

Aircraft No.	1086	1386
1st Survey	26 Apr 1215, 1000 mr/hr	26 Apr 1300, 90 mr/hr
Type of Decon	Decay	Gunk
2d Survey	27 Apr 1555, 210 mr/hr	26 Apr 1650, 85 mr/hr
Type of Decon	Gunk	
3rd Survey	27 Apr 1930, 210 mr/hr	Released
Type of Decon		
4th Survey	Released	
Type of Decon		
Hours to Decon	3:30 hours	3:10 hours
Personnel	26	12
Manhours Required	91:00 hours	21:20 hours
Water used	1500 gallons	1200 gallons
Gunk Used	140 gallons	270 gallons
Soapy Water Used	1080 gallons	1650 gallons
Kerosene Used	700 gallons	1350 gallons
Truck Maint. Required	Minor	Minor

Part IV, Inclosure A

[REDACTED]

[REDACTED]

TABULAR PRESENTATION OF DECONTAMINATION ACTIVITIES (F-84)

Aircraft No.	030	032	033
1st Survey	26 Apr 1010, 36000 mr/hr	26 Apr 1015, 8000 mr/hr	26 Apr 1103, 6000 mr/hr
Type of Decon	Decay	Decay	Decay
2nd Survey	28 Apr 0810, 2100 mr/hr	28 Apr 0820, 360 mr/hr	27 Apr 0930, 600 mr/hr
Type of Decon	Gunk	Gunk	Gunk
3rd Survey	28 Apr 1130, 600 mr/hr	28 Apr 1130, 110 mr/hr	27 Apr 1515, 240 mr/hr
Type of Decon	Released	Released	Released
4th Survey	1:00 hours	1:00 hours	0:40 hours
Type of Decon	134 gallons	134 gallons	175 gallons
Hours to Decon	25 gallons	25 gallons	30 gallons
Water Used	84 gallons	84 gallons	100 gallons
Gunk Used	125 gallons	125 gallons	145 gallons
Soppy Water Used	6	6	6
Kerosene Used	6:00 hours	6:00 hours	4:00 hours
Personnel	Minor	Minor	Minor
Manhours Required	Minor	Minor	Minor
Truck Maint Required	Minor	Minor	Minor

Part IV, Inclosure B

TABLE OF RELATIONSHIP OF DECONTAMINATION ACTIVITIES (F-84)

Aircraft No.	037	038	054
1st Survey	26 Apr 1225, 1800 mr/hr	26 Apr 1149, 4200 mr/hr	26 Apr 1223, 2600 mr/hr
Type of Decon	Decay	Decay	Decay
2d Survey	27 Apr 0925, 300 mr/hr	28 Apr 0815, 340 mr/hr	27 Apr 0930, 445 mr/hr
Type of Decon	Gunk	Gunk	Gunk
3rd Survey	27 Apr 1400, 70 mr/hr	28 Apr 1130, 110 mr/hr	27 Apr 1400, 160 mr/hr
Type of Decon	Released	Released	Released
4th Survey	1:30 hours	1:00 hours	1:30 hours
Type of Decon	175 gallons	134 gallons	175 gallons
Hours to Decon	30 gallons	25 gallons	30 gallons
Water Used	100 gallons	84 gallons	100 gallons
Gunk Used	145 gallons	125 gallons	150 gallons
Spongy Water Used	6	6	6
Personnel	9:00 hours	6:00 hours	9:00 hours
Manhours Required	minor	minor	minor
Truck Maint Required			

[REDACTED]

TABULAR PRESENTATION

OF

DECONTAMINATION ACTIVITIES (43-29)

Aircraft No.	7269	7271
1st Survey	26 Apr 2120, 200 mr/hr	26 Apr 0945, 40 R/hr
Type of Decon	Decay	Decay
2d Survey	27 Apr 1000, 140 mr/hr	28 Apr 1015, 2200 mr/hr
Type of Decon	Gunk	Gunk
3rd Survey	27 Apr 1445, 80 mr/hr	28 Apr 1320, 1700 mr/hr
Type of Decon		
4th Survey	Released	Released
Type of Decon		
Hours of Decon	2:00	2:30
Personnel	13	15
Man hours Required	26:00 hours	36:00 hours
Water Used	400 gallons	500 gallons
Gunk Used	60 gallons	150 gallons
Soapy Water Used	500 gallons	400 gallons
Kerosene Used	300 gallons	650 gallons
Truck Maint Required	Minor	Minor

Part IV, Inclosure C

[REDACTED]

[REDACTED]

[REDACTED]

MATERIAL CONSUMPTION CHART

The materials listed below were consumed on Shot "Union" for decontamination of seven (7) F-84's, two (2) WB-29's and two (2) B-36 type aircraft:

Water, gallons	8,840
Kerosene, gallons	3,490
Gunk, gallons	820
Detergent	14 lbs
Brushes	18
Filter, Respirator	70
Rubber Gloves	0 pairs
Aprons	-

Part IV, Inclosure D

[REDACTED]

[REDACTED]

[REDACTED]

EQUIPMENT LIST

<u>NOMENCLATURE</u>	<u>CLASS</u>	<u>STOCK NO</u>
Six (6) Decontamination Apparatus Power Driven Trucks, Mounting Liquid Agent, Truck 6X6	50-A	5001-240035-NL
Five (5) Heaters, Water, M-1	GH3	E-5-59-2
One (1) 32,000 gal water tank		
Brush, Aircraft	AF-29	6700-123175
Maintenance stands, various types		
Compound, Cleaning Aircraft	AF-07	7300-190100
Kerosene	AF-06	7300-395000
Suit, HBT	AF-13B	8320-818100
Cap, Mechanic, HBT	AF-13B	8320-125000
Drawers, Cotton	AF-13E	8320-275000
Undershirt, Cotton	AF-13E	8320-930000
Socks, Cotton	AF-13E	8320-810000
Shoes	AF-13L	3340-860000
Boots, Hip	AF-13D	8340-135000
Shield, Face	AF-13A	8310-007500-555
Apron, Rubber	AF-13A	8310-700825
Gloves, Rubber	AF-13A	8310-296325
Respirator, Dust	AF-13C	8330-682000
Detergent, Powder	AF-07	7300-NL
One (1) Truck, Fuel Servicing	50-A	5001-770050-435

Part IV, Inclosure E

[REDACTED]

[REDACTED]

[REDACTED]

PART V -- Shot "Yankee"

1. Personnel and procedures used in aircraft decontamination for Shot "Yankee" were as follows:

- a. One (1) officer and two (2) NCO supervisors (Rad Safe Personnel),
- b. Fifteen (15) non-aircraft personnel/6 hour shifts.
- c. Six (6) truck drivers per 6 hour shift.
- d. One (1) fuel truck operator per twelve hour shift.
- e. One (1) automotive mechanic, on 12 hour shift.
- f. One (1) clerk, administrative, on twelve hour shift.

2. Utilizing the personnel above, the following procedures were used:

a. One (1) B-36 control ship was decontaminated two (2) hours after landing, due to possible early turn-around. All other contaminated aircraft were allowed to decay for approximately 24 hours.

b. Order of scheduling was changed by Commander, Test Aircraft Unit, due to the possible early turn-around. Order of decontamination being: five (5) F-84's, two (2) B-29's, one (1) B-36, two (2) B-29's, the one (1) B-29 and two (2) F-84's. All these aircraft were decontaminated in eleven (11) hours.

[REDACTED]

[REDACTED]

[REDACTED]

TABULAR PRESENTATION

OF

DECONTAMINATION ACTIVITIES (B-36)

Aircraft	1086	1386
1st Survey	5 May 1158, 42,000 nr/hr	5 May 1250, 100 nr/hr
Type of Decon	Decay	Gunk
2d Survey	None	5 May 1700, 50 nr/hr
Type of Decon	Gunk	
3rd Survey	6 May 1450, 34,000 nr/hr	Released
Type of Decon		
4th Survey	Released	
Type of Decon		
Hours to Decon	2:00 hours	4:00 hours
Personnel	26	26
Manhours Required	52:00 hours	104:00 hours
Water Used	750 gallons	1950 gallons
Gunk Used	145 gallons	133 gallons
Soapy Water Used	875 gallons	800 gallons
Kerosene Used	750 gallons	665 gallons
Truck Maint Required	Minor	Minor

Part V, Inclosure A

[REDACTED]

[REDACTED]

TABLEAR PA... OF DECONTAMINATION ACTIVITIES (F-8)

Aircraft No.	032	037	042	043
1st Survey	5 May 1045, 8000 nr/hr	5 May 0915, 38000 nr/hr	5 May 1138, 10000 nr/hr	5 May 1139, 8000 nr/hr
Type of Docon	Docony	Docony	Docony	Docony
2nd Survey	6 May 0800, 210 nr/hr	6 May 1520, 1700 nr/hr	6 May 0825, 900 nr/hr	6 May 0817, 700 nr/hr
Type of Docon	Gunk	Gunk	Gunk	Gunk
3rd Survey	Released	6 May 1655, 800 nr/hr	6 May 1039,	6 May 1030, 230 nr/hr
Type of Docon		Docony	Released	Released
4th Survey		10 May 2000, 220 nr/hr		
Type of Docon		Released		
Hours to Docon	1:00	1:00	1:00	1:00
Water Used	290 gallons	250 gallons	290 gallons	290 gallons
Gunk Used	26 gallons	17 gallons	26 gallons	26 gallons
Soapy Water Used	60 gallons	50 gallons	60 gallons	60 gallons
Kerosene Used	131 gallons	85 gallons	131 gallons	131 gallons
Personnel	6	6	6	6
Manhours required	6:00	6:00	6:00	6:00
Truck Maint. Required	Minor	Minor	Minor	Minor

Part V, Inclosure B

TABLE I. DECONTAMINATION ACTIVITIES (A-34)

Aircraft No.	046	049	051
1st Survey	5 May 1025, 1100 r/hr	5 May 1100, 11000-rr/hr	5 May 1050, 18000 rr/hr
Type of Decon	Decay	Decay	Decay
2nd Survey	6 May 1520, 90 rr/hr	6 May 0821, 1200 rr/hr	6 May 0832, 1600 rr/hr
Type of Decon	Gunk	Gunk	Gunk
3rd Survey	6 May 1745, 50 rr/hr	6 May 1030, 460 rr/hr	6 May 1030, 600 rr/hr
Type of Decon	Released	Released	Released
4th Survey			
Type of Decon			
Hours to Decon	1:05	0:30	0:30
Water Used	250 gallons	290 gallons	290 gallons
Gunk Used	17 gallons	26 gallons	26 gallons
Soppy Water Used	50 gallons	60 gallons	60 gallons
Kerosene Used	83 gallons	131 gallons	131 gallons
Personnel	6	6	6
Manhours Required	6:30	3:00	3:00
Truck Maint Required	Minor	Minor	Minor

TABULAR RECORD OF DECONTAMINATION ACTIVITIES (48-29)

Aircraft No.	7740	7343	7269	1819	2202
1st Survey	5 May 1100, 1000 nr/hr	5 May 1050, 20000 nr/hr	5 May 2245, 600 nr/hr	6 May 0530, 10 nr/hr	5 May 2105, 280 nr/hr
Type of Decon	Decay	Decay	Decay - .07	Decay - .23	Decay
2nd Survey	6 May 0900, 220 nr/hr	6 May 0905, 3200 nr/hr	6 May 0850, 300 nr/hr	6 May 0852, 140 nr/hr	6 May 0845, 100 nr/hr
Type of Decon	Gunk	Gunk	Gunk	Gunk	Gunk
3rd Survey	6 May 1610, 160 nr/hr	7 May 0815, 1000 nr/hr	6 May 1635, 140 nr/hr	6 May 1145, 80 nr/hr	6 May 1145, 60 nr/hr
Type of Decon	Released	Released	Released	Released	Released
4th Survey	Released	9 May 1600, 300 nr/hr	Released	Released	Released
Type of Decon	Released	Released	Released	Released	Released
Hours to Decon	1:00	1:00	1:00	1:30	0:45
Personnel	13	13	13	13	13
Manhours Required	13:00	13:00	13:00	20:00	13:00
Water Used	500 gallons	500 gallons	500 gallons	700 gallons	700 gallons
Gunk Used	200 gallons	200 gallons	200 gallons	275 gallons	275 gallons
Sopry Water Used	100 gallons	100 gallons	100 gallons	450 gallons	450 gallons
Kerosene Used	100 gallons	100 gallons	100 gallons	55 gallons	55 gallons
Truck Maint. Required	Minor	Minor	Minor	Minor	Minor

Part V, Inclosure C

MATERIAL CONSUMPTION CHART

The materials listed below are consumed on Shot "YAWKEE" for decontamination of seven (7) F-84's, five (5) VB-29's and two (2) E-36 type aircraft.

Water, gallons	16,500
Kerosene, Gallons	3,214
Gunk, Gallons	623
Detergent	14 lbs.
Brushes	21
Filter, Respirator	70
Rubber Gloves	10
Aprons	5

Part V, Inclosure D


EQUIPMENT LIST

<u>NOMENCLATURE</u>	<u>CLASS</u>	<u>STOCK NO.</u>
Six (6) Decontamination Apparatus Power, Driven Trucks, Mounting Liquid Agent, Truck 6x6	50A	5001-240035-NL
One (1) 32,000 gal Water tank Brush, aircraft	AF-29	6700-123175
Maintenance Stands, various types Compound, cleaning aircraft	AF-07	7300-190100
Kerosene	AF-06	7300-395000
Suit, HBT	AF-13B	8320-818100
Cap, Mechanic, HBT	AF-13B	8320-125000
Drawers, Cotton	AF-13B	8320-275000
Undershirt, Cotton	AF-13B	8320-930000
Socks, Cotton	AF-13B	8320-816000
Shoes	AF-13B	8340-860000
Boots, Hip	AF-13D	8340-135000
Shield, Face	AF-13a	8310-007500-555
Apron, Rubber	AF-13a	8310-700825
Gloves, Rubber	AF-13A	8310-296325
Respirator, Dust	AF-13C	8330-692000
Detergent, Powder	AF-07	7300-NL
One (1) Truck Fuel Servicing	50-A	5001-770050-435


Part V, Inclosure E

[REDACTED]

Part VI: Shot "NECTAR"

1. Personnel and procedures used in aircraft decontamination for Shot "NECTAR" were as follows:

- a. One (1) officer and two (2) NCO supervisors (Rad-Safe Personnel)
- b. Seven (7) aircraft maintenance personnel per aircraft assigned
- c. Seven (7) non-aircraft personnel/16 hour shift.
- d. Six (6) truck drivers per 12 hour shift.
- e. One (1) fuel truck operator per twelve hour shift.
- f. One automotive mechanic on twenty-four hour call.
- g. One (1) clerk administrative on twelve (12) hour shift.

2. Utilizing the personnel above, the following procedures were used:

- a. All aircraft were allowed to decay for approximately twenty-four (24) hours before decontamination procedures were begun.
 - b. Aircraft were decontaminated in the following order: One (1) B-36, six (6) F-84's, two (2) B-36's and three (3) WB-29's.
 - c. Aircraft were decontaminated in eleven (11) hours due to low degree of contamination.
- [REDACTED]

TASKS AND RELATED DECONTAMINATION ACTIVITIES (B-26)

Aircraft No.	1083	1086	1386
1st Survey	14 May 1200, 3000 μ r/hr	14 May 1405, 170 μ r/hr	14 May 1435, 32 μ r/hr
Type of Decon	Ducon	Ducon	Ducon
2nd Survey	15 May 1050, 420 μ r/hr	15 May 0945, 120 μ r/hr	15 May 0700, 16 μ r/hr
Type of Decon	Gunk	Gunk	Gunk
3rd Survey	15 May 1555, 260 μ r/hr	15 May 1400, 60 μ r/hr	15 May 0800, 7 μ r/hr
Type of Decon	Released	Released	Released
4th Survey	Released	Released	Released
Type of Decon	3:30 hours	2:30 hours	1:20 hours
Hours to Decon	26	26	26
Personnel	91:00	65:00	35:00
Manhours Required	800 gallons	800 gallons	900 gallons
Water Used	170 gallons	160 gallons	50 gallons
Gunk Used	900 gallons	900 gallons	400 gallons
Soapy Water Used	850 gallons	840 gallons	450 gallons
Kerosene Used	Truck Maint. Required	Minor	Minor

TABLE A SUMMARY OF DECONTAMINATION ACTIVITIES (A-84)

Aircraft No.	030	038	043	045
1st Survey	14 May 1600, 105 nr/hr	14 May 0950, 120 nr/hr	14 May 1605, 130 nr/hr	14 May 1610, 160 nr/hr
Type of Decon	Docy	Docy	Docy	Docy
2nd Survey	15 May 0730, 33 nr/hr	15 May 0800, 50 nr/hr	15 May 0735, 70 nr/hr	15 May 0730, 60 nr/hr
Type of Decon	Gunk	Gunk	Gunk	Gunk
3rd Survey	15 May 1010, 25 nr/hr	15 May 1000, 18 nr/hr	15 May 1055, 20 nr/hr	15 May 1100, 20 nr/hr
Type of Decon	Released	Released	Released	Released
4th Survey				
Type of Decon	0:30	0:30	0:30	0:30
Hours to Decon	26	26	26	26
Personnel	13:00	13:00	13:00	13:00
Manhours Required	300 gallons	300 gallons	300 gallons	300 gallons
Water Used	30 gallons	30 gallons	30 gallons	30 gallons
Gunk Used	75 gallons	75 gallons	75 gallons	75 gallons
Sooty Water Used	150 gallons	150 gallons	150 gallons	150 gallons
Kerosene	Minor	Minor	Minor	Minor
Truck Maint. Required	Minor	Minor	Minor	Minor

Part VI, Inclosure B

TABLE 1. DECONTAMINATION ACTIVITIES (A-4)

055

Aircraft No. 046
 1st Survey 14 May 1620, 180 nr/hr
 Type of Decon Decony
 2nd Survey 15 May 0730, 70 nr/hr
 Type of Decon Gunk
 3rd Survey 15 May 1059, 20 nr/hr

054

14 May 1615, 195 nr/hr
 Decony
 15 May 0730, 50 nr/hr
 Gunk
 15 May 1012, 30 nr/hr

Released

Released

Released

4th Survey	Released	Released	Released
Type of Decon			
Hours to Decon	0:30	0:30	0:30
Personnel	26	26	26
Manhours Required	13:00	13:00	13:00
Water Used	300 gallons	300 gallons	300 gallons
Gunk Used	30 gallons	30 gallons	30 gallons
Soapy Water Used	75 gallons	75 gallons	75 gallons
Kerosene Used	150 gallons	150 gallons	150 gallons
Truck Maint. Required	Minor	Minor	Minor

UNCLASSIFIED

UNCLASSIFIED

UNCLASSIFIED

UNCLASSIFIED

TABLE 1. SUMMARY OF DECONTAMINATION ACTIVITIES (45-10)

Aircraft No	1819	7269	335
1st Survey	14 May 1425, 4500 r/hr	14 May 2035, 42 r/hr	14 May 2040, 46 r/hr
Type of Decon	Decay	Decay	Decay
2nd Survey	15 May 1115, 800 r/hr	15 May 1045, 26 r/hr	15 May 1040, 20 r/hr
Type of Decon	Gunk	Gunk	Gunk
3rd Survey	15 May 1740, 300 r/hr	15 May 1750, 20 r/hr	15 May 1740, 14 r/hr
Type of Decon	Released	Released	Released
4th Survey	1:20	1:20	1:00
Type of Decon	26	26	26
Hours to Decon	17:00	17:00	26:00
Personnel	900 gallons	900 gallons	600 gallons
Materials Required	65 gallons	65 gallons	55 gallons
Water Used	500 gallons	500 gallons	450 gallons
Gunk Used	300 gallons	300 gallons	250 gallons
Soppy Water Used	Minor	Minor	Minor
Kerosene Used			
Track Maint. Required			

Part VI, Inclosure C

[REDACTED]

UNCLASSIFIED

MATERIAL CONSUMPTION CHART

The materials listed below were consumed on Shot "NECTAR" for decontamination of six (6) F-84's, three (3) B-36's and three (3) WB-29's.

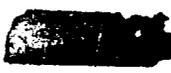
Water, gallons	15,000
Kerosene, gallons	3,000
Gunk, gallons	585
Detergent	14 lbs.
Brushes	21
Filter, Respirator	70
Rubber Gloves	8
Aprons	4

UNCLASSIFIED

[REDACTED]

Part VI, Inclosure D

[REDACTED]



UNCLASSIFIED

EQUIPMENT LIST

<u>NOMENCLATURE</u>	<u>CLASS</u>	<u>STOCK NO.</u>
Five (5) decontamination apparatus Power Driven trucks, Mounting liquid Agent, Truck 6x6	50-A	5001-240035-NL
One (1) 32,000 gal water tank Brush, aircraft	AF-29	6700-123175
Maintenance Stands, various types compound, cleaning aircraft	AF-07	7300-190100
Kerosene	AF-06	7300-395000
Suit, HBT	AF-13B	7300-818100
Cap, Mechanic, HBT	AF-13B	7300-124000
Drawers, Cotton	AF-13B	8320-275000
Undershirt, Cotton	AF-13B	8320-930000
Socks, Cotton	AF-13B	8320-810000
Shoes	AF-13D	8340-125000
Pants, Hip	AF-13F	8340-860000
Shield, Face	AF-13	8310-007500-555
Apron, Rubber	AF-13L	8310-700825
Gloves, Rubber	AF-13A	8310-296325
Respirator, Dust	AF-13C	8330-682000
Detergent, Powder	AF-07	7300-NL
One (1) Truck Fuel Servicing	50-A	5001-770050-435

UNCLASSIFIED

UNCLASSIFIED

Part VI, Inclosure E



UNCLASSIFIED

Part VII DECONTAMINATION PAD

The decontamination pad used during Operation CASTLE was specially built by Holmes and Narver contractors in accordance with drawing FS-1196 included as inclosure. The pad was constructed for drainage toward a 24 inch catch basin with a cast iron mesh cover in the center of the pad. An 8 inch drainage pipe with a 8 1/4% fall drained into the lagoon. The 110 foot center section was constructed of ten (10) inch concrete with 1/2 inch steel reinforcing. The two outer sections, and the nose section was constructed of six (6) inch concrete. Concrete was poured on alternate 20 foot slabs with keyed joints. The finish was smoothed to permit easy wash down.

Following the first shot, a 1/2 inch steel cable was suspended between the two telephone poles 270 feet apart to provide a safety facility for personnel during decontamination operations. Six (6) safety rings and cable assemblies were attached to the suspension cable. Those were hooked to safety harnesses worn by decontamination personnel. The cable prevented serious accidents resulting from falls from upper wing surfaces during B-36 decontamination. (FS 1451)

Two (2) 1500 watt floodlights were placed on each telephone pole in order to provide sufficient illumination for decontamination operations at night.

Recommendations for improvement in the design of the decontamination pad based upon experience gained during operation CASTLE are as follows:

1. The decontamination pad should be 260 feet square, so that aircraft may be placed with engines faced into the prevailing wind prior to decontamination. Under the existing conditions during "CASTLE" it was virtually impossible to decontaminate both port and starboard sides of B-36 aircraft at the same time since excessive spray was blown into the downwind crew.
2. The entire pad should be of reinforced concrete no less than 6 inches thick or of a thickness sufficient to support the weight of aircraft to be decontaminated.
3. Water outlets one (1) inch size should be provided around the pad a minimum of two (2) to each side, under 450 lbs pressure. It is highly desirable that a portable water heater be available at each outlet in order that a minimum of time be expended in heating water.
4. Underground storage facilities for fresh water should be available. This is especially important in the event of enemy attack where decontamination operations must be initiated shortly after such an attack.
5. Additional lighting should be available. The four (4) 1500 watt lights used during "CASTLE" were barely adequate for the purpose intended. An intensity of illumination four (4) times as high would be the most efficient level. Ground lighting by means of portable floodlights proved unsatisfactory because of the intense glare that resulted.
6. Desirable but not necessary are electrical outlets (110 and 220 volts) beside each water outlet. These are very useful in heating water (220 volts) and in providing power for auxiliary lights (110 volts).
7. The steel cable stretched between the power poles should be drawn as taut as possible. If an individual should slip from the wing, the slack cable would cause him to bounce back into the wing.
8. The safety rig should be portable, if possible, in order to provide for placing the aircraft on the pad with engines facing the prevailing wind.

UNCLASSIFIED

END

DATE
FILMED

5-81

DTIC

UNCLASSIFIED

**PLEASE DO NOT RETURN
THIS DOCUMENT TO DTIC**

**EACH ACTIVITY IS RESPONSIBLE FOR DESTRUCTION OF THIS
DOCUMENT ACCORDING TO APPLICABLE REGULATIONS.**

UNCLASSIFIED