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(10)

DEPARTMENT OF THE AIR FORCE
OFFICE OF AEROSPACE STUDIES (AFMC)
KIRTLAND AIR FORCE BASE, NM

FROM: OAS/XRN
2350 Maxwell Street
Kirtland AFB NM 87117-6008

8 October 1992

SUBJ: HPRF Phase 2 Kickoff Meeting Minutes

TO: Distribution

1. Enclosed is the meeting minutes from the HPRF Phase 2 Kickoff Meeting held on 10-11 September 1992 at Phillips Laboratory in Albuquerque, NM.

2. Capt Lamb and I would like to thank all who participated in the meeting. We look forward to working with you on the Phase 2 study.

3. Attachment 2 contains Restricted Data/Critical Nuclear Weapon Design Information.

4. This letter is UNCLASSIFIED when separated from Attachment 2.

ROGER F. KROPF, Major, USAF
Chief, Nuclear Weapons Concept Div

2 Atch
1. Distribution List (U)
2. HPRF Phase 2 Kickoff Meeting Minutes (U), 30 Sep 92, SECRET/RD/CNWDI/NOFORN, 1 cy

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NAME: [illegible]	2. CLASSIFICATION CHANGED TO:
2ND REVIEW-DATE: 5 Nov 99	3. CONTAINS NO DOE CLASSIFIED INFO
AUTHORITY: ADD	(4) COORDINATE WITH: DOD WPD
NAME: D. Coyle	5. CLASSIFICATION CANCELLED
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PL/WSR
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901 SAC Blvd, Suite 1F19
Offutt AFB NE 68113-5120

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OAS-MM-92-10 OAS-MM-92-10

High Power Radio Frequency (HPRF) Phase 2 Study

Kickoff Meeting Minutes (U)

30 September 1992

Captain William A Lamb

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ROGER F. KROPF, Major, USAF
Chief, Nuclear Weapons Concept Division

JERRY G. COLYER
Technical Director,
Office of Aerospace Studies

DOE, USAF,
DTRA

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High Power Radio Frequency (HPRF) Phase 2 Study

Kickoff Meeting Minutes (U)

30 September 1992

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ACKNOWLEDGEMENTS

(U) I would like to take this opportunity to thank Mr Sam Gutierrez of Phillips Laboratory who helped me during the HPRF Phase 2 Kickoff Meeting. His efforts prior to and during the meeting helped immensely and were greatly appreciated.

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(U) INTRODUCTION

(U) The Nuclear Weapons Concept Division of the Office of Aerospace Studies (OAS/XRN) conducted the kickoff meeting for the High Power Radio Frequency (HPRF) Phase 2 study on 10-11 September 1992. The meeting was held at Phillips Laboratory on Kirtland AFB, NM. The purpose of the meeting was to review the tasking for the phase 2 study, refine the working group structure, identify memberships in each working group, and discuss the organization and structure. The individual working groups met to finalize their structure, goals and memberships. The agenda for the meeting is contained in appendix A.

(U) These meeting minutes document the kickoff meeting and include copies of presentations. Additionally, a list of attendees is provided in appendix B. The meeting highlights are presented in the following paragraphs.

(U) ADMINISTRATION AND INTRODUCTIONS

(U) Major Kropf opened the meeting by welcoming all in attendance. He then presented an overview of the importance of the HPRF Phase 2 study. Each of the attendees then introduced themselves and their organizations. The Navy was represented in this meeting but only as observers.

(U) HPRF PHASE 2 TASKING AND REQUIREMENTS

([redacted] LtCol Martin reviewed the draft Phase 2 Tasking Letter (see appendix C). Since there was no change to the tasking requirements presented in the planning meeting, LtCol Martin reviewed the contents of the finalized tasking. He reiterated the missions of interest that were not addressed in the phase 1 study and reemphasized the issues for phase 2. The approach to validation of lethality methodology must be reported to the Nuclear Weapons Council Standing Committee (NWCSC) within 90 days after the kick-off meeting. This will require reporting to the NWCSC by December 15th. Additionally, further examination of the delivery systems, packaging options, and damage expectancy with regards to mission effectiveness will be addressed.

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(U) PHASE 2 STUDY ORGANIZATION

(U) Capt Lamb proceeded to outline the working group structure for the Phase 2 study. Figure 1 shows the working group structure. Discussions centered around the need for a separate threat working group but a consensus was reached that there would be

[redacted]

enough information required from this area that the study would keep the working group. The chairs of each working group were presented with a list of members for each group taken from the attendees. The chair of each working group is presented in table 1. The lists of members are presented in appendix D

Working Group Structure

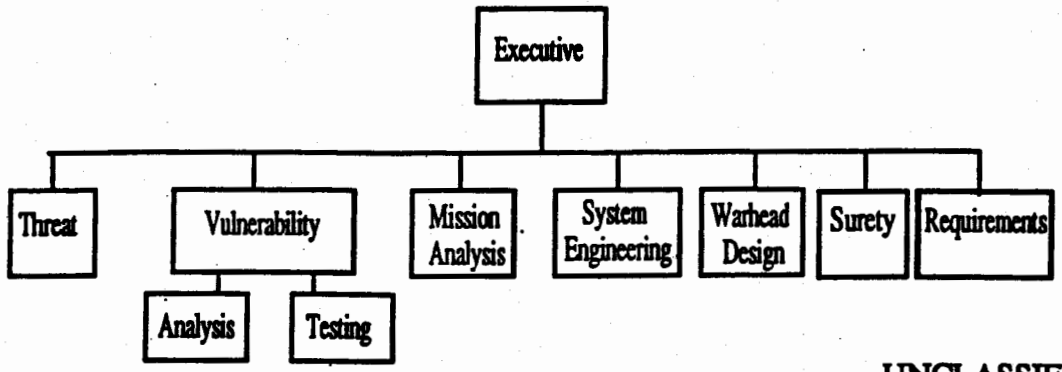

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Figure 1. (U) Working group structure

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(U) WARHEAD DESIGN INTRO

[redacted] Dr Jas Mercer-Smith (LANL) presented his view of the work in the warhead design area. His slides are included in appendix E.

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The issue that will need to be addressed in the warhead design working group is the certification process of the warhead design. Without an underground test, how will the warhead be certified? This issue will be addressed during the phase 2 study.

(U) SYSTEM ENGINEERING INTRO

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(U) VULNERABILITY INTRO

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Appendix G includes his slides. He reiterated the work completed during phase 1 and how this plays to phase 2. The basic premise of the phase 2 work is to provide quantified vulnerability data to the mission analysis working group (MAWG). He stated the need to address three areas of vulnerability and fill in more data in those three areas when the data become available.

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The prediction methods for determining vulnerabilities can then be verified and size of uncertainties reduced.

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Some concerns of the VWG are in post strike assessment and how it will be defined; and how collateral damage will be addressed.

(U) MISSION ANALYSIS INTRO

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(U) Future work will be very involved as it will require interactions between other working groups.

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(U) SURETY INTRO

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The main emphasis will be on the use control and surety themes that are involved in a phase 2 study. The SWG will work closely with system engineering to ensure the missile interface is identified. The further emphasis of the SWG will be in the safety technology area.

(U) REQUIREMENTS INTRO

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Further information will be provided at the next HPRF phase 2 meeting.

(U) THREAT INTRO

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(U) WORKING GROUP MEETINGS

(U) Before breaking into individual working groups, Capt Lamb provided the breakout of the tasking and in which working group the specific tasking should be addressed. The breakout is provided in table 2. The remainder of the day was spent in working groups determining members, charters, and working group plans. The results of the meetings is contained in appendix I.

Table 2. (U) Specific tasking assignments.

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(U) EXECUTIVE WORKING GROUP

(U) Capt Lamb presented the proposed memberships for the executive working group of the HPRF Phase 2 study. The provide representation from each working group along with representation from each organization involved in the study. Table 3 presents the proposed executive working group members.

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(U) ACTION ITEMS

Table 4. (U) Action items from kickoff meeting.

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NOTE: Numbers 1-10 were not included in this list as they originated from the planning meeting and not from this meeting.

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APPENDIX A

(U) KICKOFF MEETING AGENDA

Office of Aerospace Studies

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Office of Aerospace Studies

Agenda - September 11, 1992

0830	Sign-In	ALL
0845	Administration	Capt Lamb/OAS
0900	Working Group Presentations	Chair
	- Charters	
	- Schedules	
	- Memberships	
	- Estimated Costs	
1100	Action Items	ALL
1130	Summary	Capt Lamb/OAS

APPENDIX B

(U) KICKOFF MEETING ATTENDANCE LIST

HPRF Phase 2 Study
Kickoff Meeting, 10&11 September 1992
Attendance List

NAME	ORG./ADDRESS (for Classified Mailing)	PHONE #
1. WILLIAM LAMB	CAS/XRN BLDG 461 KIRTLAND AFB NM 87117-6008	Com: (505) 846-8233 DSN: 246-8233 FTS: FAX: (505) 846-6668
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APPENDIX C

(U) HPRF PHASE 2 TASKING

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SEP 02 '92 11:05 SAF AQQS(78919) P.3

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DOE,
USAF
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(U) The SAF/AQQ point of contact for this effort is Lt Col Charles R. Martin, SAF/AQQS, DSN 223-6303 or (703) 693-6303.

Patrick P. Caruana

PATRICK P. CARUANA, Major General, USAF
Director of Strategic, SOF, and
Airlift Programs
Assistant Secretary for Acquisition

3 Atch
1. NWCSC Letter to DOE (SFRD)
2. NWCSC Letter to Navy (SFRD)
3. Nominal Warhead Parameters (SFRD)

cc: OAS(AFMC)

2

[redacted]

b(3)

the Phase 2. In addition, I request the Study Group report at least yearly to the NWCSC on their progress and conclusions.

b(3)

DOE, USAF, DTRA

Sincerely,

John M. Birely
Acting Chairman

Enclosure

cc:
SAF/AQQ
AF/XOO

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DEPARTMENT OF DEFENSE
AND
DEPARTMENT OF ENERGY

NUCLEAR WEAPONS COUNCIL
STANDING COMMITTEE
WASHINGTON, DC 20301-3030

11 AUG 1992

b(3)

MEMORANDUM FOR CHIEF OF NAVAL OPERATIONS USAF

SUBJECT: High Power Radio Frequency (HPRF) Weapon Phase 2 Warhead Study

DOE, USAF
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(U) For this reason, I request the Navy join the Air Force in the HPRF Phase 2 Feasibility Study so that the study group can investigate both the ICBM and SLBM basing options.

John H. Birely
Acting Chairman

cc: SAF/AQQ
DAMO

Classified by: CG-W-5, Jan 84

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APPENDIX D

(U) WORKING GROUP MEMBERS

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APPENDIX E

(U) WARHEAD DESIGN INTRO

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Weapon Certification

- The Warhead Design Working Group will have to develop a methodology for certifying a special-purpose weapon in the absence of nuclear testing.

- Device certification may have a significant impact on the design of the physics package.

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APPENDIX F

(U) SYSTEM ENGINEERING INTRO

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System Engineering Working Group
Phase I Issues Review

High Power Radio Frequency Weapon

[redacted] USAF b(1)

10 - 11 September 1992
Phillips Lab
Kirtland AFB, NM

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Major SEWG Issues

	Description of Issue	Agency
I	General Issues	
A.	Implications of the President's Initiatives	DoD
B.	Implications of START	DoD
C.	Human Intent Decision	DoD/DOE
D.	Build Quantity (force structure issues)	DoD/DOE
E.	ABM Assumptions	DoD
F.	New MCs	DoD/DOE
G.	Delivery Options	DoD
H.	Other Mission Options	DoD
II	Delivery Requirements	
A.	Height of Burst	DOE
C.	Range Requirements	DoD/DOE
D.	Targeting Requirements (w/h integration driver)	DoD
III.	Warhead Packaging	
A.	External Case Options	
	1. Existing RVs	DoD
	2. Optimized Case	DoD/DOE
B.	Nuclear System Options	DOE
C.	Usage Requirement and Design	DOE/DoD
D.	Shielding Requirements	DOE
E.	Degradation Concerns	DOE
F.	Nuclear Surety	
	1. Enhanced Safety	DoD/DOE
	2. Use Control	DoD/DOE
H.	Warhead Electrical System	DOE
I.	LLCE	DoD/DOE
J.	Mechanical & Electrical Interfaces	DoD/DOE
K.	Maneuvering Capability	DoD/DOE
IV	Delivery Platform	
A.	Missile Interface	
	1. Mechanical	DoD/DOE
	a. Static Loading	
	b. Dynamic Loading	
	c. External Usage Design	

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	2. Electrical	DoD/DOE
	3. Software	DoD
B.	Impacts of Platform Modifications	DoD
	1. Singlet Conversion	
	2. Mk21/Mk4-5 Conversion	
	3. Guidance Electronics Upgrade (GEU)	
	4. Others	
C.	Flight Performance	DoD
	1. Range Capability	DoD
	2. PVB Maneuvering Capability	DoD/DOE
	3. Vehicle Stability	
	a. Critical HOB	
	b. Critical Vehicle Parameters	
	c. Tradeoffs	

APPENDIX G

(U) VULNERABILITY INTRO

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APPENDIX H

(U) MISSION ANALYSIS INTRO

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MISSION ANALYSIS

INTRODUCTION

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[redacted]

USER INTEREST

- SAC/XR LETTER, 18 APR 90
- SAC TNS, 10 SEP 91
- SAC/XO MESSAGE, JAN 92
- HQ ACC/DO LETTER TO USSTRATCOM J-5
- MNS - TBD

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WHAT WE NEED

- AGREEMENT ON MISSIONS OF INTEREST
- TARGET LIST FOR EACH MISSION
- MEASURE OF EFFECTIVNESS (MOEs)
- MOEs EVALUATION VIA SPECIFIC MODELING

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APPENDIX I

(U) WORKING GROUP PRESENTATIONS

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HPRF Phase 2 VAWG

Technical Objectives

1. **Develop Input Data for Mission Analysis Studies and Future Strategic Planning**

   - **Increase HPRF Effects Database on Specific System Vulnerabilities**

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2. **Measure Effectiveness of HPRF Weapons to Cause Damage**
   - **Provide Empirical Data to Labs on Best Weapons Characteristics**
   - **Explore Parametric Variations**
   - **Verify MAWG Analysis Tools by Test & Analysis**

3. **Address Possible Effects on US & Friendly Forces**

4. **Provide Feedback on Possible Methods of Damage Assessment**

HPRF Phase 2 VAWG

Working Group Structure

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HPRF Phase 2 VAWG

VTSG Questions

- Identify Past Tests
  - -- Applicability to HPRF Phase 2
  - -- Sufficiency of Data

- Identify of HPRF Phase 2 Testing
  - -- Funded
  - -- Planned but Unfunded
  - -- Other

- Testing Program Plan (Due in 90 days)
  - -- Time Schedule
  - -- Milestones
  - -- Costs/Funding

HPRF Phase 2 VAWG

VASG Questions

- Review of Target Lists
  - -- Which Systems are Completed?
  - -- Which Systems Need Work?

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- Analysis Questions
  - -- Further Refinement of P_E Methodology
  - -- Further Generic Testing/Validation?
  - -- How Validate MOE Predictions for MAWG?

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b(3)

USAF
b(1)

USAF,
DOE
b(3)

HPRF Phase 2 VAWG

Review Items

1. Charter
2. Objectives
3. Structure/Division of Responsibilities
4. Membership/Participants
5. Analysis Activities
6. Test Activities
7. Summary and Action Items

CHARTER FOR MISSION ANALYSIS
WORKING GROUP (MAWG)

USAF
b(1)

MAWG ISSUES

1. Identify Missions
2. Identify Potential Targets
3. Develop Credible Scenarios
4. Determine Measures of Effectiveness (MOEs)
5. Evaluate MOEs Through Modeling
6. Develop Mission Need Statement
7. Determine Post-Strike Assessment Methods with (VAWG)

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b(1)

10. Determine if Damage Expectancy can be used for mission effectiveness with VAWG
11. Identify Appropriate Model and Associated Cost
12. Assist VAWG to Define Test-Bed
13. Test Analysis Should be part of MAWG

MAWG SCHEDULE

Last Week September Define Missions with USSTRATCOM
First Week October Identify VAWG Test-Bed

MAWG STRUCTURE

Mission Specific Subgroups

Subgroup members would identify targets, develop scenarios, determine MOE and conduct modeling to determine effectiveness.

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SURETY WORKING GROUP-PROPOSED CHARTER

USAF
b6)

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