

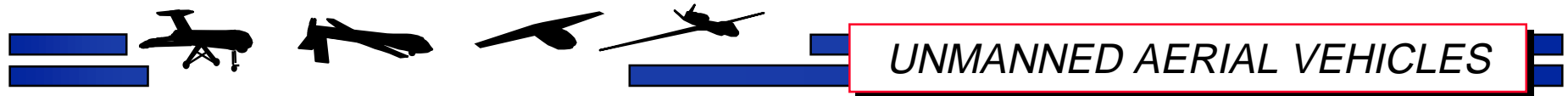
UNMANNED AERIAL VEHICLES

MAE UAVs

Naval UAV Offsite Conference

20 May 1998

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Background

- ◆ The Navy has a Medium Altitude Endurance (MAE) Requirement; See CNO Memo of 18 Oct 95, and Naval Requirements Memo of 1 Feb 96.
- ◆ Debate over how The Navy would use Predator to fulfill its MAE requirement went on for many months; finally, a Marinization Study was completed on 1 Oct 1996. The CNO made the decision to not go forward with a fully maritized Predator system as the solution for the Navy's MAE requirement; but to use data receipt and positional control of the Air Forces Predator systems.
- ◆ On 29 Jan 97 a letter to congress was signed by ASN RDA & DARO stating that based on the results of the marinization study that, "The Navy has decided not to develop a launch and recovery capability for the Predator UAV from CV/CVN and LHA/LHD class ships."
- ◆ The Navy has re-examined its earlier decision against marinizing Predator several times.

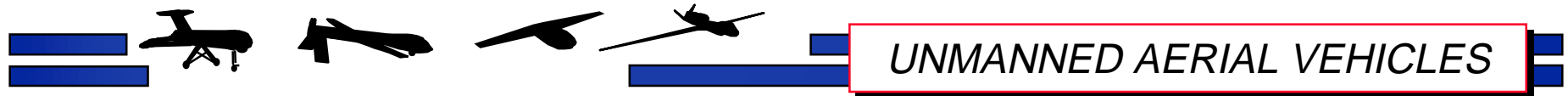


UNMANNED AERIAL VEHICLES

Navy's Medium Altitude Endurance (MAE) Unmanned Aerial Vehicle (UAV) Requirements

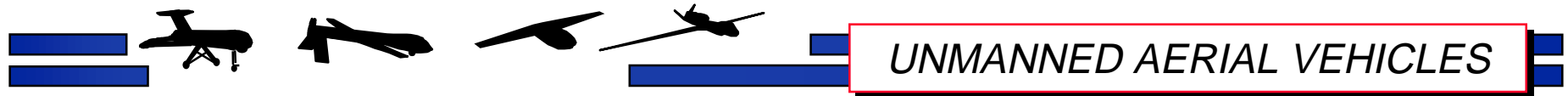
- ◆ **NAVAL REQUIREMENTS MEMORANDUM -- 1 FEB 96**
 - **500NM RANGE**
 - **24 HOURS ENDURANCE (ON STATION TIME)**
 - **EO/IR PAYLOAD**
 - **SAR**
 - **DIRECT REAL-TIME RECEIPT OF IMAGERY**
 - **SATCOM FOR BEYOND LINE OF SIGHT OPERATIONS**
 - **MISSION PLANNING INTEGRATION WITH TAMPs**
 - **ABILITY TO RETASK UAV FROM SHIPS AND ASHORE**
 - **INTEGRATION OF CHBDL FOR LINE OF SIGHT OPERATIONS**
 - **INTEGRATION WITH JSIPS, TEG, DIWS, AND TPCU SYSTEMS**
 - **COMPLIANCE WITH GLOBAL COMMAND AND CONTROL SYSTEM**
 - **LAUNCH AND RECOVERY FROM LHA/D & CV/CVN CLASS SHIPS**
 - **AUTOMATIC LAUNCH & RECOVERY CAPABILITY WITH SHIP MOTION SENSING**
 - **HEAVY FUEL ENGINE**
 - **CORROSION RESISTANCE, ADAPTABLE & COMPATIBLE WITH SHIPBOARD ENVIRONMENT**
 - **ELECTROMAGNETIC INTERFERENCE SHIELDING**
- ◆ **CURRENT PREDATOR SYSTEM:**
 - **CAN MEET 6 OF THESE REQUIREMENTS (NOT QUITE 24 HOURS ENDURANCE AT 500NM)**
 - **5 MORE WILL BE ACHIEVED THROUGH THE TCS**
 - **THE REMAINING 5 WILL ONLY BE ACHIEVED THROUGH MARINIZATION MODIFICATIONS**

EXPEDITIONARY WARFARE



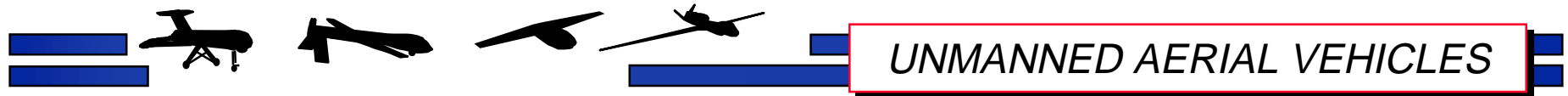
How Many Predator Systems?

- ◆ During the Predator ACTD, USACOM identified three (3) Predator systems as the answer for Navy operations in support of a two MRC scenario.
- ◆ A system consists of 4 air vehicles, 1 ground control station, 1 Trojan Spirit II (or Naval equivalent), and 60-65 personnel (Air Force numbers)



How Much?

- ◆ Predator systems at \$25-30M per systems.
- ◆ Marinization costs according to the feasibility study:
(Based on : 3 systems =12 air vehicles, 12 CV/CVN ship alts)
 - NRE (RDT&E): \$10,563K
 - Air Vehicle: \$508K X 12 = 6,096K
 - Ship: \$1,760K X 12 = 21,120K
- ◆ Manpower: \$3.1M per system per year
- ◆ OMN: \$2M per system per year
- ◆ **BOTTOM LINE:** It will take at least \$120M to procure a maritized Predator program for the Navy, plus an additional \$15M per year for MPN and OMN .



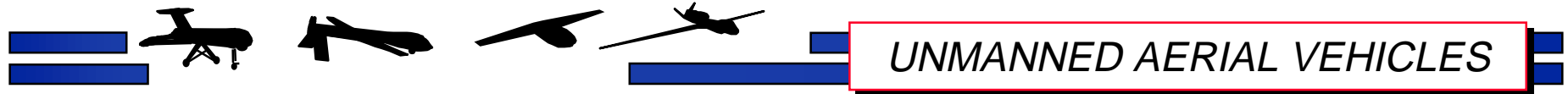
Pro/Cons

◆ Pro's

- Fill important Warfighting requirement
 - **Significant TAC RECCE advance**
- Proven capability of Predator
- Congressional support
- TCS compatibility

◆ Con's

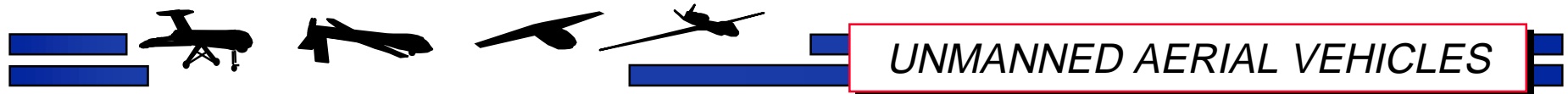
- Cost of the base system plus marinization modifications
- Limited to big deck ships; principally CV/CVNS.
- Navy MAE requirement can be partially satisfied by Air Force Predators
- Developmental risks: Heavy fuel engine and other Marinization requirements.
- Survivability in Medium to High threat environment.



UNMANNED AERIAL VEHICLES

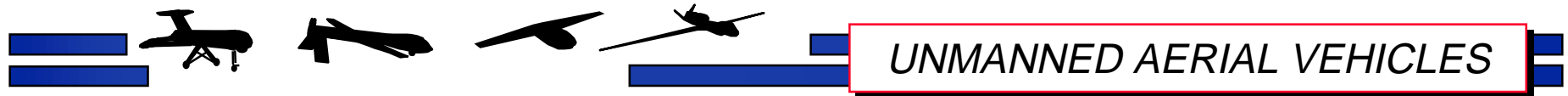
Recommendation & Decision

- ◆ Stay with Current Plan.
 - Work on Predator CONOPS with Air Force.
 - Use Predator and/or Predator Surrogate UAVs at Fallon.
 - Stress importance of Tactical Control System (TCS).



BACKUP THE REFERENCES

- ◆ 13 JAN 95 ADM BOORDA MEMO
- ◆ VCNO LETTER OF 18 OCT 95; NAVY REQUIREMENTS FOR UNMANNED AERIAL VEHICLES (UAVS)
- ◆ VCNO & ACMC MEMO OF 1 FEB 96; NAVAL UNMANNED AERIAL VEHICLE (UAV) REQUIREMENTS
- ◆ MARINIZED MAE UAV MISSION NEEDS STATEMENT (MNS); APR 96 (IN STAFFING)
- ◆ RADM BENNITT'S MSG
- ◆ PREDATOR MARINIZATION FEASIBILITY STUDY; 1 OCT 96
- ◆ ASN RDA & DARO LETTER TO CONGRESS ON PREDATOR MARINIZATION; 29 JAN 97
- ◆ CINCLANTFLT MSG 27 FEB 97; VTOL UAV VISION
- ◆ THE NAVY'S UAV PROGRAM OF RECORD; VADM PILLING'S CONGRESSIONAL TESTIMONY, APR 97.
- ◆ THE NAVAL POSITION ON TACTICAL UAV REQUIREMENTS; 22 MAY 97
- ◆ CNO RESPONSE TO ADM LOPEZ MSG
- ◆ PREDATOR ORD



OPTIONS

- ◆ STAY WITH CURRENT PLAN. WORK ON PREDATOR CONOPS WITH AIR FORCE AND PREDATOR SURROGATE UAVS.
- ◆ SEEK ORGANIC PREDATORS FOR NAVY. GO AHEAD WITH COST BENEFIT ANALYSIS, AND PREDATOR FLIGHT DEMONSTRATION ABOARD CV/CVN SHIP.
- ◆ SEEK NEW MAE SOLUTION. EXAMPLE -- FOCUS ON VTOL TUAV. FROM THE VTOL TUAV EVOLVE A VTOL UAV WHICH CAN SUPPORT THE MAE TYPE REQUIREMENTS FOR STRIKE WARFARE.