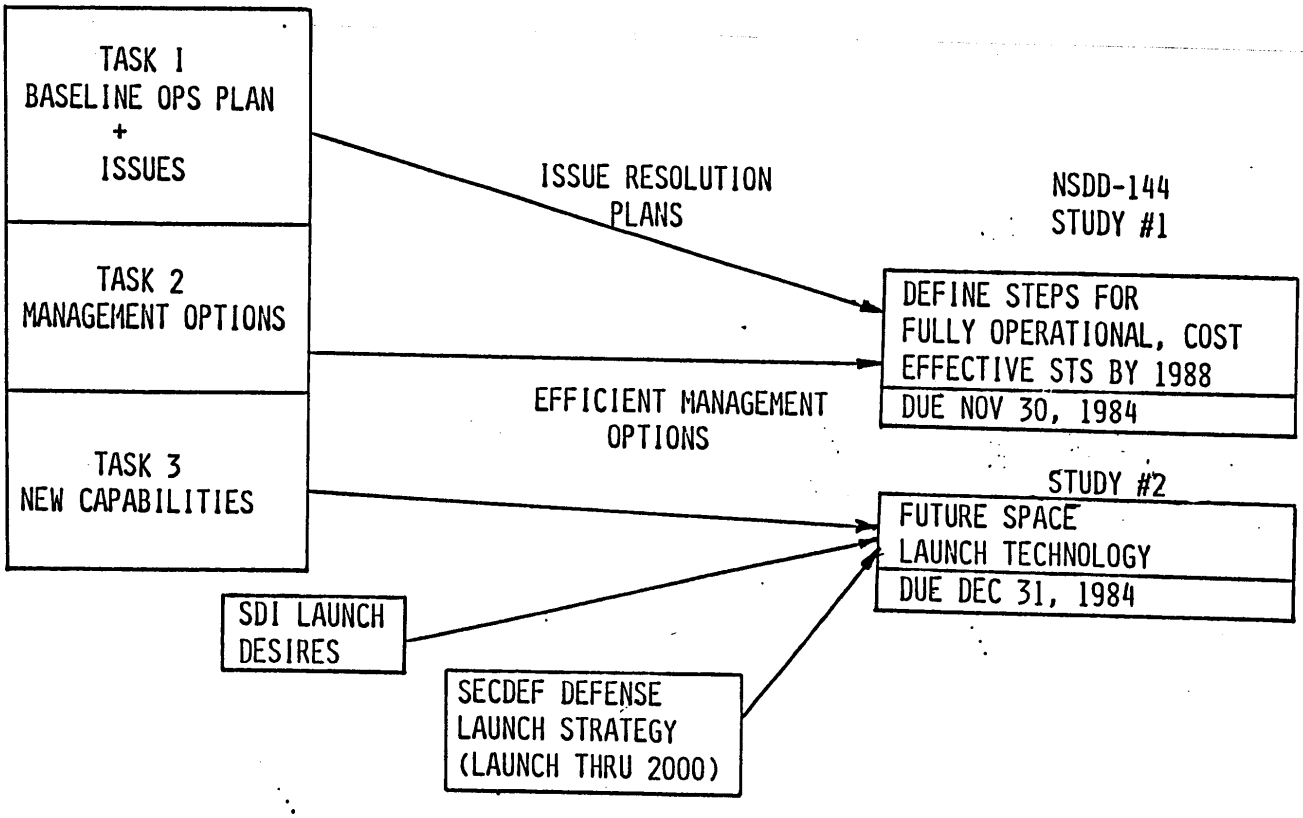
STS MASTER PLAN

AACB TASKING

RELATIONSHIP TO NSDD-144 STUDIES



NSDD STUDY #1

FULLY OPERATIONAL AND COST EFFECTIVE STS

NASA AND DEPARTMENT OF DEFENSE WILL JOINTLY PREPARE A REPORT THAT DEFINES A FULLY OPERATIONAL AND COST-EFFECTIVE STS AND SPECIFIES THE STEPS LEADING TO THAT STATUS. THIS WILL BE PREPARED AND SUBMITTED FOR REVIEW BY THE SENIOR INTERAGENCY GROUP FOR SPACE - SIG(SPACE) - NO LATER THAN NOVEMBER 30, 1984.

NSDD STUDY #2

FUTURE LAUNCH VEHICLE TECHNOLOGY

THE DEPARTMENT OF DEFENSE AND NASA WILL JOINTLY CONDUCT A STUDY TO IDENTIFY LAUNCH VEHICLE TECHNOLOGY THAT COULD BE MADE AVAILABLE FOR USE IN THE POST-1995 PERIOD. THE STUDY SHOULD BE COMPLETED BY DECEMBER 31, 1984.

NASA/DOD SPACE TRANSPORTATION SYSTEM MASTER PLAN

DSOC MEETING

29 OCTOBER 1984

AACB

SPACE TRANSPORTATION MASTER PLAN

AGENDA

- REVIEW BACKGROUND
- REVIEW STATUS
  - -- TASK 1 - BASELINE OPERATIONS PLAN
  - -- TASK 2 - MANAGEMENT ISSUES
  - -- TASK 3 - NEW CAPABILITIES
- DISCUSS TASK 1
  - -- ISSUES
  - -- RECOMMENDATION
- DISCUSS TASK 2
  - -- MANAGEMENT RECOMMENDATION
- SUMMARY

STATUS SUMMARY

- AACB/DSOC STUDY TASKS
  - -- TASK 1 - BASELINE OPERATIONS PLAN
    - --- JOINT DOD/NASA EFFORT
    - --- AGREE ON STS CAPABILITIES AND MASTER PLAN
    - --- FLAG ISSUES FOR NASA/DOD LEADERSHIP RESOLUTION
  - -- TASK 2 - MANAGEMENT ISSUES
    - --- DOD STUDY/DSOC APPROVAL OF RECOMMENDATIONS
  - -- TASK 3 - NEW CAPABILITIES
    - --- DOD STUDY/COMMENT AND REVIEW CYCLE UNDERWAY

NSDD STUDY #1

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TASK 1 - STS BASELINE OPERATIONS PLAN

STATUS

- DRAFT DOCUMENT REVIEWED
  - -- FORMAT/CONTENT APPROVED
- ISSUES IDENTIFIED/CATEGORIZED
- -- ONLY JOINT DOD/NASA WORKING GROUP ISSUES WERE
  - --- ORBITER PRODUCTION
  - --- ORBITER/CARGO RECOVERY
  - --- BACKUP SHUTTLE CARRIER AIRCRAFT
  - --- COORDINATION OF REIMBURSEMENT WITH OMB
  - -- ADDITIONAL DOD ISSUES
  - -- CATASTROPHE PLANNING ISSUES

ISSUES

STS BASELINE OPERATIONS PLAN

LIST OF ISSUE CATEGORIES

- ORBITER PRODUCTION/INTEROPERABILITY
- SYSTEM PERFORMANCE CAPABILITIES
- ORBITER/CARGO TRANSPORTATION CAPABILITIES
- PAYLOAD MISSION FLEXIBILITY CAPABILITIES
- NATIONAL SECURITY/CRISIS CONSTRAINTS
- NON-CONTROVERSIAL CAPABILITIES SHORTFALLS
- INFORMATION ITEMS

ORBITER PRODUCTION/INTEROPERABILITY

ISSUE	COMMENT
CONTINUED ORBITER PRODUCTION	- FOUR ORBITERS ONLY - STRUCTURAL SPARES (WARM PRODUCTION) PROGRAM TO CONCLUDE IN FY 87 - ORBITER ASSEMBLY ENDS IN APRIL 85 - PRESENT MISSION MODEL DOES NOT SUPPORT FIFTH ORBITER -- CONTINGENCY/ACCELERATED ATTRITION NOT INCLUDED IN MISSION MODEL -- PRESIDENT'S SDI, SPACE STATION, COMMERCIAL INITIATIVES NOT INCLUDED IN MISSION MODEL
ORBITER INTEROPERABILITY	- TWO ORBITERS CENTAUR CAPABLE - KSC - THREE ORBITERS HIGH PERFORMANCE - VAFB

OPTIONS:

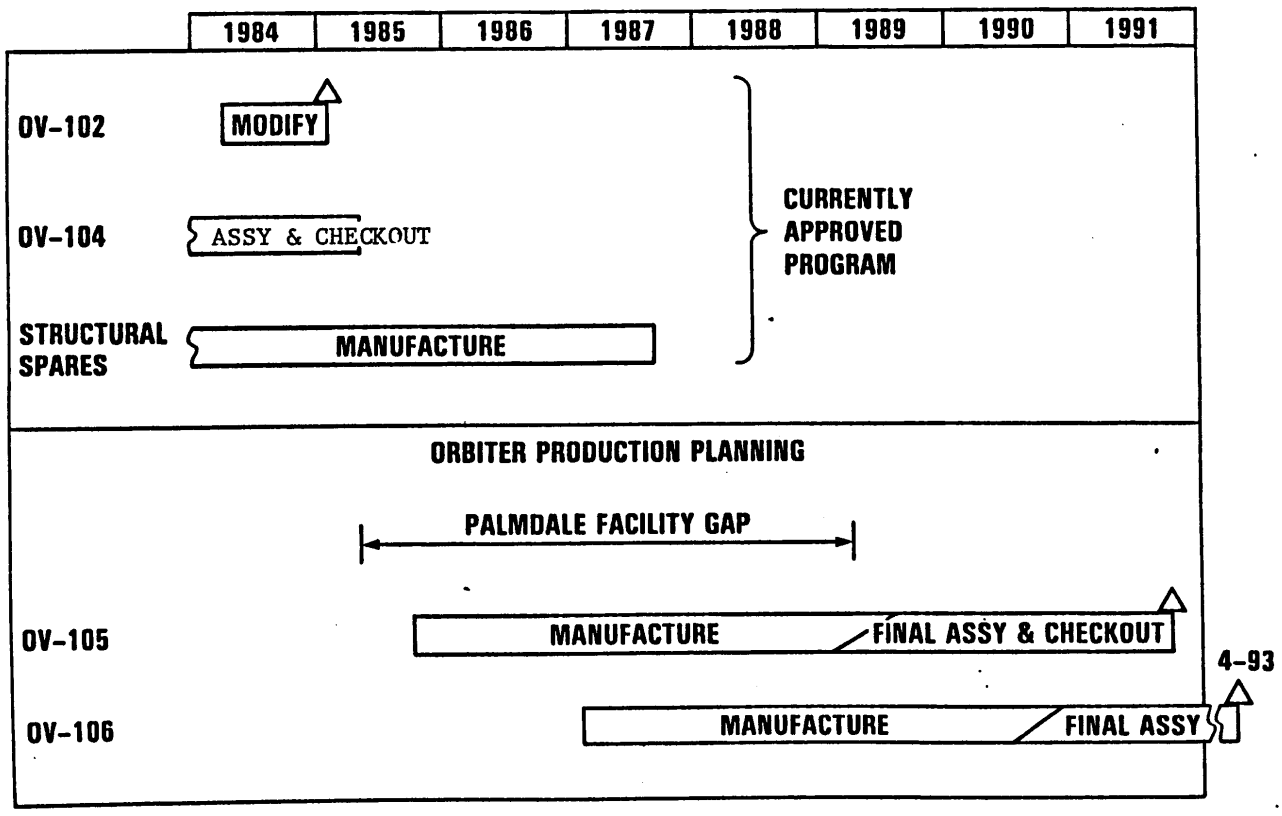
1. COMPLETE SPARES PROGRAM (FY 87)
2. PROCURE ADDITIONAL SPARES (EXTEND BEYOND 87)
3. COMPLETE STRUCTURAL SPARES INTO SUBASSEMBLIES
4. PROCURE ADDITIONAL ORBITER(S)

RECOMMENDATION:

- STRONGLY SUPPORT A NASA PLAN FOR CONTINUATION OF STRUCTURAL SPARES PROGRAM (BEYOND 87). CONTINUE TO EVALUATE NEED FOR ADDITIONAL ORBITERS.
  -- NOT PRUDENT TO ALLOW LOSS OF ORBITER PRODUCTION CAPABILITY
  -- ALLOWS FOR ADDITIONAL TIME TO ASSESS FUTURE MISSION MODEL, OPERATIONAL CAPABILITIES, AND ALTERNATE VEHICLE PROGRAMS

STS MASTER PLAN

ORBITER PRODUCTION



ISSUES

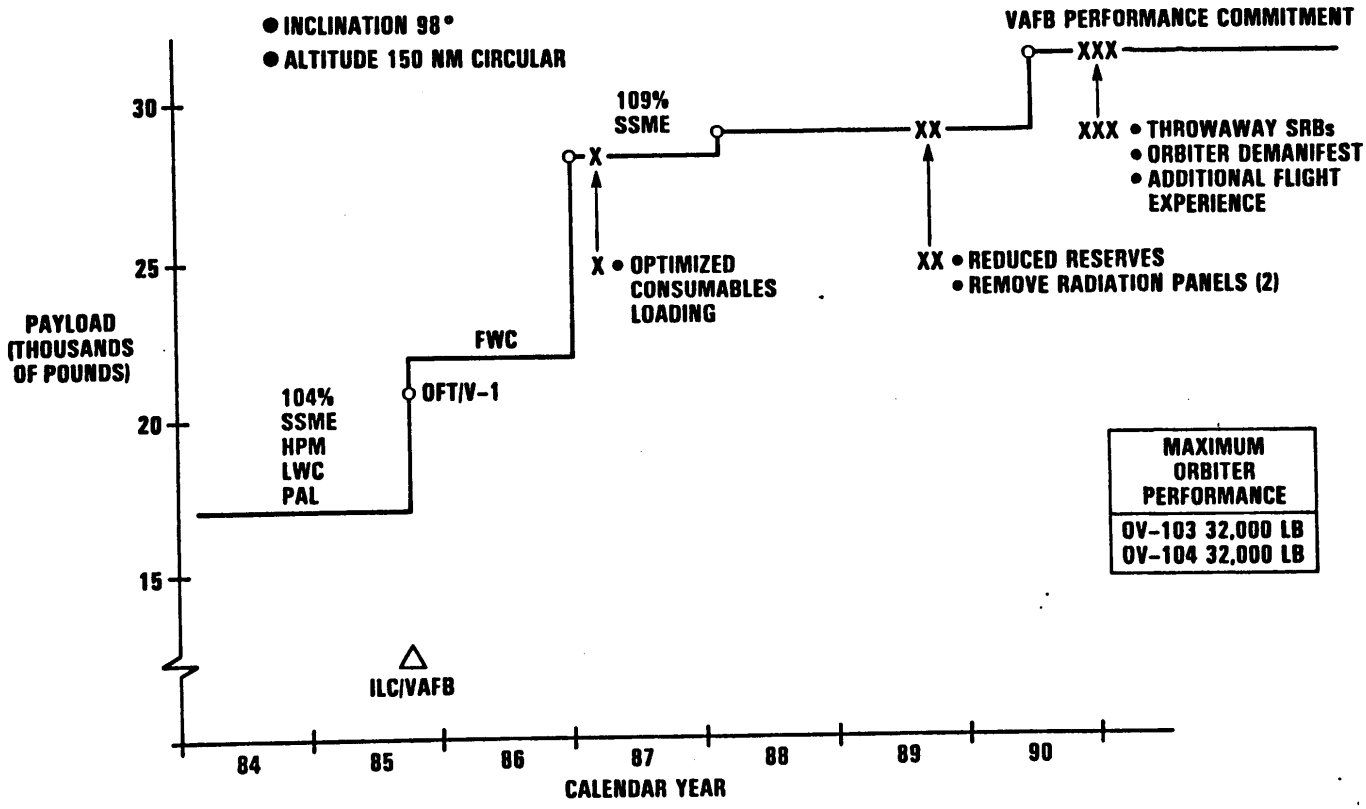
STS BASELINE OPERATIONS PLAN

SYSTEM PERFORMANCE CAPABILITY

ISSUE	CAPABILITY	DOD REQUIREMENT	COMMENT
PAYLOAD LIFT CAPABILITY - MISSION 4 REQUIREMENT - 32,000	WITH FILAMENT WOUND CASES AND 109% SSME - MISSION 4 28,000 - MISSION 4Y - 32,000	SEE CLASSIFIED CHART	- NASA COMMITS IN BASELINE PLAN TO LIFT CAPABILITY GOAL TO SATISFY MISSION REQUIREMENTS CURRENTLY PLANNED THRU 1990 - EXPERIENCE SHOWS NASA HAS BEEN OPTIMISTIC IN PERFORMANCE PROJECTION
CROSSRANGE/ NON-CONUS ABORT SITES	800 NM CROSS-RANGE	RETURN TO VAFB ON ABORT ONCE AROUND ~ 1100 NM	- LOW PROBABILITY OF ABORT - ALTERNATE ABORT SITES: -- HICKAM AFB (HAWAII) -- HAO (SOUTH PACIFIC) -- EASTER ISLAND (CHILE) - ALTERNATE SITES ADD WEATHER CONSTRAINTS - NON-CONUS SITES CREATE SECURITY EXPOSURE - COMPLIANCE INVOLVES MAJOR R&D PLUS ORBITER THERMAL MODS ($100M+ AND WEIGHT)
CONTAMINATION	NASA SPEC SN-C-005A	MEET NASA SPEC	- NASA CANNOT GUARANTEE THEY CAN MEET SPEC; BEST EFFORT - CONTINUE PREFLIGHT MEASUREMENTS AND CLEANING, AND ON-ORBIT MEASUREMENTS PLANS. - IMPACT COULD INVOLVE PAYLOAD SHROUDS AND/OR OPERATIONAL CONSTRAINTS

STS MASTER PLAN

VAFB PAYLOAD CAPABILITY (3,000-LB MANAGER'S RESERVE WITHHELD)



SYSTEM PERFORMANCE CAPABILITY (CONTINUED)

RECOMMENDATION:

- PAYLOAD LIFT CAPABILITY
  - -- NASA CONTINUE PERFORMANCE IMPROVEMENT TO COMPLY WITH BASELINE PLAN AND MISSION REQUIREMENTS. REFLECTS DOD CONCERN THAT 109% SSME, FWC, DEMANIFESTING AND EXPERIENCE WILL NOT RESULT IN ACHIEVEMENT OF GOAL. NASA SHOULD PROVIDE PLAN AND FUNDING WHICH ADDRESSES ADDITIONAL OPTIONS.
- CROSSRANGE/ABORT
  - -- NASA: IMPROVE CROSSRANGE TO CURRENT DESIGN LIMIT THROUGH FLIGHT EXPERIENCE AND ANALYSIS. INCREASED PERFORMANCE WILL DECREASE NON-CONUS ABORT EXPOSURE
  - -- DOD: EXTENSION OF CROSSRANGE WILL NOT COMPLETELY ALLEVIATE NON-CONUS ABORT EXPOSURE. ACCEPT FACT THAT CREW SAFETY PRIORITY COULD CREATE PAYLOAD SECURITY THREAT AT NON-CONUS SITES.
- CONTINUE ACTION TO BETTER DEFINE AND IMPROVE ORBITER BAY CONTAMINATION ENVIRONMENT (CONTAMINATION WORKING GROUP)

STS MASTER PLAN

ISSUES

STS BASELINE OPERATIONS PLAN

ORBITER/CARGO TRANSPORTATION CAPABILITIES

ISSUES	NECESSARY ACTION	ACTION AGENCY
- ORBITER/CARGO FERRY FROM OVERSEAS	REQUIRES REFUELING ON SHUTTLE CARRIER AIRCRAFT (SCA)	- NASA ACTION (UNDERWAY)
- BACKUP SCA	REQUIRES SECOND 747 BE DESIGNATED OR PROCURED AND MODIFIED	- NASA (AF CONTINUE INVESTIGATION INTO AVAILABILITY OF AIR FORCE 747)
- OUTSIZED AIRBORNE CARGO TRANSPORTATION	DEVELOPMENT AND APPROVAL OF PLAN	- NASA & AIR FORCE (AIR STAFF C-5, C-17 QUESTION UNDER STUDY)

RECOMMENDATIONS:

- NASA INSTALL REFUELING CAPABILITY IN SCA ($4M)
- AIR FORCE ASSESS CRAF-747 AVAILABILITY (IN WORK)
- NASA PROCURE ($35M) AND/OR MODIFY ($30M) SECOND 747 AS BACKUP SCA
- AIR FORCE PURSUE OUTSIZE AIRBORNE CARGO TRANSPORTATION PLAN ($85M)
  - -- IN WORK (NOT EARLIER THAN FY 86 START)

AGENDA

- REVIEW BACKGROUND
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- SUMMARY

STS MASTER PLAN - TASK II

SPACE SHUTTLE MANAGEMENT STUDY

STATUS

- STUDY IN FINAL EDITING
- CONGRESSIONALLY DIRECTED NASA STUDY (GUNN) ASKS FOR MILESTONES FOR NASA "FENCED" OPS ORGANIZATION
- BEGGS STRATEGIC PLANNING STUDY (SMYLIE) INVESTIGATING LONG RANGE OPTIONS (DIVESTITURE)

CONCLUSIONS

- NASA-LED (STATUS QUO) SHUTTLE MANAGEMENT IS PREFERRED
  - -- STS NOT OPERATIONAL
  - -- ENGINEERING, R&D TO BE DONE
- OTHER OPTIONS
  - -- SEPARATE OPERATING ORGANIZATION WITHIN NASA
    - --- EXPERTISE, OPERATIONALLY ORIENTED , MORE "USER FRIENDLY"
    - --- ENGINEERING OF REQUIRED IMPROVEMENTS MAY NOT BE COMPLETED
    - --- FUTURE MANAGEMENT OPTIONS MAY BE PRECLUDED
  - -- DOD SOLE MANAGER
    - --- RESOURCE PROBLEMS; CAPABILITY?; FOREIGN/COMMERCIAL USERS CONCERNS AND VICE VERSA
  - -- OTHER GOVERNMENT AGENCY
    - --- LACK OF EXPERIENCE, MANPOWER, EXPERTISE IS A CONCERN
    - --- MAJOR TRANSITION

RECOMMENDATION

- NASA LED (JOINT NASA/DOD) IS RECOMMENDED (STATUS QUO)
- NASA OPERATIONS ORGANIZATION IS ACCEPTABLE WITH
  - -- DOD MANAGEMENT PARTICIPATION
  - -- SPECIFIC COMMITMENTS TO COMPLETE REQUIRED SHUTTLE SYSTEM ENHANCEMENTS

AGENDA

- REVIEW BACKGROUND
- REVIEW STATUS
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NASA/DOD SPACE TRANSPORTATION SYSTEM MASTER PLAN

RECOMMENDATIONS SUMMARY

- BASELINE OPERATIONS PLAN WILL BE SENT TO AACB WITH FOLLOWING DSOC POSITION
  - -- ORBITER PRODUCTION: NASA MAINTAIN ORBITER PRODUCTION CAPABILITY
  - -- PAYLOAD LIFT CAPABILITY: NASA PROVIDE SPECIFIC PERFORMANCE ENHANCEMENTS TO MEET BASELINE OPERATIONS PLAN AND MISSION SPECIFIC COMMITMENTS
  - -- CROSSRANGE/NON CONUS ABORTS: NASA IMPROVE CAPABILITIES TO REDUCE EXPOSURE TO NON-CONUS LANDINGS
  - -- CONTINUE JOINT PLANNING FOR
    - --- ORBITER/CARGO TRANSPORTATION CAPABILITY
    - --- ORBITER BAY CONTAMINATION RESOLUTION
    - --- GPS NAVIGATION CAPABILITY
- SHUTTLE MANAGEMENT RECOMMENDATION
  - -- MAINTAIN STATUS QUO - NASA LED JOINT PROGRAM
    - --- PARTICIPATE WITH NASA IN FUTURE MANAGEMENT PLANNING

BACKUP CHARTS

ISSUES

STS BASELINE OPERATIONS PLAN

PAYLOAD MISSION FLEXIBILITY CAPABILITIES

ISSUE	SHUTTLE SYSTEM CAPABILITY	DOD REQUIREMENT	COMMENT
NAVIGATION ACCURACY	1000'-ALL AXIS	45'-ALL AXIS WITH GPS	- GPS WILL MEET REQUIREMENT - NASA/AF PLAN FOR JOINT IMPLEMENTATION OF GPS CAPABILITY (FY 87 BUDGET $30-40M)
REDUNDANT PAYLOAD SERVICES - Ku BAND ANTENNA CONTROL - PAYLOAD DATA SYSTEM (PDI) - MANIPULATOR ARM (RMS)	NO REDUNDANCY	REDUNDANCY IN MISSION CRITICAL SYSTEMS	- AF PAYLOADS RELUCTANT TO USE SERVICES - REDUNDANT ANTENNA CONTROLLER OR MECHANICAL STOPS NECESSARY - REDUNDANT PAYLOAD DATA SYSTEM, MORE RELIABILITY IN ARM NEEDED - COSTS HIGH: PDI (40 POUNDS $2M); RMS (900 POUNDS, $20M)
EXTRA VEHICULAR ACTIVITY (EVA) PROVISIONS			
- IMMEDIATE EVA	MINIMUM SEVERAL HOURS	NO CURRENT REQUIREMENT	- ACCEPTABLE CONSTRAINT
- CARGO BAY ENVELOPE	56 FT TO 60 FT	60 FT	- REQUIRES CONTINUED MISSION-BY-MISSION COORDINATION

RECOMMENDATION:

- NASA/DOD AGREE ON EFFECTIVITY OF GPS
- NASA/DOD EVALUATE ON MISSION-BY-MISSION BASIS, COST AND WEIGHT TRADES OF REDUNDANT SYSTEMS
- A(

ISSUES

STS BASELINE OPERATIONS PLAN

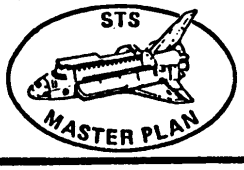
NATIONAL SECURITY/CRISIS CONSTRAINTS

ISSUE	SHUTTLE SYSTEM SPECIFICATION	CAPABILITY	COMMENT
LANDING WEATHER CONSTRAINTS AND AUTOLAND	NONE	NO PRECIPITATION 15,000 FT CEILING 7 MILE VISIBILITY 8 KNOT CROSSWIND	- RTLS & EOM* ALTERNATE LANDING SITES PLANNED - AUTOLAND DEMO ON STS 51-E (FEB 85)
ORBITER AUTONOMY	NONE	TACAN FOR NAV AND DEORBIT TARGETING UNTIL 1992	- GPS PLANNED - ORBITER COMPUTER UPGRADE APPROVED
LAUNCH FROM STANDBY	WITHIN 2 HRS	6.5 HRS (KSC) 4.5 HRS (VAFB)	- ACCEPTABLE CONSTRAINTS
ORBITER TURN-AROUND TIME	14 DAYS BETWEEN FLIGHTS	28 DAYS IS GOAL	- ACCEPTABLE CONSTRAINT (DOD HAS PRIORITY)

RECOMMENDATION

ACCEPT FACT THAT STS WILL NOT MEET TRADITIONAL MILITARY SYSTEMS REQUIREMENTS (ALL WEATHER, RAPID DEPLOYMENT, SURVIVABILITY, ETC.)

*RETURN TO LAUNCH SITE AND END OF MISSION



ISSUES

STS BASELINE OPERATIONS PLAN

NON-CONTROVERSIAL CAPABILITIES SHORTFALLS

ISSUE	SPECIFICATION SHUTTLE SYSTEM	CAPABILITY	COMMENT
MISSION DURATION	30 DAYS	10-12 DAYS	DOD REQ'T IS 7 DAYS + 2 DAYS CONTINGENCY
RESCUE CAPABILITY	SUITS & PERSONAL RESCUE SYSTEM	NONE	NO DOD REQUIREMENT
DOCKING MODULE	INTERNATIONAL REQUIREMENT FOR RENDEZVOUS & DOCKING CAPABILITY	NONE	NO DOD REQUIREMENT
OPERATING LIFE	10 YEARS, 500 USES	CERTIFIED TO 100 USES	SATIFIES PROJECTED 20-YEAR MISSION MODEL
ADDITIONAL PROPELLANT	ORBITAL MANEUVERING SYSTEM (OMS) KITS	NONE	NO DOD REQUIREMENT

RECOMMENDATION

CONCUR WITH NASA POSITION TO CHANGE REQUIREMENTS SPECIFICATION TO BE CONSISTENT WITH CAPABILITY

ISSUES

STS BASELINE OPERATIONS PLAN

INFORMATION ITEMS

ISSUE	COMMENT
DOD SECURITY COSTS	- NON-SECURITY CHANGES TO SECURITY SYSTEMS - IN WORK BY NASA AND SYSTEMS COMMAND
OIL LEASE OFF VANDENBERG COAST	- COULD LIMIT LAUNCH AZIMUTH - SENSITIVE "POLITICAL" ISSUE
FUTURE FLIGHT CHARGES	- IAW REIMBURSEMENT MOA NEW PRICE DETAILED IN 1985 - EXPECT $63-100M PRICE (FY 84 $)

RECOMMENDATION

CONTINUE WORKING THESE ITEMS SEPARATELY

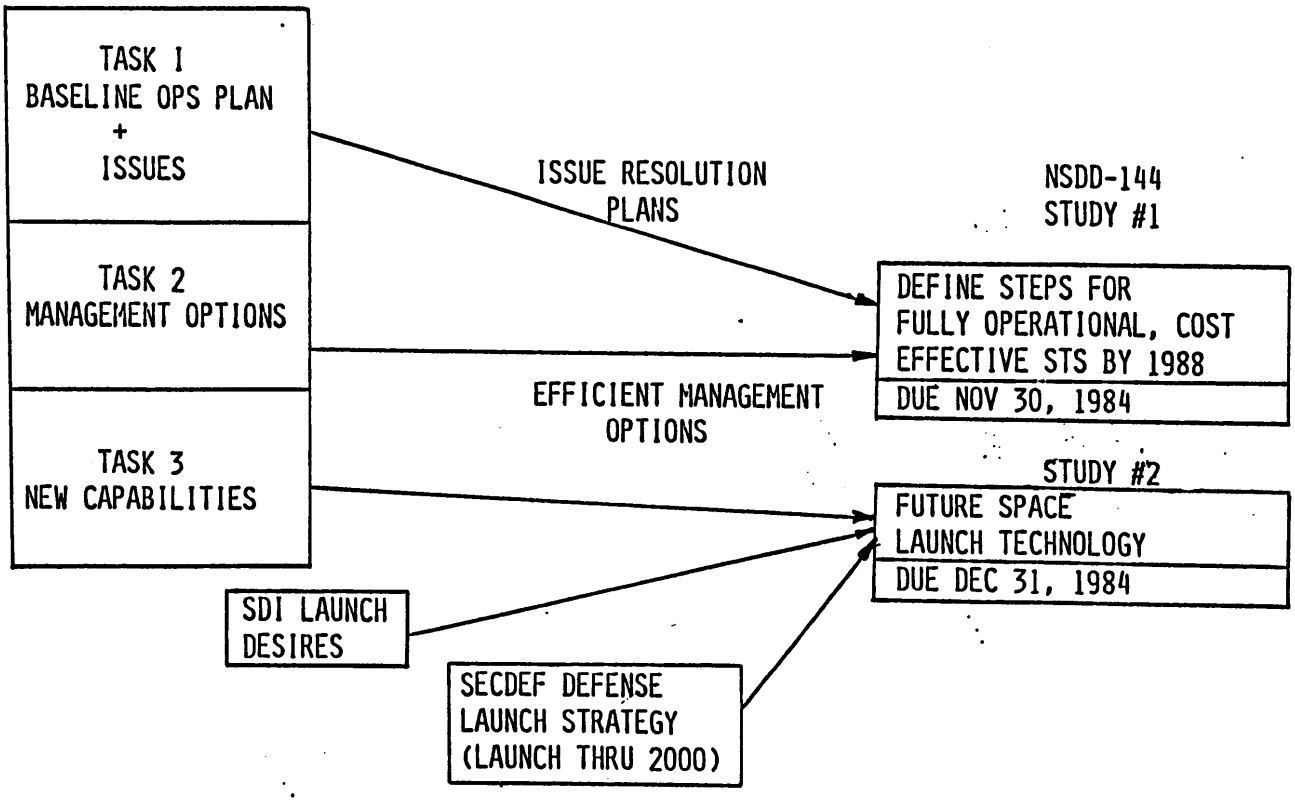
IMPORTANCE OF ACTIVITY

- TASK 1 AND TASK 2 STUDY RESULTS TO AACB
- DEVELOP DOD POSITION ON TASK 1 AND TASK 2 ISSUES
- RELATION TO NSDD-144 TASKS
  - -- DEFINE FULLY OPERATIONAL AND COST EFFECTIVE SHUTTLE SYSTEM
  - -- ASSESS FUTURE LAUNCH TECHNOLOGIES

STS MASTER PLAN

AACB TASKING

RELATIONSHIP TO NSDD-144 STUDIES



TASK 1 - STS BASELINE OPERATIONS PLAN

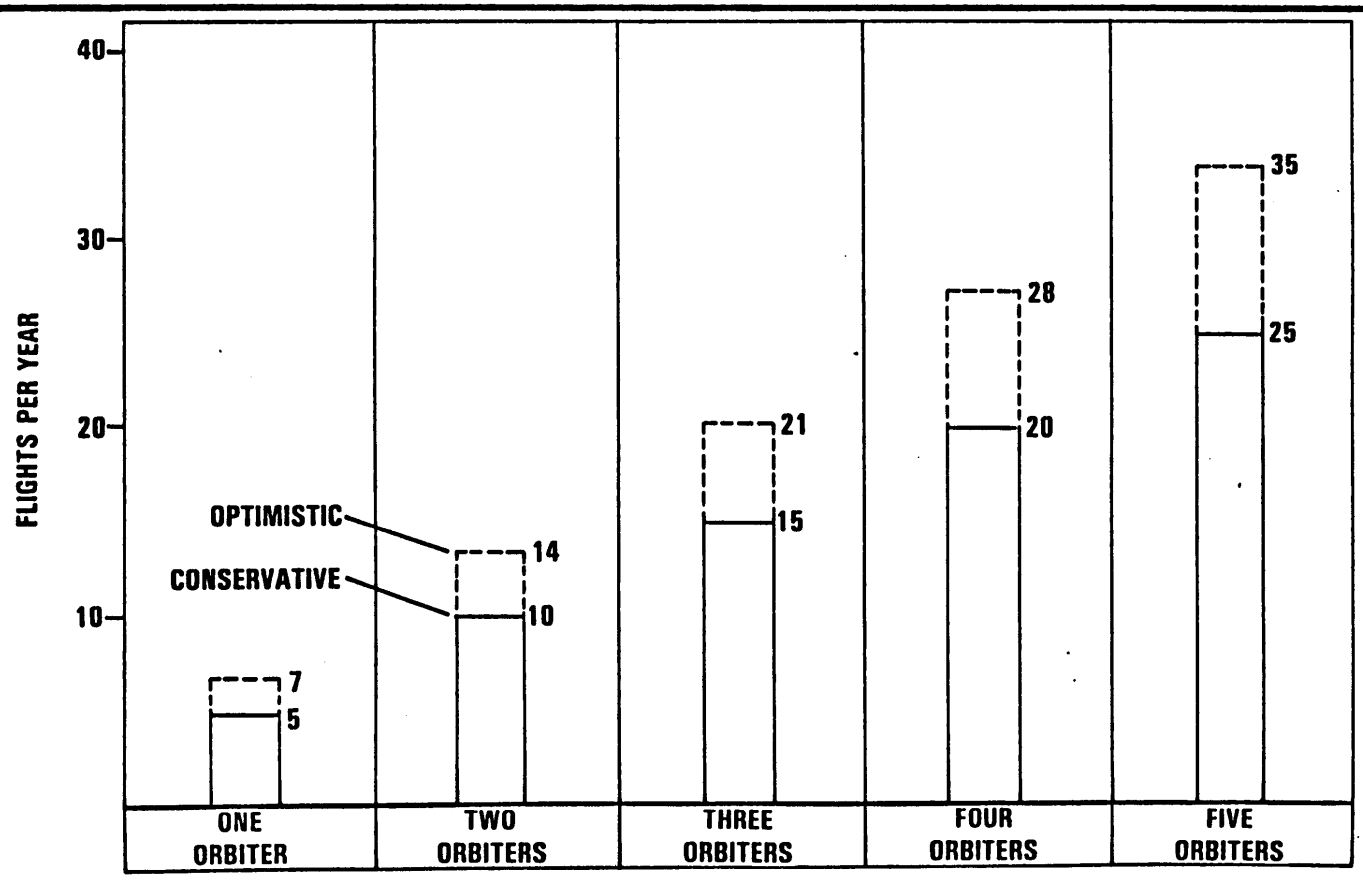
- DEVELOPED STS BASELINE OPERATIONS PLAN WITH NASA
- ASSESSED ISSUES
- WORKING WITH NASA TO RESOLVE ISSUES
- CLASSIFIED ANNEX UNDER DEVELOPMENT
  - -- VULNERABILITIES OF STS
  - -- CONTINGENCY RECOVERY OPTIONS

REQUIREMENTS SHORTFALLS

ITEM	REQUIREMENT	SHORTFALL	REMARKS
PERFORMANCE REFERENCE MISSION	32,000 LB TO 98° INCLINATION AND 150 NM CIRCULAR FROM VAFB	CURRENT CAPABILITY 22,000 LB WITH FILAMENT WOUND CASES AND 104% SSME POWER LEVEL	NASA COMMITS TO 32,000-LB CAPABILITY IN EARLY 1990 109% SSME/FWC PROVIDES 28,000-LB CAPABILITY
CROSSRANGE	RETURN TO LAUNCH SITE AFTER ABORT-ONCE-AROUND (AOA)	APPROXIMATELY 1,100 NM CROSSRANGE REQUIRED FOR AOA RETURN TO VLS; ORBITER EXTRAPOLATED SAFE CROSSRANGE APPROXIMATELY 870 NM	NASA PROPOSES TO MEET AF REQUIREMENTS THROUGH COMBINATION OF TPL AND AOA SITES; NO ADDITIONAL CROSSRANGE DEVELOPMENT PLANNED
MISSION DURATION	ORBITER DESIGN SHALL NOT PRECLUDE CAPABILITY TO EXTEND ORBITAL STAY TIME UP TO A TOTAL OF 30 DAYS BY ADDING EXPENDABLES	CURRENT MAXIMUM ON-ORBIT STAY TIME IS APPROXIMATELY 10-12 DAYS	NO PLANS TO MEET 30-DAY ON-ORBIT STAY TIME; SUBSTANTIAL EFFORT WOULD BE REQUIRED (ESPECIALLY IN POWER CAPABILITY AND ORBITER SYSTEMS IMPROVEMENTS); NO MISSION REQUIREMENTS FOR 30-DAY STAY TIME
OPERATING LIFE	ORBITER CAPABLE OF 10 YEARS USE AND 500 REUSES	CERTIFICATION BASED ON 100 REUSES	MEETS MANIFEST REQUIREMENTS; NO PLANS FOR CERTIFICATION BEYOND 100 REUSES
ORBITAL MANEUVERING SYSTEMS (OMS)	INCORPORATE PROVISIONS FOR ADDITIONAL TANKAGE TO PROVIDE IN THREE DELTA V INCREMENTS OF 500 FT/SEC FOR AN OVERALL DELTA V OF 2,500 FT/SEC; TANKAGE AND PROPELLANTS WILL BE LOCATED IN PAYLOAD BAY	OMS PAYLOAD BAY KIT (PBK) DELETED FROM PROGRAM	DIRECT INSERTION TECHNIQUE USED, NEGATING NEED FOR OMS PBK; KNOWN PAYLOAD REQUIREMENTS ARE MET WITH THIS TECHNIQUE

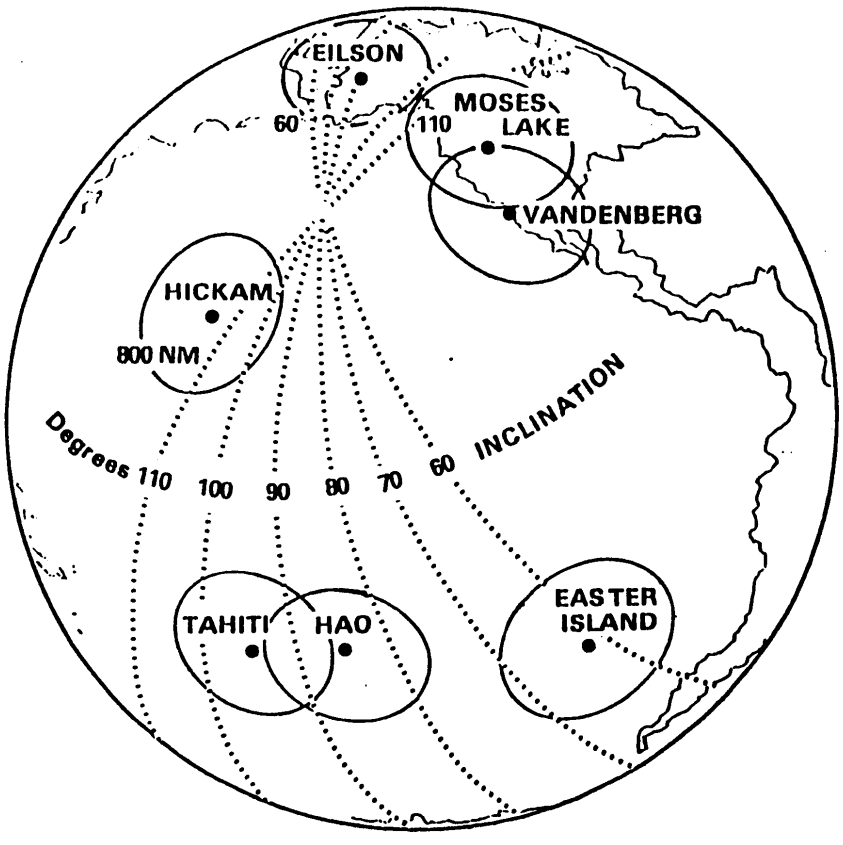
STS MASTER PLAN

ORBITER LAUNCH-RATE CAPABILITY

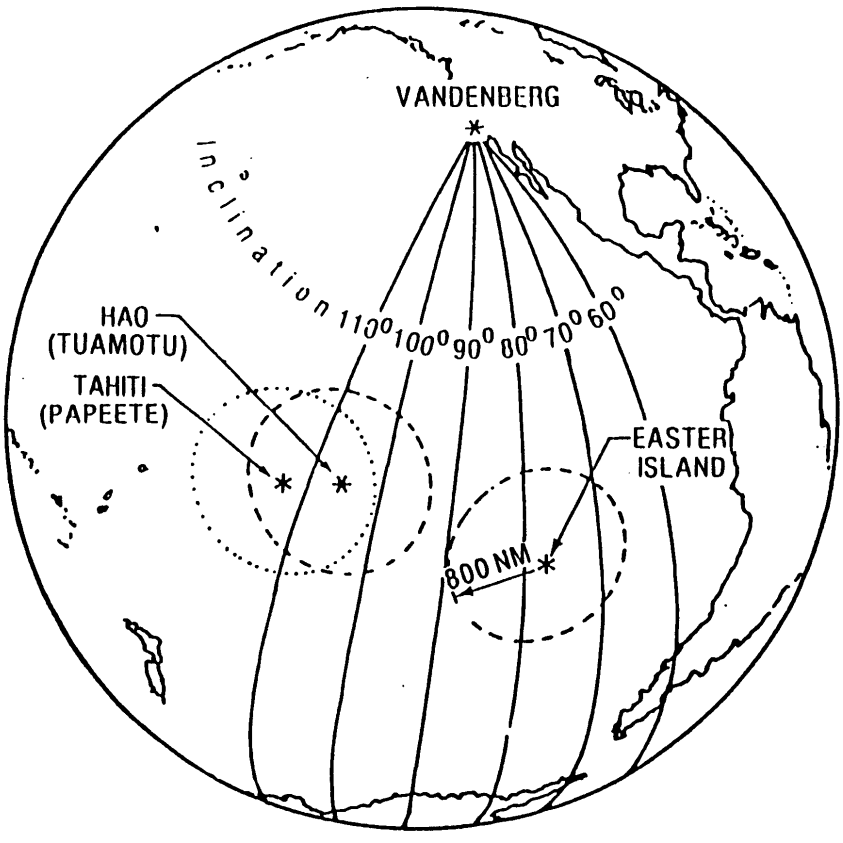


STS MASTER PLAN

VAFB AOA GROUNDTRACKS

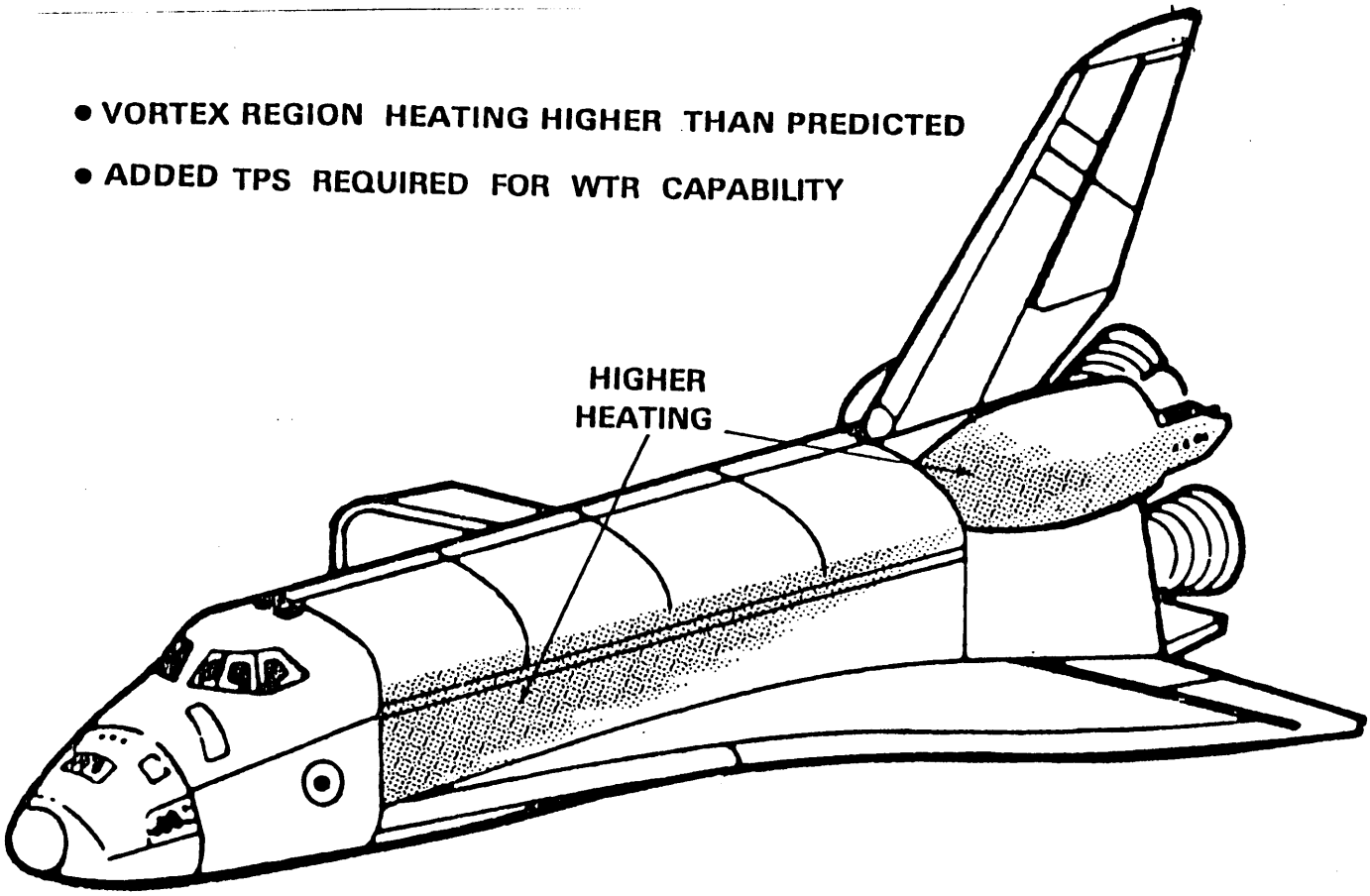


VAFB PAL GROUNDTRACKS



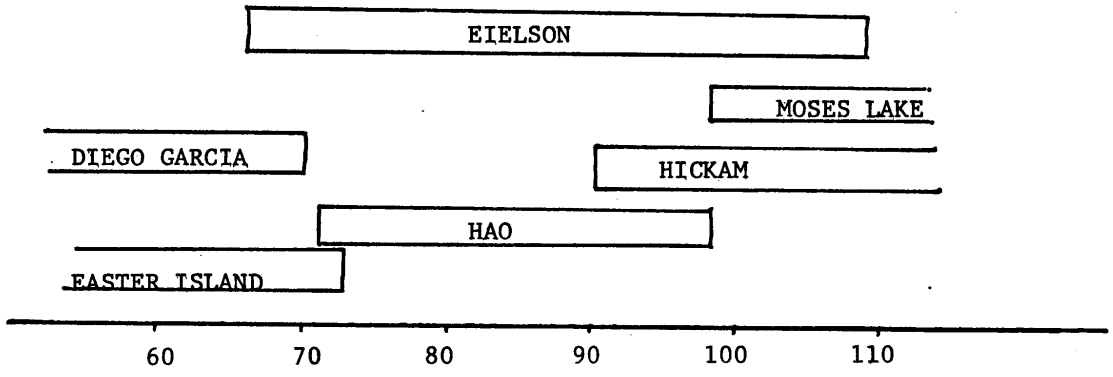
STS MASTER PLAN

- VORTEX REGION HEATING HIGHER THAN PREDICTED
- ADDED TPS REQUIRED FOR WTR CAPABILITY



STS MASTER PLAN

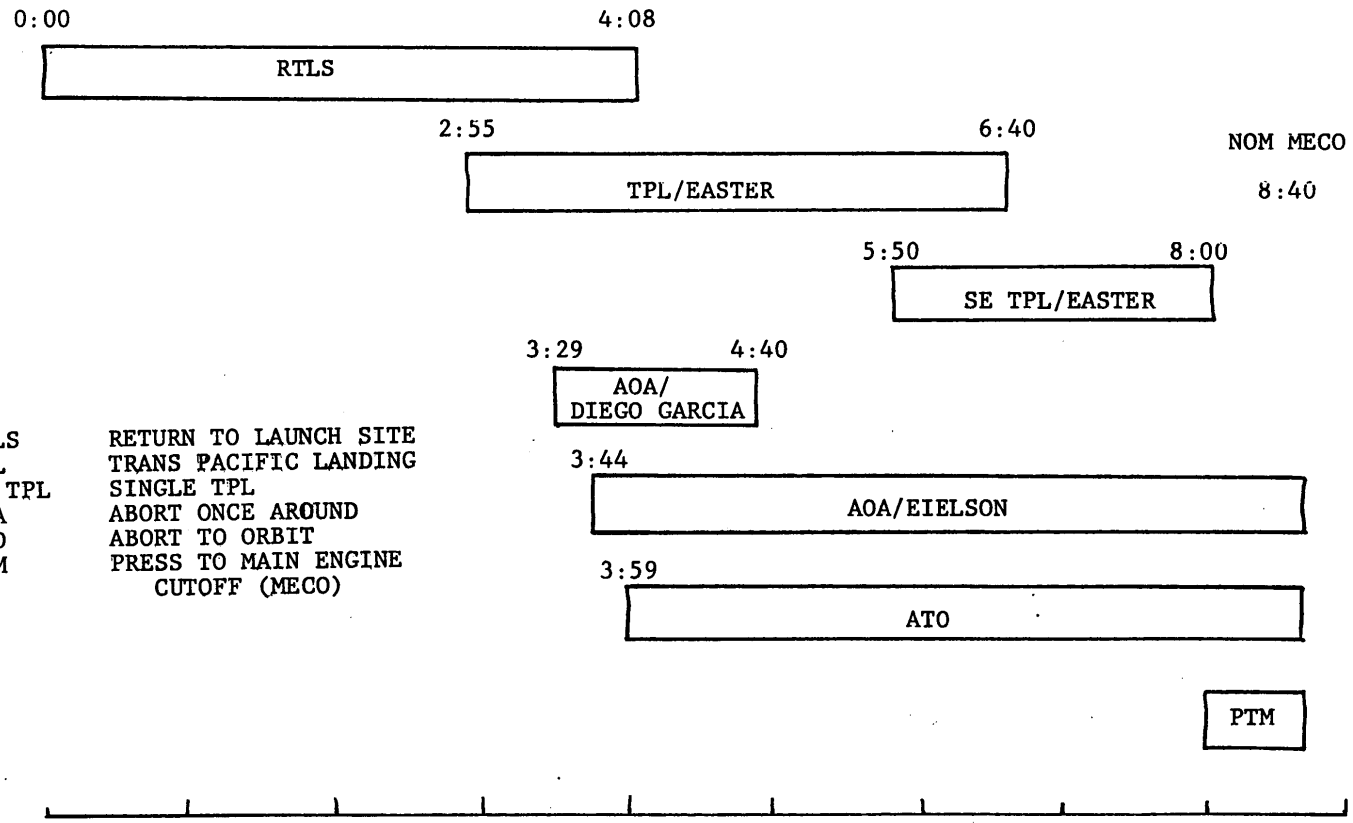
LANDING SITE COVERAGE FOR WTR ABORT ONCE AROUND (AOA)



STS MASTER PLAN

PRELIMINARY ABORT MODE CAPABILITY

72° INCLINATION/ABORT SHAPED

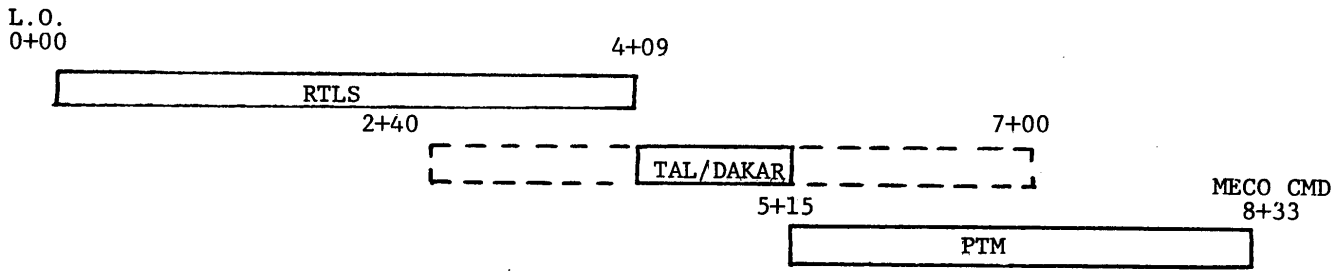


RTLS	RETURN TO LAUNCH SITE
TPL	TRANS PACIFIC LANDING
SE TPL	SINGLE TPL
AOA	ABORT ONCE AROUND
ATO	ABORT TO ORBIT
PTM	PRESS TO MAIN ENGINE CUTOFF (MECO)

STS MASTER PLAN

STS INTACT ABORT CAPABILITY (1 SSME OUT)

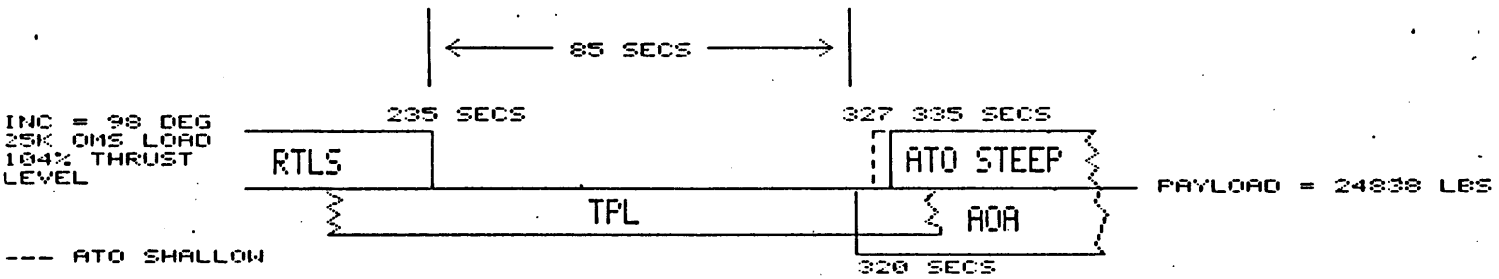
(28.5° INCLINATION)



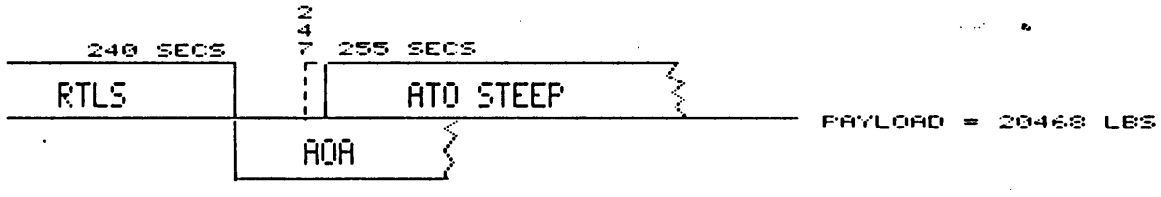
L.O.	LIFTOFF
RTLS	RETURN TO LAUNCH SITE
TAL	TRANS ATLANTIC ABORT
DAKAR	DAKAR, SENEGAL, AFRICA
PTM	PRESS TO MAIN ENGINE CUTOFF (MECO)
	ABORT ONCE ABOUND OR BETTER (ABORT TO ORBIT)

STS MASTER PLAN

WTR ABORT CAPABILITY



ASCENT SHAPED FOR NOMINAL



ASCENT SHAPED FOR ABORTS

STUDY METHODOLOGY

- REVIEW PREVIOUS MANAGEMENT STUDIES
- EVALUATE PREVIOUS STUDIES AND NEW OPTIONS
- PROVIDE CONCLUSIONS AND RECOMMENDATIONS

STUDIES REVIEWED—Continued

STUDY	NASA ONLY A	NASA OPNS ORG B	NASA DOD PARTNER C	GOVT COMM'L CORP D	EXISTING GOVT AGENCY E	NEW GOVT AGENCY F	COMM'L CORP SEP DOD G	DOD ONLY H
ORGANIZATION CONCEPT FOR SHUTTLE OPERATIONS JUN 82 BOEING FOR NASA		+				−		−
RETAINING STS OPERATIONS IN NASA—LONGER TERM AUG 82 CONSULTANTS INTERNATIONAL GROUP, INC. FOR NASA		+	−					
A STRATEGY FOR LEADERSHIP IN SPACE MAY 83 J. BEGGS NASA	−		+			−		
STS MANAGEMENT OPTIONS MAY 83 COL J. FOSTER HQ USAF	−		+	−	−	−	−	−

+ = RECOMMENDED CONCEPT − = OTHER OPTIONS CONSIDERED

SUMMARY OF THE CONCLUSIONS OF PREVIOUS STUDIES

- ALL STUDIES RECOMMENDED ONE OF FOLLOWING TWO OPTIONS:
  - —CURRENT NASA/DOD PARTNERSHIP
  - —NASA OPERATIONAL ORGANIZATION(S)
- ALL STUDIES THAT ADDRESSED DOD–MANAGEMENT OPTION RECOMMENDED AGAINST THIS OPTION

OPTION: NASA-LED/DOD PARTNERSHIP (STATUS QUO)

PRO

- CURRENT ARRANGEMENT IS WORKING
- MANAGEMENT STRUCTURE IS IN PLACE (FUNDING, TECHNICAL EXPERTISE, MANPOWER, FACILITIES)
- MAINTAINS NONMILITARY IMAGE TO INTERNATIONAL USERS

CON

- NOT OPERATIONALLY OR USER ORIENTED
- COMPETES WITH NASA RESEARCH AND DEVELOPMENT, SCIENCE/ TECHNOLOGY, AND SPACE STATION PROGRAMS
- DOD HAS LIMITED CONTROL OVER STS POLICY CHANGES NECESSARY FOR ACCEPTANCE BY DOD

CHANGES NECESSARY FOR ACCEPTANCE BY DOD

- NONE—IS ACCEPTABLE NOW; HOWEVER, MANAGEMENT IMPROVEMENT CAN BE MADE

OPTION: NASA OPERATIONS ORGANIZATION

PRO SAME AS STATUS QUO, PLUS:

- **POTENTIAL FOR SIGNIFICANT COST SAVINGS**
- **OPERATIONALLY AND USER ORIENTED**
- **"FENCED" MANPOWER AND BUDGET WILL PROTECT NASA DEVELOPMENT PROGRAMS (SCIENCE/TECH, SPACE STATION)**

CON

- **STS OPERATIONAL REQUIREMENTS MAY NOT CONTINUE TO BE DEVELOPED (IMPROVED SSMEs, FWCs, CROSSRANGE, etc.)**
- **MAY PRECLUDE DOD OPTIONS FOR MANAGEMENT OF FUTURE SPACE LAUNCH SYSTEM DEVELOPMENT AND OPERATION**

CHANGES NECESSARY FOR ACCEPTANCE BY DOD

- **SPECIFIC COMMITMENTS TO COMPLETE DEVELOPMENT OF FULLY OPERATIONAL STS**
- **ASSIGNMENT OF DOD PERSONNEL TO STS OPERATIONS ORGANIZATION SENIOR STAFF**

OPTION: DOD

PRO

- STS WOULD BE RESPONSIVE TO DOD
- MINIMIZES DOD SECURITY PROBLEMS
- CORRECTS MOST PREVIOUSLY IDENTIFIED "CONS"
- BENEFITS FROM DOD OPS AND LOGISTICS EXPERIENCE

CON

- SIGNIFICANT MANPOWER AND BUDGET IMPACTS
- IMAGE OF MILITARIZING STS
- DOD REQUIRED TO PROVIDE SERVICES TO COMMERCIAL AND FOREIGN USERS
- DOD REQUIRED TO COMPETE WITH COMMERCIAL ELV INDUSTRY
- DOD STS FLIGHT OPS EXPERTISE AND CAPABILITIES HIGHLY QUESTIONABLE

CHANGES NECESSARY FOR ACCEPTANCE BY DOD

- TOO MANY SIGNIFICANT DISADVANTAGES
- STEPS TOWARD ACCEPTANCE
  - —STS VANDENBERG GROUND OPS EXPERIENCE
  - —CONSOLIDATION OF FLIGHT OPERATIONS
  - —FENCE BUDGET AT OSD LEVEL
  - —INCREASE MANPOWER CEILINGS FOR AIR FORCE

CONCLUSIONS

- PREVIOUS STUDIES COVERED EXTENSIVE RANGE OF OPTIONS
- MOST OF PREVIOUS WORK STILL VALID
- EVALUATION ASSESSMENT
  - —DOD SHOULD NOT BE SOLE MANAGER OF STS
    - IMPACT ON DOD RESOURCES
    - HANDLING OF FOREIGN/COMMERCIAL USERS
    - INABILITY TO DUPLICATE JSC CAPABILITY
  - —NASA-LED SHUTTLE MANAGEMENT IS PREFERRED MANAGEMENT STRUCTURE (STATUS QUO)
    - STS NOT OPERATIONAL
    - MUCH ENGINEERING, R&D NEEDS TO BE COMPLETED PRIOR TO MAJOR CHANGE
    - CONCERN OVER FUTURE ROLE OF THIS ORGANIZATION WITH RESPECT TO FUTURE DOD SPACE LAUNCH CAPABILITIES
  - —SEPARATE OPERATING ORGANIZATION WITHIN NASA MAY BE ACCEPTABLE MANAGEMENT STRUCTURE FOR FUTURE
    - NASA EXPERTISE
    - MOVE TOWARD OPERATIONS
    - BECOME MORE "USER FRIENDLY"
  - —OPERATION BY ANOTHER GOVERNMENT AGENCY CONDITIONALLY ACCEPTABLE
    - DOD CONCURS WITH ORGANIZATION
    - MEET CURRENT DOD REQUIREMENTS
    - DOD PRIORITY HONORED

CONCLUSIONS—Continued

- CURRENT ENVIRONMENT QUICKLY MOVING TOWARD MAJOR DECISIONS
  - —FULL OPERATION IN 1988
  - —FULL COST REIMBURSEMENT IN 1988
  - —CONGRESSIONALLY-DIRECTED STUDY UNDERWAY BY NASA
- SOLUTION DICTATED: NASA FENCED OPS ORGANIZATION
- DOD MUST WORK WITH NASA MANAGEMENT
  - —PROTECT DOD INTERESTS IN STS
  - —GUIDE/CONCUR IN STS ORGANIZATIONAL DECISION
  - —MAINTAIN MANAGEMENT OPTIONS FOR FUTURE SYSTEMS