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Office of the Deputy Under Secretary of Defense
Installations

BRAC
Knowledge Base

BRAC 1995

Joint Cross Service-Group For

Labs

Vol. 2 of 2

Meeting Minutes

July 28 through Dec. 14, 1994

BRAC Knowledge Base No.

RD957

CLOSE HOLD

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C 148 - 2 (Vol. II)

BRAC 95
Joint Cross-Service Group on Laboratories

VOLUME 2

Office of the Deputy Assistant Secretary of Defense
(Economic Reinvestment and Base Realignment and Closure)

Base Closure and Utilization
Room 3D814
(703) 697-8048/8050

CLOSE HOLD

BRAC 95
JOINT CROSS-SERVICE GROUP ON LABORATORIES
VOLUME 2

A Meeting Minutes - Jul 28, 1994
B Meeting Minutes - Sep 15, 1994
C Meeting Minutes - Oct 3, 1994
D Meeting Minutes - Oct 5, 1994
E Meeting Minutes - Oct 17 & 18, 1994
F Meeting Minutes - Oct 20, 1994
G Meeting Minutes - Nov 1, 1994
H Meeting Minutes - Nov 21, 1994
I Meeting Minutes - Dec 12, 1994
J Meeting Minutes - Dec 13, 1994
K Meeting Minutes - Dec 14, 1994
L Meeting Minutes -
M Meeting Minutes -
N Meeting Minutes -
O Meeting Minutes -
P Meeting Minutes -
Q Meeting Minutes -

A

BRAC 95

Joint Cross-Service Group on Laboratories

Thursday, July 28, 1994, 1430

Minutes

Attendance list is attached. * indicates Chair.

1. The group reviewed and approved the analysis plan developed by the sub-group. Briefing slides and a copy of the plan are attached.

2. The group addressed the issue of the role of the OSD staff that are members of the LJCSG in scoring data, and developing alternatives. The data will be scored by the tri-service workgroup. The OSD members of the LJCSG will review the process. Alternatives are generated from the model optimization runs. Any member may suggest scenarios such as "examine performing all work in function-x at a maximum of y locations" where x is a specific CSF or life cycle within a CSF and y is some number.

Approved: _____
Craig E. Dorman
Acting Chairman

Attachments

BRAC 95

Joint Cross-Service Group on Laboratories

Thursday, July 28, 1994, 1430

List of Attendees

* Dr. Craig Dorman, Acting Chairman
LTC Dan Thomas, SARD-ZT
Mr. John Trick, Navy BSAT
Cdr Scot Evans, Navy BSAT
Mr. Jim Mattice, SAF/AQ
Mr. Matt Meziva, Air Force
LTC Dana Spears, Air Force
CPT Michele A. Lehmkuhl, Air Force
Mr. Thomas Frysinger, Air Force
Mr. Bill Rustia, OSD (DOT&E)
Mr. Hal Henry, C3I
Mr. Wayne K Nillion, DoDIG
Mr. Paul J. Graneito, DoDIG
Mr. Don Bortner, COMPT
COL Tom Sheehan, AFRRI
MAJ Robin Pope, OSD (DR&E)

LABORATORY

JOINT CROSS-SERVICE GROUP (LJCSG)

ANALYSIS PLAN

DATE: 7/27/94

APPROVED: Anita Jones

Anita K. Jones
Chair, LJCSG

Laboratory Joint Cross-Service Group Analysis Plan

INTRODUCTION

The Laboratory Joint Cross-Service Group (LJCSG) Analysis Plan provides a detailed description of the methodologies, inputs, specifications, and assumptions which will be utilized to generate reasonable, feasible, and reproducible sets of alternatives for the Military Departments consideration. It incorporates guidance provided by the Steering group on the use of an Optimization Model (Joint Cross-Service Analysis Tool) and the LJCSG process (Appendix A) reflects the general analysis process as agreed to by the Steering Group . As directed, adjustments to the general process were accomplished to tailor the analysis to the specific Laboratory Joint Cross-Service Data Call data elements, Measures of Merit and definitions.

The LJCSG will initially calculate a single value for DoD Lab Excess Capacity. As defined in Section 2 of the LJCSG Guidance, the calculation will be the difference between Projected Programmed Workyears and Peak Programmed Workyears across all "lab" Activities.

The first phase of the Joint Cross-Service Analysis process develops the inputs for the Optimization Model. For each Common Support Function (CSF), the LJCSG developed an algorithm for calculating the Functional Value (FV) using defined measures and weights, data, and D-PADS, an automated analysis tool previously used by the Army in BRAC 91 and 93. The FV will be formally transmitted from the LJCSG to the MILDEPs for use at their discretion in their BRAC 95 process. A set of notional data was developed and used to verify the operation of D-PADS. Additionally, methodologies were defined for calculating Functional Capacity (FC) for each CSF, each life cycle phase (LC), at each activity and DoD Functional Requirement (FR) for each CSF and LC. The Functional DoD Requirement and Functional Capacity will be expressed in Workyears, consistent with the definition of capacity in the original LJCSG Guidance. Functional Requirement projections will be developed using actual FY1993 CSF workload adjusted to FY1997. Functional Capacity will be derived from the Actual FY1993 Workyears adjusted by the ratio of peak to current total workload at the activity.

During the second phase of the process, the Optimization Model will be run to develop the initial Cross-Service Alternatives and associated outputs. Several objective functions and constraints will be used to provide a range of alternatives. These output alternatives will then be reviewed for reasonableness and operational feasibility.

In preparation for running the optimization model, the LJCSG identified specific objective

functions, constraints and parameters which were combined with notional data to evaluate the operation of the Optimization Model and to validate the adequacy of the selected objective functions, constraints, and parameters. Policy imperatives were identified as "rules" and were merged with other constraints in developing the optimization formulations. The selected Objective Functions, constraints and parameters are listed in Appendix F.

The final phase will consist of evaluation of the remaining alternatives against BRAC Criteria 5 (COBRA) to develop estimates of eventual cost impacts. These results will be reviewed for reasonableness. Final sets of alternatives will be prepared and forwarded to the MILDEPs for consideration in their BRAC Analyses.

Detailed descriptions of the second and final phase of the process will be provided in subsequent updates to this plan.

ANALYSIS PLAN

The objective of the Laboratory Joint Cross-Service Group (LJCSG) is to develop feasible and reproducible sets of cross-service alternatives to forward to the Military Departments for consideration in their BRAC 95 analysis. Additionally the LJCSG will utilize programmed workyears to calculate a single value for DoD "Lab" excess capacity in accordance with Section 2 of the LJCSG data call guidance of 30 March, 1994.

This plan responds to guidance provided by the BRAC Steering Group and reflects the general analysis process agreed to by the Steering Group. The overall process is illustrated in Appendix A. Adjustments to the general process were accomplished to tailor the analysis to the specific Laboratory Joint Cross Service Data Call data elements, Measures of Merit and definitions.

The following elements of the process are addressed in detail in this plan:

A. Methodology for calculating Functional Value (including definition of Functional Value Measures and Weights, Scoring process, and FV Model)
B. Methodology for calculating Functional Capacity
C. Methodology for calculating DoD Functional Requirement
D. Definition of Optimization Model Specifications and Assumptions (includes objective functions, policy imperatives, constraints, and parameters for the model)

The methodologies (A, B, and C) will be used to calculate inputs to the Optimization Model and the specifications and assumptions (D) will define the specific optimization models as well as the associated output parameters for comparison of the generated alternatives. Evaluation and scoring of the data call responses and the calculation of DoD Functional Requirements, Functional Capacities and Functional Value will be done by a scoring team specifically authorized to support the scoring and evaluation portion of the LJCSG process, in accordance with the guidelines in this plan . Running of the Optimization Model, and the analysis against BRAC Criteria 5 (COBRA) are planned to be accomplished by a Tri-Department BRAC Team. This Team will conduct analysis of the "Lab" data only in accordance with this plan or as directed by the LJCSG.

This Plan must be approved prior to the sharing of cross-service data among Military Departments.

DATA ELEMENT DEFINITION AND COLLECTION

Data for this analysis was collected from a selected set of "laboratory" activities and defined by the "Lab" Joint Cross-Service Guidance Package which was forwarded to the MILDEPs under a memorandum dated 30 Mar 1994 and signed by the Chair, Laboratory Joint Cross-Service Group. This memorandum also defines the Common Support Functions and life cycle phases.

METHODOLOGY FOR CALCULATING FUNCTIONAL VALUE (FV)

Functional Value is a measure of the capability to perform work and the quality of work performed in a specific function at a specific activity. It will be computed by evaluating and scoring the certified cross-service data against the Functional Value Measures and then applying the Functional Value Weights in the Functional Value Model. The Functional Value Model will use D-PADS, a commercially available product used by the Army in BRAC 91 and BRAC 93. D-PADS will be programmed to yield, for each measure, an adjusted score between 1 and 100 for each CSF/Activity combination. Each adjusted score will be multiplied by its associated weight and then all are summed to yield a single Functional Value (between 1 and 100) for each CSF/Activity. The LJCSG will provide Functional Values to the Military Departments for use at their discretion in their BRAC 95 process. The Functional Value Measures are listed in Appendix B. The Functional Value Weights are listed in Appendix C. (Distribution of Appendix C is limited due to the sensitive nature of the Functional Value Weights). Detailed scoring Evaluation Criteria Guidelines are included in Appendix D. A description of the customized D-PADS programming approach is included in Appendix E.

DEFINITION OF FUNCTIONAL VALUE MEASURES

The Functional Value Measures were developed by reviewing the Laboratory Joint Cross-Service Guidance data elements for applicability, comparability, and ability to act as a value discriminator in calculating Functional Value. Measures were developed to limit the amount of subjective evaluation required. Of the data submitted by the MILDEPS, some data will be used in the Functional Value calculation. Other data will be used as either background/context for the development of alternatives or for the "fit check" evaluation of the alternatives proposed. ("Fit check" is a part of the overall process for analyzing operational feasibility of alternatives derived from the optimization model.) The Functional Value Measures are listed in Appendix B.

DEFINITION OF FUNCTIONAL VALUE WEIGHTS

Functional Value Weights were developed by the LJCSG based on recommendations from the LJCSG Working Group. Relative importance was derived by comparing measures to each other and across larger categories, to which several of the measures could be collected. Due to the high sensitivity of the actual values of the weights, they are contained in a limited distribution Annex C to this plan.

SCORING PROCESS

Consistent with the Internal Control Plan, a disciplined and controlled process for scoring and evaluating the data is required to preserve the integrity of the process and control access to the data. The following describes the scoring process:

1. Physical Access:

-Scoring will be done in a common area with privacy (closed rooms) for the LJCSG scoring team.

-Members of the scoring teams will have unrestricted access to all the LJCSG data.

-Access to the scoring facility shall not be limited for members of the scoring teams.

-The scoring team will control access to the data by use of locked containers (e.g. individual safes), and only members of the LJCSG scoring team will be allowed access to the data.

-During the scoring process, no data or working papers will be removed from the scoring workspace without concurrence from all members of the scoring team.

-Logged access to the data is required.

2. Procedures:

-Each MILDEP will provide one hard copy of their data call response for each activity.

-Evaluation Criteria Scoring sheets will be used to record the scoring (Appendix D).

-Data will be scored by teams made up of one member from each MILDEP. One individual from each MILDEP scores each measure. The same scorers will score all responses to a specific measure. In addition, because of the interrelationship of the questions, the same team of scorers will score certain measures (e.g., #5 and #13, 14 with #5 being done first). If there are differences in the scoring , the team discusses the differences until they reach a consensus. The consensus will be reached by (a) discussion and agreement, (b) discussion and adoption of supplemental evaluation guidelines (reviewing and re-scoring, as required, previously evaluated data), or (c) binding decision of the LJCSG Chair or her designated representative. The score sheets will be maintained and controlled with the data call responses. They shall be initialed by each scoring team member when the member completes the evaluation.

-There will be at least two reviews of the data. The first review will be for obvious errors and response trends. This will serve as an indication of the consistency with which activities interpreted the data call questions. If clarifications of the data are required, the parent Military Department will obtain the clarification. The members from all three Military Departments must agree on clarification requests. Requested clarifications will be initially submitted by FAX and be followed up with a fully certified copy. Criteria for requesting data clarification are as follows: (1) Data is not provided by CSF; (2) Data is missing or incomplete; (3) A N/A response was provided; (4) Data is not in the correct format, e.g., wrong units; and (5) other errors or trends are contained which would impact the analysis and are agreed to by all members of the scoring team. The second review will be for scoring . Scoring will be done on clarified data subsequently certified. If, during scoring, further clarifications are required, the clarification procedure described above will be followed.

-Scoring teams may adopt supplemental evaluation guidelines (if required) to be used by a team scoring a specific measure.

-The scoring team will use the Evaluation Criteria Scoring Sheets to convert the certified data provided by the MILDEPS into a form which will be entered into D-PADs.

<u>D-PADS</u>

A scoring approach was developed for each measure. These approaches were then programmed into D-PADS to allow entry of converted data from the evaluation criteria scoring sheets. D-PADS would then calculate the Functional Value for each CSF at each activity. A description of the algorithms for each measure are included in Appendix E.

METHODOLOGY FOR CALCULATING FUNCTIONAL CAPACITY (FC)

Functional Capacity is the measure of an activity's capacity, in workyears, to accomplish work in a specific CSF within a given life cycle phase. This definition assumes that workyears performed in a given Common Support Function change from FY to FY in the same ratio that the total Activity actual workyears change. It further assumes the highest level of workyears performed between FY1986 and FY1993 represents 100% capacity. Therefore 100% capacity equals the total workyears in a life cycle row (summed by type of personnel) from question 3.3.1.1 multiplied by the highest total "Actual Workyears" from FY1986 through FY1993 from question 2.1 divided by the FY1993 total "Actual Workyears" from question 2.1.

$$FC_{csf.lc.acty} = FY1993WY_{csf.lc.acty} \times \left(\frac{PEAKWY_{ACTY}}{FY1993WY_{ACTY}} \right)$$

Where: $FY1993WY_{csf.lc.acty}$ = respective life cycle row total from data call question 3.3.1.1.

$PEAKWY_{ACTY}$ = peak of the total actual workyears at an Activity between FY 1986 - 1993, from data call question 2.1.

$FY1993WY_{acty}$ = total actual workyears at an activity in FY 1993, from data call question 2.1.

This Functional Capacity will be calculated separately for each life cycle phase.

METHODOLOGY FOR CALCULATING DOD FUNCTIONAL REQUIREMENT (FR)

Functional DoD requirement is the requirement across DoD, expressed in workyears, for a specific function, and a specific life cycle phase. It will be calculated for each life cycle phase to be used in conjunction with the Functional Capacity in the Optimization Model. This definition assumes that the ratio of future requirement across all of DoD to accomplish a given life cycle phase of a CSF to the FY1993 workyears in that life cycle phase/CSF is proportional to the ratio of FY1997/FY1993 programmed workyears at all activities involved in that CSF and life cycle phase.

$$FR_{csf,lc} = \text{SUM OF ALL FY1993WY}_{CSF,LC} \times (ADJUSTMENT\ FACTOR)$$

Where: SUM OF ALL FY1993WY$_{CSF,LC}$ = the sum of all respective life cycle row totals from question 3.3.1.1. of all activities performing the CSF.

$$\text{ADJUSTMENT FACTOR} = \frac{\text{SUM OF FY1997WY}_{ACTY}}{\text{SUM OF FY1993WY}_{ACTY}}$$

for all activities performing the CSF & LC; using programmed workyears from question 2.1.

(separate adjustment factors will be calculated for each CSF, LC combination)

DEFINITION OF OPTIMIZATION MODEL

The Optimization Model (Joint Cross Service Analysis Tool) guidance was provided to each JCSG to evaluate and develop specifications and assumptions which tailor the model to the specific requirements of the JCSG. The LJCSG evaluation was a two step process. Detailed definition of the model first required preliminary selection of objective functions, parameters, constraints, and policy imperatives. Four proposed objective functions were described in detail in the guidance and others were considered in the initial selection. The initial objective functions identified in the optimization model guidance included Minimizing Excess Capacity (MINXCAP), Minimizing Number of Sites (MINSITES), and Maximizing Functional Value (MAXFV), and Minimizing Negative Military Value (MINNMV). These were evaluated using a set of notional data in order to gain experience and understanding of the tool. Various trial runs were made to establish the sensitivity of the model to different objective functions and parameters. Based on the evaluation of the notional data runs, selection of the specifications and assumptions were made for generating the best sets of feasible, reproducible alternatives. The selected objective functions

and a plan for sensititivy analysis to develop final values of variables and constraints are detailed in Appendix F.

The next step is to run the model with the actual data in accordance with the selected objective functions, constraints, and parameters as described in Appendix F. This will give decision makers information regarding trade-offs between number of activities, Functional Value, Excess Capacity and Military Value. The output will include both preliminary sets of alternatives using the inputs identified in this plan and additional alternatives which consider Military Values (MV) for each "Lab" activity as provided by the MILDEPs. With a defined set of objective functions, constraints, and parameters the discipline of the model will assure a reproducible set of alternatives which can then be incorporated into the MILDEP BRAC Analyses. Future adjustments to the objective functions, constraints or policy imperatives of the model will be formally documented, approved and directed for incorporation by the LJCSG Chair.

DEVELOPMENT OF CLOSURE OR REALIGNMENT ALTERNATIVES

For purposes of this plan, closure or realignment is defined consistent with the definitions in Public Law 101-510 and Section 2687, Title 10, U.S. Code. A closure alternative is one that recommends that all the Common Support Functions (as defined in the LJCSG Guidance Package of 30 March 1994) performed at an activity (as defined in the LJCSG Guidance Package of 30 March 1994) cease to be performed at that activity. A realignment alternative is one that both reduces and relocates Common Support Functions and civilian personnel positions from an activity.

The detailed outputs from the optimization model will be analyzed, formulated and categorized into sets of alternatives that: (1) represent cross-service or intra-service opportunities to share assets or to rely on a single Military Department for support; and (2) opportunities within each Military Department to consolidate workload to reduce their capacity. The analysis will include subjecting the alternatives to a "fit check" and evaluating them for operational feasibility in order to determine if alternatives warrant further analysis.

The final phase of the process will involve a functional analysis of the remaining alternatives against BRAC Criteria 5 (COBRA). These results will be reviewed for reasonableness. Upon completion of this analysis, the final alternatives will be formally transmitted to the MILDEPS for their consideration. These will take notional forms such as:

(a) Military Departments should consider ceasing performance of all Common Support Functions at Activities A, B, C and D.

(b) Military Department W should consider realigning Common Support Function X Engineering Development from Activities E and F to Activity G.

(c) Military Departments should consider consolidating Common Support Function Z Engineering Development at Activity M. This consideration should include realigning Common Support Function Z Engineering Development from Activities A, C, F, and K and a determination as to the approach, such as sharing assets, or relying on Military Department U for single-service support.

Detailed descriptions of these final phases of the process will be provided in subsequent updates to this plan.

SCHEDULE

Action	NLT Date:
Excess capacity, FC, FR, FV calculated	12 Aug 94
Initial Optimization model results (sets of alternatives)	18 Aug 94
Initiate Operational Feasibility Assessment	19 Aug 94
Military Values furnished by MILDEPs	15 Sep 94
Additional Optimization model results (sets of alternatives)	19 Sep 94
COBRA Scenario Data Call distributed (if req'd)	26 Sep 94
COBRA results complete	10 Oct 94
Operational Feasibility assessments ("Fit Checks") completed	17 Oct 94
Final Alternatives transmitted to MILDEPs by LJCSG	17 Oct 94

SUMMARY

This plan details the initial phase of the Laboratory Joint Cross-Service Analysis process. It is consistent with higher level guidance and will serve to develop fair and equitable cross-service alternatives for the Military Departments consideration. It represents significant effort and contribution of the representatives of each Military Department and will serve to support each Department BRAC process. The details outlined above for the later phases of the analysis will be expanded as more guidance is received and more information is developed by the LJCSG Working Group. Changes to this document will be approved by the Chair of the LJCSG based on recommendations provided by the LJCSG Working Group.

LABORATORY JOINT CROSS SERVICE GROUP STATUS

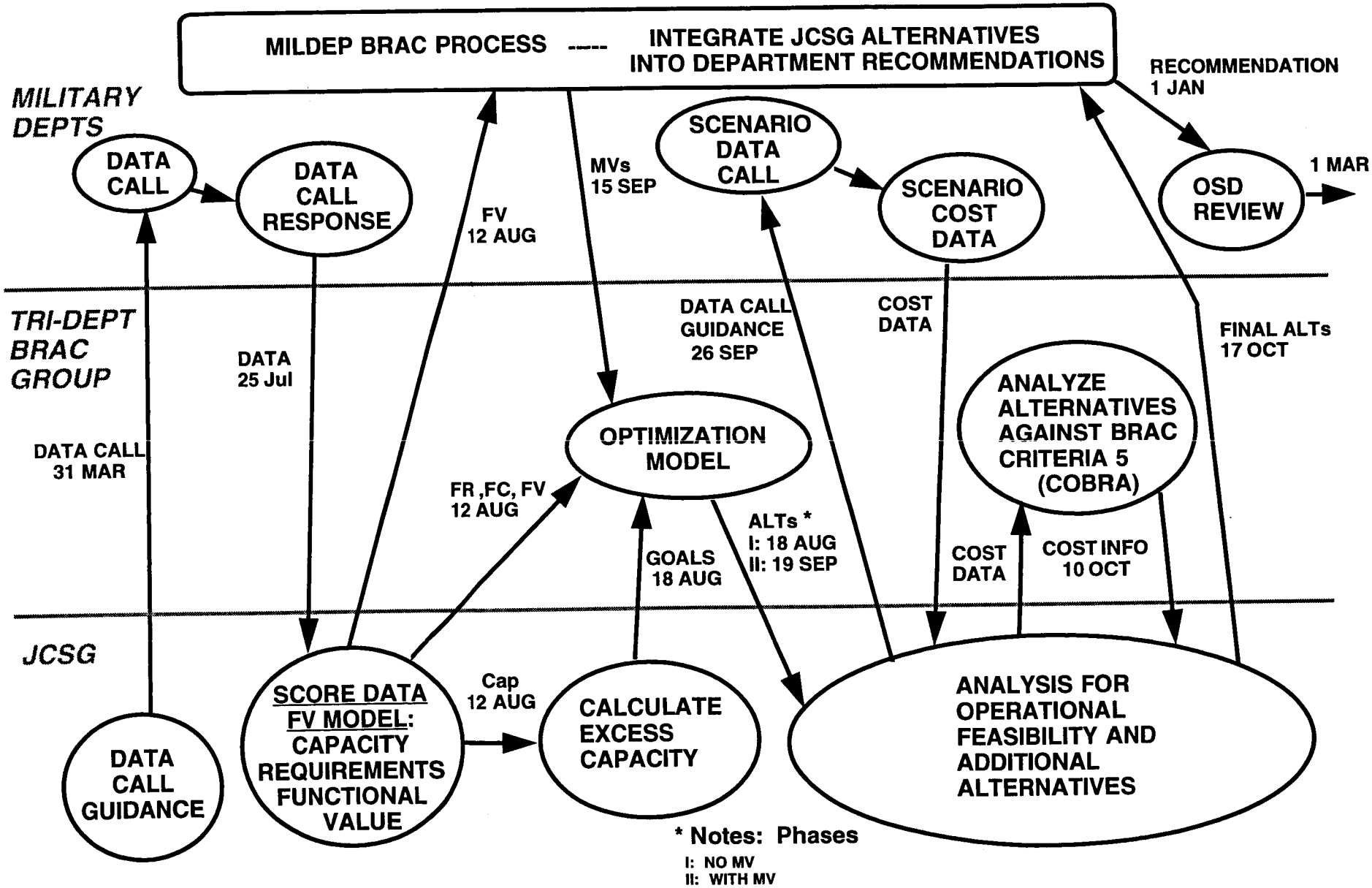
28 JUL 1994

LJCSG STATUS

- DATA CALL RESPONSES IN PROCESS FOR ALL MILDEP LJCSG ACTIVITIES
- LJCSG DATA ANALYSIS PLAN COMPLETE
  - MEASURES AND WEIGHTS DEFINED
  - METHODOLOGIES FOR CALCULATING CAPACITY, REQUIREMENT AND FUNCTIONAL VALUE
  - OPTIMIZATION AND FUNCTIONAL VALUE MODELS EVALUATED AGAINST NOTIONAL DATA
- WILL SHARE CROSS-SERVICE DATA UPON AUTHORIZATION
- LOCATION FOR DATA EVALUATION IDENTIFIED (IDA)
- ON SCHEDULE FOR CROSS-SERVICE ALTERNATIVES TO MILDEPS IN OCTOBER

28 JUL 94

LAB JOINT CROSS-SERVICE ANALYSIS



SENSITIVE INFORMATION - FOR OFFICIAL USE ONLY

JOINT CROSS-SERVICE ANALYSIS TOOL

TOTAL PROCESS FLOW / PLAN

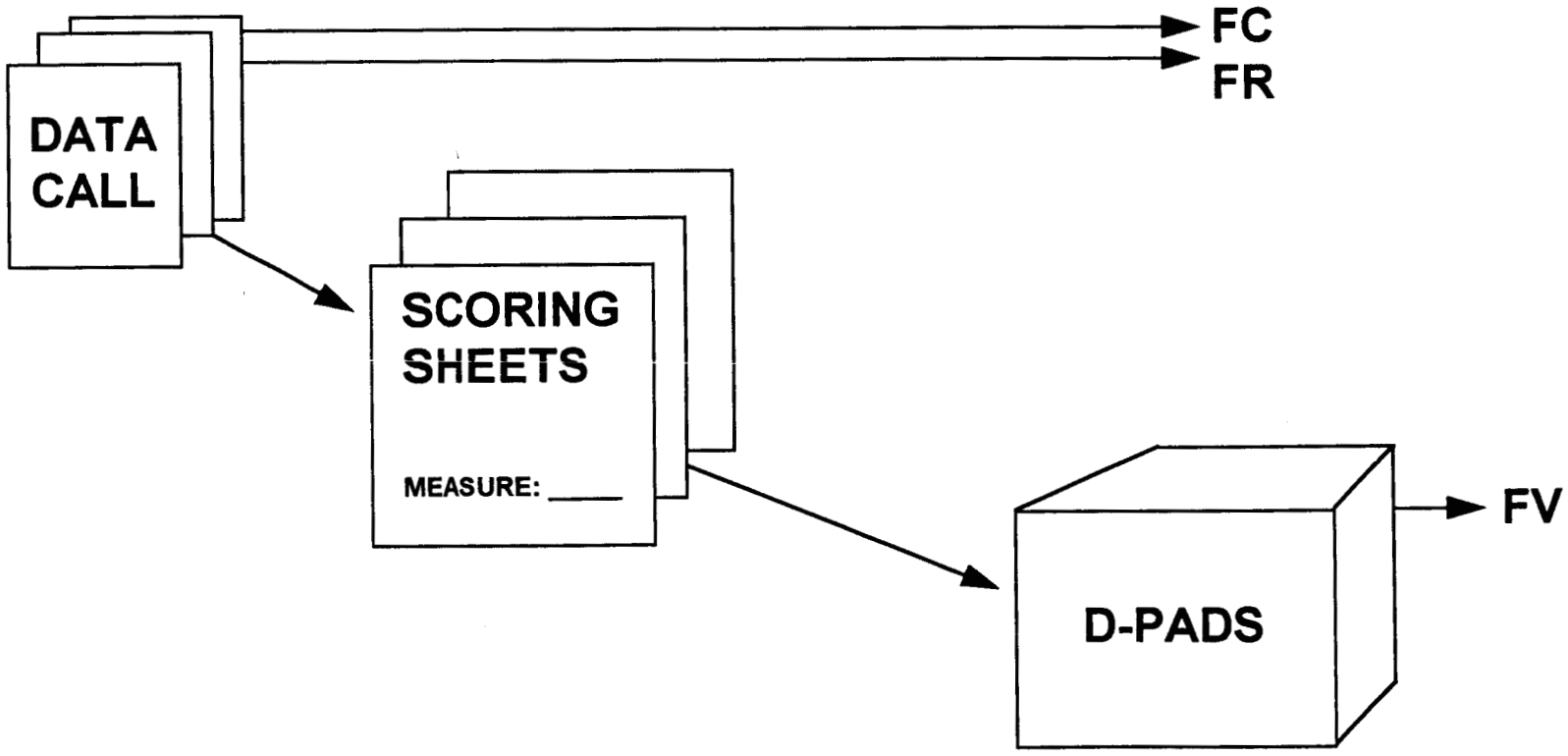
ANALYSIS TASKING

- STRG GROUP JOINT CROSS-SERVICE ANALYSIS GUIDANCE RECEIVED 14 JUN
- INCLUDES DETAILED DESCRIPTION OF "JOINT CROSS-SERVICE ANALYSIS TOOL"
- EACH JCSG TASKED TO:
  - EVALUATE THE "TOOL"
  - DEVELOP INPUTS
  - REPORT ON METHOD OF USING "TOOL"
- BRIEFED STATUS TO MR. GOTBAUM 28 JUN

LJCSG "METHODOLOGIES"

- FUNCTIONAL CAPACITY
  - THE CAPACITY, EXPRESSED IN WKYRS, TO DO A SPECIFIC FUNCTION AT A SPECIFIC ACTIVITY, FOR A SPECIFIC LIFE CYCLE(S&T, EMD,ISE)
- FUNCTIONAL DOD REQUIREMENT
  - THE REQUIREMENT ACROSS DOD, EXPRESSED IN WKYRS, FOR A SPECIFIC FUNCTION AND A SPECIFIC LIFE CYCLE
- FUNCTIONAL VALUE
  - A MEASURE OF THE CAPABILITY AND QUALITY OF PERFORMING WORK IN A SPECIFIC FUNCTION AT A SPECIFIC ACTIVITY
  - DERIVED FROM DATA ELEMENTS, MEASURES AND WEIGHTS

DEVELOP FV, FC, FR



FUNCTIONAL CAPACITY (FC)

- THE CAPACITY, EXPRESSED IN WKYRS, TO DO A SPECIFIC FUNCTION, IN A SPECIFIC LIFE CYCLE, AT A SPECIFIC ACTIVITY:

$$FC_{CSF,LC,ACTY} = FY1993\ WY_{CSF,LC,ACTY} \times (PEAK\ WY_{ACTY} / FY1993\ WY_{ACTY})$$

Where :

: $FY1993\ WY_{CSF,LC,ACTY}$ = RESPECTIVE LIFE CYCLE ROW TOTAL FROM DATA CALL QUESTION 3.3.1.1

: $PEAK\ WY_{ACTY}$ = PEAK OF THE TOTAL ACTUAL WORKYEARS AT AN ACTIVITY BETWEEN FY1986-1993, FROM DATA CALL QUESTION 2.1

: $FY1993\ WY_{ACTY}$ = TOTAL ACTUAL WORKYEARS AT AN ACTIVITY IN FY1993, FROM DATA CALL QUESTION 2.1

FUNCTIONAL DOD REQUIREMENT (FR)

- THE REQUIREMENT ACROSS DOD, EXPRESSED IN WKYRS, FOR A SPECIFIC FUNCTION, AND A SPECIFIC LIFE CYCLE:

$FR_{CSF,LC}$ = SUM OF ALL FY1993 $WY_{CSF,LC}$ X (ADJUSTMENT FACTOR)

Where : SUM OF ALL FY1993 $WY_{CSF,LC}$ = THE SUM OF ALL RESPECTIVE LIFE CYCLE ROW TOTALS;

FROM QUESTIONS 3.3.1.1 OF ALL ACTIVITIES PERFORMING THE CSF

: ADJUSTMENT FACTOR = SUM OF PROGRAMMED FY1997 WY_{ACTY}/ SUM OF FY1993 WY_{ACTY} ;

FROM QUESTION 2.1 OF ALL ACTIVITIES PERFORMING THE CSF & LC

(SEPARATE ADJUSTMENT FACTORS WILL BE CALCULATED FOR EACH CSF,LC COMBINATION)

FUNCTIONAL VALUE (FV)

A MEASURE OF THE CAPABILITY AND QUALITY OF PERFORMING WORK IN A SPECIFIC FUNCTION AT A SPECIFIC ACTIVITY

- DERIVED FROM MEASURES AND WEIGHTS
- WILL USE D-PADS TO CALCULATE FV
  - COMMERCIAL PRODUCT USED BY ARMY IN BRAC 91/93
- INPUT DESIGN CONSISTENT WITH AGREED TO MEASURES AND WEIGHTS
- FUNCTIONAL VALUE WILL BE EXPRESSED AS A NUMBER FROM 0 (LOW) TO 100 (HIGH)

FUNCTIONAL VALUE METHODOLOGY

- WHAT QUALITY DO WE WISH TO MEASURE?
- HOW/WHAT WILL WE USE AS A MEASURE?
- HOW WILL WE DECIDE HOW MUCH THE ACTIVITY HAS?
- HOW IMPORTANT DO WE BELIEVE IT IS?

FUNCTIONAL VALUE MEASURES

- MEASURES DEVELOPED FROM AVAILABLE LJCSG DATA CALL ELEMENTS AND SELECTED TO:
  - PROVIDE MEANINGFUL DISCRIMINATION OF VALUE OF PERFORMING CSF AT ONE ACTIVITY RELATIVE TO ANOTHER ACTIVITY
  - REASONABLY REDUCIBLE TO A NUMERICAL SCALE WITHOUT SIGNIFICANT SUBJECTIVE JUDGMENT
  - ENSURE THAT LIMITATIONS OF THE DATA CALL ELEMENTS WILL NOT IMPART SIGNIFICANT BIAS TO THE MEASURE
- ALL MEASURES WILL BE NORMALIZED TO A CONSISTENT NUMERICAL SCALE
- OTHER DATA CALL ELEMENTS AVAILABLE FOR "FIT CHECK" AND/OR BACKGROUND AND CONTEXT
  - "FIT CHECK": PART OF PROCESS FOR ANALYZING OPERATIONAL FEASIBILITY OF ALTERNATIVES DERIVED FROM THE OPTIMIZATION MODEL. DATA / INFORMATION CONTAINED IN DATA CALL RESPONSES, NOT USED IN FUNCTIONAL VALUE DERIVATION AND IDENTIFIED AS "FIT CHECK", MAY BE USED IN THESE ANALYSES.

SENSITIVE INFORMATION - FOR OFFICIAL USE ONLY

FUNCTIONAL VALUE MEASURES

DATA CALL ELEMENTS	MEASURES
(3.0): INTERCONNECTIVITY WITH OTHER FUNCTIONS (COMMON OR OTHERWISE) IN SUPPORT OF OVERALL MISSION	1. NUMBER OF INTERCONNECTED FUNCTIONS WEIGHTED BY QUARTILE (MORE IS BETTER)
(3.1.1): GEOGRAPHIC/CLIMATOLOGICAL FEATURES IN AND AROUND THE ACTIVITY RELEVANT TO/REQUIRED FOR EACH CSF	2. YES/NO GEO FEATURE 3. YES/NO CLIMATE FEATURE
(3.1.2): LICENSES & PERMITS REQUIRED FOR TEST, EXPERIMENT, OR SPECIAL CAPABILITY CURRENTLY HELD BY ACTIVITY	"FIT CHECK"
(3.1.3): ENVIRONMENTAL CONSTRAINTS WHICH LIMIT OR RESTRICT CURRENT SCOPE / EXPANSION OF CSF AT ACTIVITY	4. TOTAL COUNT OF CONSTRAINTS (MORE IS WORSE)
(3.1.4): MISSION RELATED SPECIAL SUPPORT INFRASTRUCTURE (EG. UTILITIES) FOR CSF AT ACTIVITY	5. YES/NO: MISSION RELATED SPECIAL SUPPORT INFRASTRUCTURE
(3.1.5): PROXIMITY TO MISSION RELATED ORGANIZATIONS WHICH FACILITATE ACTIVITY'S CSF MISSION	"FIT CHECK"
(3.2.1): TOTAL PERSONNEL BROKEN OUT BY TECHNICAL, MANAGEMENT, OTHER AND BY GOVT (CIV,MIL), ON-SITE FFRDC, AND ON-SITE SETA.	6. SUMMATION OF TOTAL PERSONNEL, SCORED PER MATRIX CATEGORY (TECH=3, MGT=2, OTH=1; GOVT=3, FFRDC=2, SETA=1) (PROPORTIONAL DISTRIBUTION)
(3.2.2): EDUCATION OF GOVT PERSONNEL	7. AVERAGE EDUCATION LEVEL OF TECH/MGT (PROPORTIONAL: HIGHER IS BETTER)

SENSITIVE INFORMATION - FOR OFFICIAL USE ONLY

FUNCTIONAL VALUE MEASURES (CONT)

DATA CALL ELEMENTS	MEASURES
(3.2.3): YEARS OF EXPERIENCE FOR GOVT TECHNICAL PERSONNEL	8. DIFFERENCE OF TOTAL & ACTIVITY CSF AVG EXPERIENCE; IF ACTIVITY AVG < TOTAL AVERAGE, NEGATIVE PROPORTIONAL DISTRIBUTION, IF >/= MAX POINTS
(3.2.4.1): PATENTS AWARDED FOR GOVT PERSONNEL	9. PATENTS PER S&T WKYR (FROM 3.3.1.1) (IF S&T WKYRS=0, NO POINTS)
(3.2.4.2): PAPERS PUBLISHED IN PEER JOURNALS BY GOVT PERSONNEL	10. PAPERS PER S&T WKYR (FROM 3.3.1.1) (IF S&T WKYRS=0, NO POINTS)
(3.3.1.1): FY1993 ACTUAL WKYRS BROKEN OUT BY LIFE CYCLE (S&T, ENG DEV, AND ISE) AND BY GOVT (CIV,MIL), ON-SITE FFRDC, AND ON-SITE SETA.	USE ONLY TO NORMALIZE OTHER DATA
(3.3.1.2): ENGINEERING DEVELOPMENT BY ACAT	11. NUMBER OF PROGRAMS, SCORED BY ACAT (ACAT I = 3, ACAT II = 2, ALL OTHERS =1) (PROPORTIONAL DISTRIBUTION)
(3.3.1.3): IN-SERVICE ENGINEERING EFFORTS	12. YES/NO: ISE WKYRS (FROM 3.3.1.1) > 5
(3.3.2.1, 3.3.2.2): PROJECTED DIRECT FUNDING AND PROJECTED OTHER OBLIGATIONAL AUTHORITY- FY1994-1997	NOT USED FOR FUNCT VALUE

FUNCTIONAL VALUE MEASURES (CONT)

DATA CALL ELEMENTS	MEASURES
(3.4.1): MAJOR CSF FACILITIES / EQUIPMENT AT ACTIVITY	13. USING ONLY EQUIP/FACILITIES >$10M: TOT REPLACEMENT COST (PROPORTIONAL DISTRIBUTION)
	14. USING ONLY EQUIP/FACILITIES >$10M: PERCENT SHARED BY OTHER FUNCTIONS TIMES REPLACEMENT COST SUMMED (PROPORTIONAL DISTRIBUTION)
(3.5.1): LABORATORY CAPABILITY EXPANSION POTENTIAL	"FIT CHECK"
(3.5.1.1/3.5.1.2): ABILITY TO ABSORB ADDITIONAL CSF WKYRS	"FIT CHECK"
(3.5.1.3): IMPACT OF MILCON	"FIT CHECK"
(3.5.2): LAND USE	15. YES/NO BUILDABLE ACRES OVER THRESHOLD (WEAPONS >50; NON-WEAPONS >10 ACRES)
(3.5.3): UTILITIES	"FIT CHECK"

FUNCTIONAL VALUE WEIGHTING OF MEASURES

- WEIGHTS DEVELOPED FOR EACH MEASURE BASED ON THEIR RELATIVE IMPORTANCE IN ASSESSING FUNCTIONAL VALUE
- RELATIVE IMPORTANCE WAS DERIVED BY COMPARING MEASURES TO EACH OTHER AND BY ESTABLISHING A BALANCE ACROSS LARGER CATEGORIES; eg.
  - PEOPLE / FACILITIES & EQUIPMENT RESOURCES
  - SPECIFIC CSF CAPABILITY / INTEGRATED ACTIVITY CAPABILITY
  - QUALITY / SIZE
- WEIGHTS WILL BE NORMALIZED TO ENSURE FUNCTIONAL VALUE WILL BE EXPRESSED AS A NUMBER FROM 0 (LOW) TO 100 (HIGH)
- WEIGHTS WILL BE CONTAINED IN A SEPARATE ANNEX TO THE LJCSG ANALYSIS PLAN

SENSITIVE INFORMATION - FOR OFFICIAL USE ONLY

FUNCTIONAL VALUE WEIGHTS

(NORMALIZED)

MEASURES	WEIGHTS
1. NUMBER OF INTERCONNECTED FUNCTIONS WEIGHTED BY QUARTILE (MORE IS BETTER)	10 (0.0877)
2. YES/NO GEO FEATURE	3 (0.0263)
3. YES/NO CLIMATE FEATURE	3 (0.0263)
4. TOTAL COUNT OF [redacted] CONSTRAINTS (MORE IS WORSE)	[redacted]
5. [redacted] RELATED [redacted] INFRASTRUCTURE	[redacted] (0.0263)
6. [redacted] OF TOTAL [redacted], SCORED PER MATRIX CATEGORY (FROM [redacted] MOF=2, OTH=1; GOVT=0, [redacted]) (PROPORTIONAL DISTRIBUTION)	15 (0.1316)
7. AVERAGE EDUCATION LEVEL OF TECHNICIAN (PROPORTIONAL: HIGHER IS BETTER)	11 (0.0965)

MEASURES	WEIGHTS
8. DIFFERENCE OF TOTAL & ACTIVITY AVG CSF EXPERIENCE; IF ACTIVITY AVG < TOTAL AVERAGE, NEGATIVE PROPORTIONAL DISTRIBUTION, IF >/= MAX POINTS	12 (0.1053)
9. PATENTS PER [redacted] WKYR (FROM 3.3.1.1) (IF S&T WKYRS=0, NO POINTS)	[redacted] (0.0702)
10. PAPERS [redacted] WKYR (FROM 3.3.1.1) (IF S&T WKYRS=0, NO POINTS)	7 (0.0614)
11. NU[redacted] PROGRAMS, SCORED BY ACAT [redacted], ACAT II = 2, ALL OTHERS =1) (PROPORTIONAL DISTRIBUTION)	10 (0.0877)
12. YES/NO: USE WKYRS (FROM 3.3.1.1) > 5	[redacted] (0.0[redacted])
13. USING ONLY EQUIP/FACILITIES >$10M: TOTAL REPLACEMENT COST (PROPORTIONAL DISTRIBUTION)	13 (0.114[redacted])
14. USING ONLY EQUIP/FACILITIES >$10M: PERCENT SHARED BY OTHER FUNCTIONS TIMES TOTAL REPLACEMENT COST SUMMED (PROPORTIONAL DISTRIBUTION)	3 (0.0[redacted])
15. YES/NO BUILDABLE ACRES OVER THRESHOLD (WEAPONS >50; NON-WEAPONS >10 ACRES)	4 (0.0352)

SENSITIVE INFORMATION - FOR OFFICIAL USE ONLY

FUNCTIONAL VALUE WEIGHTS

MEASURES	WEIGHTS
1. NUMBER OF INTERCONNECTED FUNCTIONS WEIGHTED BY QUARTILE (MORE IS BETTER)	
2. YES/NO GEO FEATURE	
3. YES/NO CLIMATE FEATURE	
4. TOTAL COUNT OF ENVIRONMENTAL CONSTRAINTS (MORE IS WORSE)	
5. YES/NO: MISSION RELATED SPECIAL SUPPORT INFRASTRUCTURE	
6. SUMMATION OF TOTAL PERSONNEL, SCORED PER MATRIX CATEGORY (TECH=3, MGT=2, OTH=1; GOVT=3, FFRDC=2, SETA=1) (PROPORTIONAL DISTRIBUTION)	
7. AVERAGE EDUCATION LEVEL OF TECH/MGT (PROPORTIONAL: HIGHER IS BETTER)	

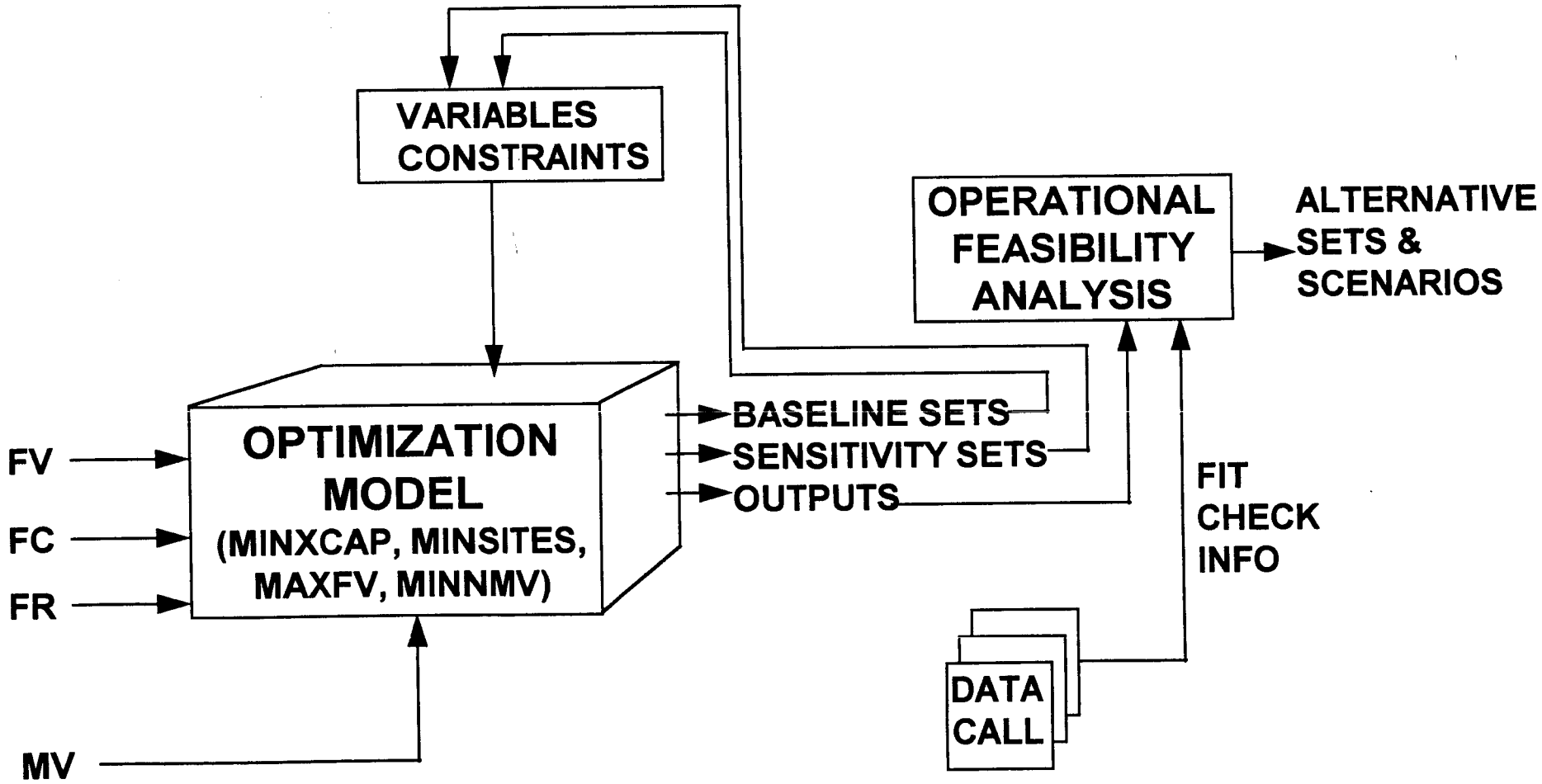
FUNCTIONAL VALUE WEIGHTS (CONT)

MEASURES	WEIGHTS
8. DIFFERENCE OF TOTAL & ACTIVITY AVG CSF EXPERIENCE; IF ACTIVITY AVG < TOTAL AVERAGE, NEGATIVE PROPORTIONAL DISTRIBUTION, IF >/= MAX POINTS	
9. PATENTS PER S&T WKYR (FROM 3.3.1.1) (IF S&T WKYRS=0, NO POINTS)	
10. PAPERS PER S&T WKYR (FROM 3.3.1.1) (IF S&T WKYRS=0, NO POINTS)	
11. NUMBER OF PROGRAMS, SCORED BY ACAT (ACAT I = 3, ACAT II = 2, ALL OTHERS =1) (PROPORTIONAL DISTRIBUTION)	
12. YES/NO: ISE WKYRS (FROM 3.3.1.1) > 5	
13. USING ONLY EQUIP/FACILITIES >$10M: TOTAL REPLACEMENT COST (PROPORTIONAL DISTRIBUTION)	
14. USING ONLY EQUIP/FACILITIES >$10M: PERCENT SHARED BY OTHER FUNCTIONS TIMES TOTAL REPLACEMENT COST SUMMED (PROPORTIONAL DISTRIBUTION)	
15. YES/NO BUILDABLE ACRES OVER THRESHOLD (WEAPONS >50; NON-WEAPONS >10 ACRES)	

JOINT CROSS-SERVICE ANALYSIS TOOL EVALUATION

- TOOL WILL BE USED TO GENERATE A SET OF OPTIMAL LJCSG CROSS SERVICE ALTERNATIVES
- INITIAL DETAILED EVALUATION WITH NOTIONAL DATA COMPLETE
- OPTIMIZATION PROCESS BALANCES FLEXIBILITY AND DISCIPLINE
- MODEL IS SUFFICIENTLY FLEXIBLE TO ACCOMMODATE ADDITIONAL OBJECTIVE FUNCTIONS
- LJCSG ANALYSIS PLAN DOCUMENTS DETAILS

DEVELOP ALTERNATIVE SETS



OPTIMIZATION MODEL / SENSITIVITY ANALYSIS RUN PLAN

PARAMETER VALUES / CONSTRAINTS

OBJECTIVE FUNCTIONS	BASE LINE	FR				*W* VARY AS APPROPRIATE	OTHER OPTIMAL ALTERNATIVES
		+10%	+20%	-10%	-20%		
MINSITES	X	X	X	X	X	X	X
MAXFV	X	X	X	X	X	X	X
MINXCAP	X	X	X	X	X	X	X
MINNMV	X	X	X	X	X	X	X

EACH X REPRESENTS A SINGLE RUN (OR SET OF RUNS) OF THE JOINT CROSS SERVICE ANALYSIS TOOL AND WILL YIELD A SET (OR SETS) OF ALTERNATIVES FOR REVIEW BY THE JCSG

SENSITIVE INFORMATION - FOR OFFICIAL USE ONLY

LAB JOINT CROSS-SERVICE ANALYSIS PLAN

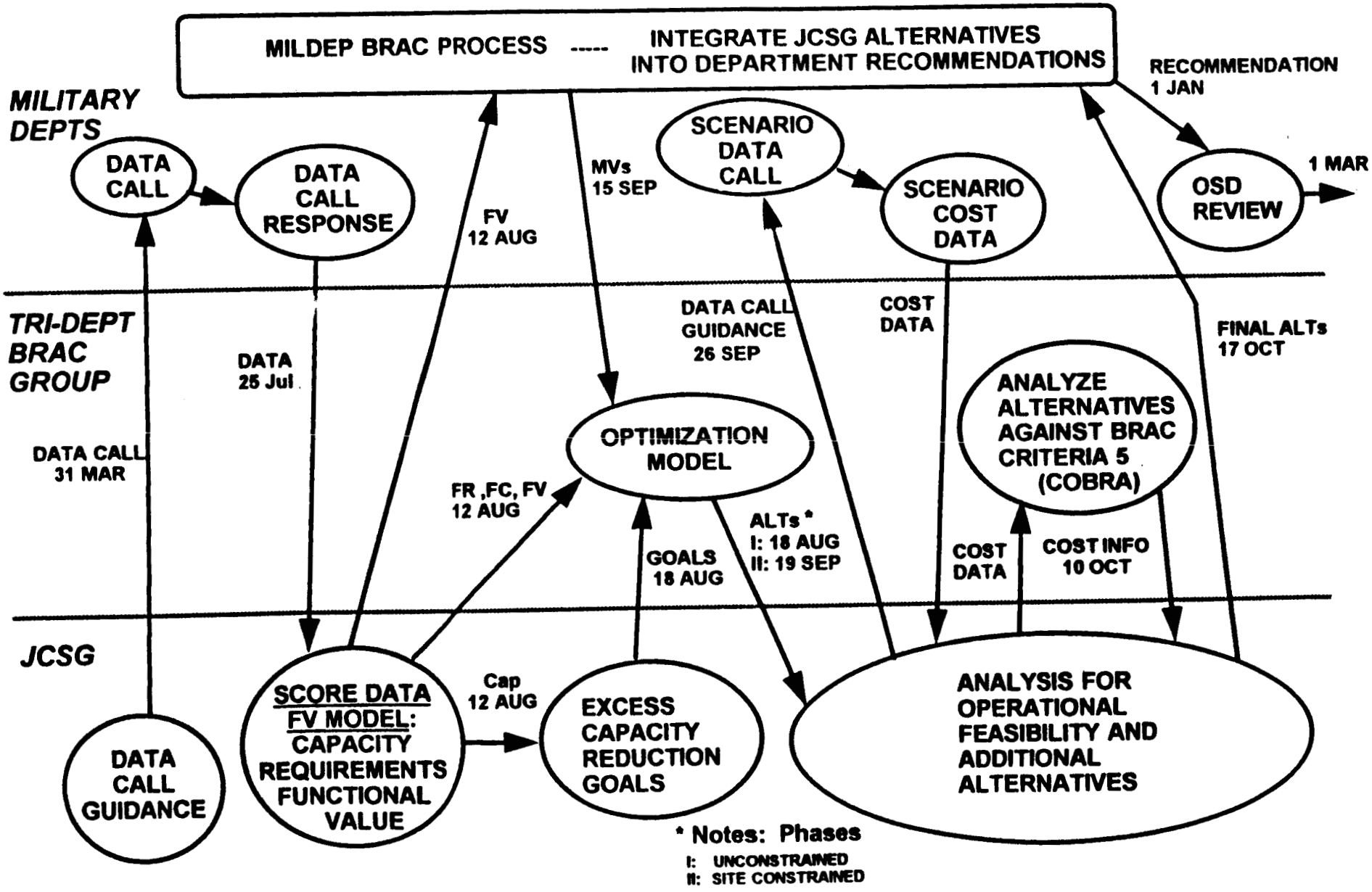
- INTRODUCTION: LABORATORY JOINT ANALYSIS PROCESS
- INPUT METHODOLOGIES
  - FUNCTIONAL CAPACITY(FC)
  - FUNCTIONAL DOD REQUIREMENT (FR)
  - FUNCTIONAL VALUE (FV)
    - » MEASURES/WEIGHTS
- ALTERNATIVE FORMAT
- SCHEDULE
- SUMMARY
- ANNEXES

SUMMARY

- METHODOLOGY FOR FUNCTIONAL CAPACITY, FUNCTIONAL DOD REQUIREMENT, AND FUNCTIONAL VALUE DEVELOPED
- D-PADS DESIGN FOR FUNCTIONAL VALUE CALCULATION COMPLETE
- SELECTION OF OPTIMIZATION MODEL SPECIFICATIONS COMPLETE
- SENSITIVITY / ANALYSIS RUN PLAN COMPLETE
- LJCSG ANALYSIS PLAN SIGNED
- DATA SHARE AND EVALUATION WEEK OF 1 AUG

25 Jul 94

LAB JOINT CROSS-SERVICE ANALYSIS



Appendix B

Functional Value Measures

WORKING DRAFT - FOR OFFICIAL USE ONLY

FUNCTIONAL VALUE MEASURES

DATA CALL ELEMENTS	MEASURES
(3.0): INTERCONNECTIVITY WITH OTHER FUNCTIONS (COMMON OR OTHERWISE) IN SUPPORT OF OVERALL MISSION	1. NUMBER OF INTERCONNECTED FUNCTIONS WEIGHTED BY QUARTILE (MORE IS BETTER)
(3.1.1): GEOGRAPHIC/CLIMATOLOGICAL FEATURES IN AND AROUND THE ACTIVITY RELEVANT TO/REQUIRED FOR EACH CSF	2. YES/NO GEO FEATURE 3. YES/NO CLIMATE FEATURE
(3.1.2): LICENSES & PERMITS REQUIRED FOR TEST, EXPERIMENT, OR SPECIAL CAPABILITY CURRENTLY HELD BY ACTIVITY	"FIT CHECK"
(3.1.3): ENVIRONMENTAL CONSTRAINTS WHICH LIMIT OR RESTRICT CURRENT SCOPE / EXPANSION OF CSF AT ACTIVITY	4. TOTAL COUNT OF CONSTRAINTS (MORE IS WORSE)
(3.1.4): MISSION RELATED SPECIAL SUPPORT INFRASTRUCTURE (EG. UTILITIES) FOR CSF AT ACTIVITY	5. YES/NO: MISSION RELATED SPECIAL SUPPORT INFRASTRUCTURE
(3.1.5): PROXIMITY TO MISSION RELATED ORGANIZATIONS WHICH FACILITATE ACTIVITY'S CSF MISSION	"FIT CHECK"
(3.2.1): TOTAL PERSONNEL BROKEN OUT BY TECHNICAL, MANAGEMENT, OTHER AND BY GOVT (CIV,MIL), ON-SITE FFRDC, AND ON-SITE SETA.	6. SUMMATION OF TOTAL PERSONNEL, SCORED PER MATRIX CATEGORY (TECH=3, MGT=2, OTH=1; GOVT=3, FFRDC=2, SETA=1) (PROPORTIONAL DISTRIBUTION)
(3.2.2): EDUCATION OF GOVT PERSONNEL	7. AVERAGE EDUCATION LEVEL OF TECH/MGT (PROPORTIONAL: HIGHER IS BETTER)

WORKING DRAFT - FOR OFFICIAL USE ONLY

FUNCTIONAL VALUE MEASURES (CONT)

DATA CALL ELEMENTS	MEASURES
(3.2.3): YEARS OF EXPERIENCE FOR GOVT TECHNICAL PERSONNEL	8. DIFFERENCE OF TOTAL & ACTIVITY CSF AVG EXPERIENCE; IF ACTIVITY AVG < TOTAL AVERAGE, NEGATIVE PROPORTIONAL DISTRIBUTION, IF >/= MAX POINTS
(3.2.4.1): PATENTS AWARDED FOR GOVT PERSONNEL	9. PATENTS PER S&T WKYR (FROM 3.3.1.1) (IF S&T WKYRS=0, NO POINTS)
(3.2.4.2): PAPERS PUBLISHED IN PEER JOURNALS BY GOVT PERSONNEL	10. PAPERS PER S&T WKYR (FROM 3.3.1.1) (IF S&T WKYRS=0, NO POINTS)
(3.3.1.1): FY1993 ACTUAL WKYRS BROKEN OUT BY LIFE CYCLE (S&T, ENG DEV, AND ISE) AND BY GOVT (CIV,MIL), ON-SITE FFRDC, AND ON-SITE SETA.	USE ONLY TO NORMALIZE OTHER DATA
(3.3.1.2): ENGINEERING DEVELOPMENT BY ACAT	11. NUMBER OF PROGRAMS, SCORED BY ACAT (ACAT I = 3, ACAT II = 2, ALL OTHERS =1) (PROPORTIONAL DISTRIBUTION)
(3.3.1.3): IN-SERVICE ENGINEERING EFFORTS	12. YES/NO: ISE WKYRS (FROM 3.3.1.1) > 5
(3.3.2.1, 3.3.2.2): PROJECTED DIRECT FUNDING AND PROJECTED OTHER OBLIGATIONAL AUTHORITY- FY1994-1997	NOT USED FOR FUNCT VALUE

FUNCTIONAL VALUE MEASURES (CONT)

DATA CALL ELEMENTS	MEASURES
(3.4.1): MAJOR CSF FACILITIES / EQUIPMENT AT ACTIVITY	13. USING ONLY EQUIP/FACILITIES >$10M: TOT REPLACEMENT COST (PROPORTIONAL DISTRIBUTION) 14. USING ONLY EQUIP/FACILITIES >$10M: PERCENT SHARED BY OTHER FUNCTIONS TIMES REPLACEMENT COST SUMMED (PROPORTIONAL DISTRIBUTION)
(3.5.1): LABORATORY CAPABILITY EXPANSION POTENTIAL	"FIT CHECK"
(3.5.1.1/3.5.1.2): ABILITY TO ABSORB ADDITIONAL CSF WKYRS	"FIT CHECK"
(3.5.1.3): IMPACT OF MILCON	"FIT CHECK"
(3.5.2): LAND USE	15. YES/NO BUILDABLE ACRES OVER THRESHOLD (WEAPONS >50; NON-WEAPONS >10 ACRES)
(3.5.3): UTILITIES	"FIT CHECK"

Appendix C

Functional Value Weights

(Distribution of Appendix C is limited due to the sensitive nature of the Functional Value Weights).

Appendix D

Evaluation Criteria Scoring Sheets

_____/_____/_____
SVC/Activity/CSF#

EVALUATORS: Army_____

Air Force_____

Navy_____

Question 3.0 Mission

(1) ENTER: NUMERIC COUNT (1, 2, 3,...)

A	N	AF	F
__	__	__	__

Numerically count the number of other common Support Functions (CSF) for the Activity. Add to it the number of interconnectivities stated in the data response (Question 3.0 Mission) subject to the following constraints:

a. Must be technical functions
b. Must be within the Laboratory Activity
c. Function is not part of another JCSG functional category, e.g., T&E

Question 3.1.1 Geographical/Climatological.

(2) ENTER: YES/NO (YES = 1, NO = 0)

A	N	AF	F
__	__	__	__

If the description of this question lists one or more geographic feature(s) that have been justified as <u>required</u> to perform this CSF, answer Yes.

Question 3.1.1 Geographical/Climatological.

(3) ENTER: YES/NO (YES = 1, NO = 0)

A	N	AF	F
__	__	__	__

If the description of this question lists one or more climatological feature(s) that have been justified as <u>required</u> to perform this CSF, answer Yes.

Question 3.1.3 Environmental Constraints

	A	N	AF	F
(4) ENTER: NUMERIC COUNT (1, 2, 3, ...)	___	___	___	___

Numerically count the number of environmental and/or land use constraints listed **which limit or restrict** the performance of the CSF in the narrative of this question. A constraint imposed by more than one level of government should be counted only once.

Question 3.1.4 Special Support Infrastructure

	A	N	AF	F
(5) ENTER: YES/NO (YES = 1, NO = 0)	___	___	___	___

If this narrative contains one or more responses/listings of **special support infrastructure** (e g water, power, rairoads, roads, telephone/data lines, etc.) that is **required over and above** that typically available for general activity operations, respond with a YES. Hilite those responses/listings that meet this criteria for use by the response (13) scoring team. [This question is to be scored prior to (13)]

Question 3.2.1 Total Personnel

(6) ENTER: VALUES CONTAINED IN THE MATRIX A ___ N ___ AF ___ F ___

	Government Civilian	Government Military	On-Site FFRDC	On-Site SETA
Technical	_____	_____	_____	_____
Mngmt(Supv)	_____	_____	_____	_____
Other	_____	_____	_____	_____

Transfer of values from the matrix submitted for this CSF.

Question 3.2.2 Education

(7) ENTER: VALUES CONTAINED IN THE MATRIX FOR THE COLUMNS ENTITLED "TECHNICAL" AND "MANAGEMENT"

	Technical	Management (Supv)
HS or less	_____	_____
Associates	_____	_____
Bachelor	_____	_____
Masters	_____	_____
Doctorate	_____	_____

A ___ N ___ AF ___ F ___

_____

Transfer of values from the matrix submitted for this CSF only for the first two columns of the data submitted, entitled "Technical" and "Management".

Question 3.2.3 Experience of Government Personnel

	A	N	AF	F
	___	___	___	___

(8) ENTER: VALUES IN THE DATA CALL MATRIX FOR THE LINE ENTITLED "TECHNICAL" PERSONNEL ONLY

	<3	3-10yrs	11-15yrs	16-20yrs	>20
Technical	____	____	____	____	____

Transfer the values from the experience matrix for this CSF only for the row entitled "Technical" personnel.

Question 3.2.4.1 Patents for Government Personnel

(9) ENTER: NUMERIC COUNT (1, 2, 3,...) OR 0 IF S&T WORKYEARS IN QUESTION 3.3.1.1 ARE = TO 0.

A	N	AF	F
___	___	___	___

Count the number of patents listed as **awarded** for this CSF, **do not** count patents which have been disclosed.

THE FOLLOWING VALUES ARE USED TO NORMALIZE (9) AND (10): FROM TABLE 3.3.1.1 ENTER THE VALUES AT THE INTERSECTION OF THE COLUMNS ENTITLED "CIVILIAN" AND "MILITARY" WITH THE ROW LABELED "SCIENCE & TECHNOLOGY"

	Civilian	Military	A	N	AF	F
Science&Technology	_____	_____	___	___	___	___

Question 3.2.4.2 Papers Published in Peer Journals by Government Personnel

(10) ENTER: NUMERIC COUNT (1, 2, 3,...) OR 0 IF S&T WORKYEARS IN QUESTION 3.3.1.1 ARE = TO 0.

A	N	AF	F
___	___	___	___

Count the number of papers published in **peer reviewed** journals for this CSF.

Question 3.3.1.2 Engineering Development by ACAT Category

(11) ENTER: VALUES CONTAINED IN THE MATRIX IN THE COLUMN ENTITLED "NAME OR NUMBER"

	NAME/ NUMBER	A	N	AF	F
ACAT IC	____	___	___	___	___
ACAT ID	____				
ACAT II	____				
ACAT III/IV	____				
Other	____				

If the entry in this column for one of the categories listed along the left side of the matrix is a number, enter this value. If a number of systems is not listed but are instead listed by a system name and/or acronym, count the names/acronyms to determine a number which may be entered on each of the appropriate ACAT category lines.

Question 3.3.1.3 In-Service Engineering

(12) ENTER: YES/NO (YES = 1, NO = 0)

A	N	AF	F
___	___	___	___

To receive a YES for this question the CSF must show ISE workyears being performed in Question 3.3.1.1 <u>TO BE GREATER THAN 5 WORKYEARS</u>.

Question 3.4.1 Major Facilities/Equipment at Activity

(13) ENTER: THE TOTAL $ VALUE FOR ALL ENTRIES IN THE MATRIX UNDER THE COLUMN ENTITLED "REPLACEMENT COST" IF THEY ARE GREATER THAN $10M.

	A	N	AF	F
_____	___	___	___	___

Only facilities or equipment which have a replacement cost in excess of $10 million will be counted for this question. The entry for the CSF will be a total of all the facilities or equipment listed meeting this dollar threshhold requirement. Do not include any special support infrastructure that was hilited during scoring of question 3.1.4.

Question 3.4.1 Major Facilities/Equipment at Activity

	A	N	AF	F
	___	___	___	___

(14) ENTER: TOTAL VALUE FROM (13) AND SUM OF %S FOR SHARED FACILITIES/EQUIPMENT (% Total NOT used by this CSF)

For Each Facility/Piece of Equipment:

Total % Shared	Replacement Cost ($M)
____	____
____	____
.	.
.	.
.	.

TOTAL VALUE_____

For the facilities/equipment listed in (13) which have a replacement value of greater than $10M and are shared by other product or pervasive support functions. Enter for each facility or piece of equipment the total % which is shared by other support functions and the replacement cost for it which was used in the calculation for (13) above. The % listed for any single facility or piece of equipment must be less than 100%. The replacement cost is multiplied by the % shared and then summed to arrive at the "TOTAL VALUE" to be entered in D-Pads [eg .40 (40%) x $20M + .20 (20%) x $120M + ... = **$TOTAL VALUE**]

Question 3.5.2 Land Use

	A	N	AF	F
(15) ENTER: YES/NO (YES = 1, NO = 0)	___	___	___	___

If the response to this question lists the number of buildable acres at an installation as greater than 10 for any CSF except those in the Product CSF of "Weapons", enter YES. For a "Weapons" CSF, the value listed must be greater than 50 acres to enter YES.

Appendix E.

D-PADS LJCSG Programming

A. Definitions:

a. Certified Data -- Data submitted by the MILDEPs in response to the LJCSG Guidance Package data call and certified for BRAC use.

b. Converted Data -- data extracted from the certified data and entered into the official LJCSG Scoring Sheet per the Evaluation Criteria Guidelines.

c. Raw Score -- Score produced by taking Converted Data and (1) applying the appropriate breakout weighting to the different data elements in questions 6-Total Personnel and 11-Engineering Development by ACAT or (2) assigning a "0" or "1", per direction in paragraph 3 below.

d. Adjusted Score -- Take the Raw Score and apply the scoring algorithm.

e. Weighted Score -- The Adjusted Score multiplied by the LJCSG weight.

f. Functional Value -- Sum of the weighted scores for all LJCSG Measures.

B. Algorithms

1. For Proportional Measures (#4, #6, #7, #8, #9, #10, #11, #13 and #14):
- for all Pervasive CSFs (except Education and Experience Measures) and all Product CSFs:

-- the lower limit of the scale shall be the minimum reported raw score for the CSF (except for Measure #4 where it will be the maximum reported raw score)

-- the upper limit of the scale shall be the maximum reported raw score for the CSF (except for Measure #4 where it will be the minimum reported raw score and Measure #8 where it will be the CSF average experience)

-- the raw scores shall be normalized (into adjusted scores) to a scale of 1 to 100

-- the adjusted score shall be multiplied by the weight of the measure to get the weighted score

-- similar to the Product CSFs, EXCEPT that the upper and lower raw score scale limits shall be the minimum and maximum value from the set of ALL Pervasive CSFs for that measure (i.e., the raw score scale applied to a particular measure will be the same for all Pervasive CSFs)

2. For Measure #1 (a quartile measure):

- for each CSF, the quartile shall be divided into fourths based on the values of the answers (that is, take the range of answers between the maximum answer and the minimum answer and divide that into equal fourths, i.e., if the answers ranged from 7 to 10, the quartiles would be the values 7, 8, 9 and 10)

- the values in the quartiles shall be assigned adjusted scores of 1, 33, 66, and 100 for the 1st (lowest) thru 4th (highest) quartiles respectively.

3. For Yes/No Measures (#2, 3, 5, 12 and 15)

- a raw score of 0 shall be assigned to responses which warrant a "No" and a raw score of 1 assigned to responses which warrant a "Yes".

- the raw scores shall be normalized (into adjusted scores) by converting a raw score of 0 to an adjusted score of 1, and converting a raw score of 1 to an adjusted score of 100.

Appendix F.

Optimization Model Sensitivity Analysis / Alternative Generation Matrix

INTRODUCTION

The objective functions and descriptions contained in the following paragraphs are direct extracts from the "Joint Cross-Service Analysis Tool" document and are generic in nature to permit use by all Joint Cross-Service Groups. For the purpose of the Laboratory Joint Cross-Service Group s, o_s, cap_{sf}, l_{sf} and k_{sf} shall be for Activities as listed in the Lab Joint Cross-Service Group Guidance Package of 30 March 1994. Additionally, $F, cap_{sf}, req_f, l_{sf}$ and k_{sf} shall be for Common Support Function by life cycle phase.

EXTRACTS

Data Elements

The analytical approach assumes that the following data will be available for all of the sites and functions under review by the JCSGs:

Data Elements	Description
mv_s	Military value of site s expressed as 3 (high), 2 (medium), or 1 (low).
fv_{sf}	Functional value for performing function f at site/activity s expressed as a number from 0 (low) to 100 (high).
cap_{sf}	Capacity of site/activity s to perform function f.
req_f	The total DoD requirement or goal to perform function f.

Preliminary Formulation.

The mathematical description of this formulation follows:

$$\underset{l_{sf}}{Maximize}\ \Sigma_{s \in S} \Sigma_{f \in F}\, l_{sf} \times fv_{sf}/req_f$$

subject to :

$\Sigma_{s \in S}\, l_{sf} = req_f$: for all functions $f \in F$,

$l_{sf} \le k_{sf} \times cap_{sf}$: for all sites $s \in S$ and $f \in F$,

$o_s \le \Sigma_{f \in F}\, k_{sf}$: for all sites $s \in S$,

$k_{sf} \le \frac{l_{sf}}{\alpha \times cap_{sf}}$: for all functions $f \in F$ and sites $s \in S$,

$0 \le o_s \le 1$, *integer* : for all sites $s \in S$,

$0 \le k_{sf} \le 1$, *integer* : for all sites $s \in S$ and functions $f \in F$;

where

$S =$ The set of all sites under consideration by joint cross-service groups;

$F =$ The set of all functions under consideration by joint cross-service groups;

$o_s =$ 1 if any functional requirement is assigned to the site, and 0 otherwise;

$\alpha =$ 0.01. No assignment of less than one percent of capacity will be allowed.

Decision variable

$l_{sf} =$ amount of the DoD requirement for function f to be assigned to site s.

$k_{sf} =$ 1 if any amount of function f is assigned to site s, 0 otherwise.

Primary Formulations

These formulations will also be used by the JCSGs to explore potential cross-service functional alternatives. The basic formulation is shown below. Specification of the objective function, $f(o_s, l_{sg}, k_{sh})$, will create a different optimization problem.

$$\underset{o_s,\, l_{sg},\, k_{sh}}{Minimize}\ f(o_s, l_{sg}, k_{sh})$$

subject to

$\Sigma_{s \in S}\, l_{sf} = req_f$: for all functions $f \in F$,

$o_s \le \Sigma_{f \in F}\, k_{sf}$: for all sites $s \in S$,

$0 \le l_{sf} \le k_{sf} \times cap_{sf}$: for all functions $f \in F$ and sites $s \in S$,

$k_{sf} \le \frac{l_{sf}}{\alpha \times cap_{sf}}$: for all functions $f \in F$ and sites $s \in S$,

$0 \le o_s \le 1$, *integer* : for all sites $s \in S$,

$0 \le k_{sf} \le 1$, *integer* : for all sites $s \in S$ and functions $f \in F$,

where

$S =$ The set of all sites under consideration by joint cross-service groups;

$F =$ The set of all functions under consideration by joint cross-service groups;

$\alpha =$ 0.01. No assignment of less than one percent of capacity will be allowed.

Decision variables

$o_s =$ 1 if any cross-service functional requirements are assigned to the site or activity, 0 otherwise;

$l_{sf} =$ amount of the DoD requirement for function f to be assigned to site or activity s.

$k_{sf} =$ 1 if any DoD requirement for function f is to be assigned to site s, 0 otherwise.

The MINNMV Formulation.

$$\underset{o_s, l_{sg}}{Minimize}\ f(o_s, l_{sg}, k_{sh}) = \left(\frac{w}{u_1}\right) \times \Sigma_{s \in S}\, o_s \times nmv_s - \left(\frac{100-w}{u_2}\right) \times \Sigma_{s \in S} \Sigma_{g \in F}\, l_{sg} \times fv_{sg}/req_g$$

where

$0 \le w \le 100$ Weight parameter used to vary the emphasis between military value and functional value,

$u_1 \ge 0, u_2 \ge 0$ $u_1 = \Sigma_{s \in S}(4 - mv_s),\ u_2 = \Sigma_{f \in F} \max_{s \in S} fv_{sf}$

$nmv_s =$ $4 - mv_s$.

This formulation will be referred to as the **MINNMV** model since it minimizes the sum of $4 - mv_s$ for retained sites or activities. Site or activities having a high military value (3) will have 1 as their value. Site or activities with low military value (1) will have 3 as their value.

The parameters u_1 and u_2 are used to scale the two components of the objective function. Scaling the components of the objective function enhances the ability of the solver to find a solution. Apart from the weight parameters, these scaling parameters will scale the components of the objective function to values near 1.0 .

The weight parameter, w, can be varied to change the emphasis the formulation gives to military value versus functional value. If $w = 0$, this formulation matches the preliminary formulation (**MAXFV**) as site military value would have zero weight. Conversely, if w is set to a large value ($w = 99$), functional value would have little weight. The **MAXFV** and **MINNMV** formulations are the same formulation, only differing in the parameter w . Varying w in the formulation allows the model to be used to create a family of solutions.

The MINXCAP Formulation. If the parameter w is set to a large value ($w = 99$), this problem formulation will find the set of retained sites having the smallest total functional capacity but still able to perform the DoD functional requirement. Depending on w, functional assignments are also optimized. The objective function for this formulation is:

$$\underset{o_s, l_{ig}, k_{uh}}{Minimize}\ f(o_s, l_{ig}, k_{uh}) = \left(\frac{w}{u_1}\right) \times \Sigma_{s \in S}\, o_s \times \left(\Sigma_{f \in F}\, cap_{sf}/req_f\right) - \left(\frac{100-w}{u_2}\right) \times \Sigma_{i \in S} \Sigma_{g \in F}\, l_{ig} \times fv_{ig}/req_g$$

If $w = 0$, this formulation, like the **MINNMV** formulation, is also equivalent to the **MAXFV** formulation. If w is set to a large value, excess capacity is reduced as much as possible without regard to functional values. As in the **MINNMV** formulation, u_1 and u_2 are used to scale the components of the objective function. For this formulation $u_1 = \Sigma_{s \in S} \Sigma_{f \in F}\, cap_{sf}/req_f$. The other scale parameter u_2 is set to the same value for all formulations.

The MINSITES Formulation. This formulation, depending on the value of w, will find the minimum-sized set of site or activities that can perform the DoD functional requirement. As in the previous formulations, if $w = 0$, this formulation is also equivalent to **MAXFV**. The objective function for this formulation is given by:

$$\underset{o_s, l_{ig}, k_{uh}}{Minimize}\ f(o_s, l_{ig}, k_{uh}) = \left(\frac{w}{u_1}\right) \times \Sigma_{s \in S}\, o_s - \left(\frac{100-w}{u_2}\right) \times \Sigma_{i \in S} \Sigma_{g \in F}\, l_{ig} \times fv_{ig}/req_g$$

If w is set to a large value, the cross-service functional workload is assigned to the smallest possible number of sites regardless of functional values. For this formulation $u_1 = |S|$, the number of sites in the set S.

OPTIMIZATION MODEL SENSITIVITY ANALYSIS / RUN PLAN

Following the entry of the data into the optimization model the following describes the steps which will be taken to conduct sensitivity analysis and establish the values of the variables and constraints to be used in generating the sets of alternatives to be considered by the LJCSG (see attached figure):

Step 1: BASELINE RUNS Run each of the four objective functions (MINSITES, MINXCAP, MAXFV, MINNMV (when MV available)), with w set at 99 (w=0 for MAXFV), with the data and constraints listed in this plan. The resulting alternative sets will be used as a baseline for sensitivity analysis and constraint definition.

Step 2: REQUIREMENT (CAPACITY) SENSITIVITY. Re-run each objective function varying the value of Functional Requirement (FR) by +/-10% and +/-20%. (FR X 1.10, FR X 0.90, FR X 1.20, FR X .80). Any sensitivity of the model to Functional Capacity Loading will be

reflected by varying FR as the mathematical expressions and the model outputs will be identical. These alternatives will be reviewed to see if there are different output alternatives indicating that additional runs are required. Additional runs will be made with appropriate interim values of FR (i.e., +/-15% (FR X 0.85)) to generate other sets of alternatives as required.

Step 3: WEIGHTING FACTOR (W) SENSITIVITY. Each objective function containing the weighting factor w (MINSITES, MINXCAP, MINNMV) will be run increasing w from 0, in appropriate steps, to identify additional alternative sets. Those runs which yield different alternative sets will be retained for comparison and analysis.

Step 4: ALTERNATIVE SET SENSITIVITY/COMPARISON. Using the alternative sets identified in Steps 1-3; for each set, for each alternative identify each activity with no CSF workload assigned (listed as 0 in the output). Re-run the objective function with a constraint which forces that activity to remain open. Repeat the re-run for each activity forced open in turn. The resultant objective function values (i.e., avg MV, avg weighted FV, remaining excess capacity) will be compared to ensure that there is not an equivalent optimal solution for that objective function. If equivalent optimal solutions are identified, they will be looked at for further cost and operational effectiveness analysis.

SENSITIVE INFORMATION - FOR OFFICIAL USE ONLY

OPTIMIZATION MODEL / SENSITIVITY ANALYSIS RUN PLAN

PARAMETER VALUES / CONSTRAINTS

OBJECTIVE FUNCTIONS	BASE LINE	FR				*W* VARY AS APPROPRIATE	OTHER OPTIMAL ALTERNATIVES
		+10	+20	-10	-20		
MINSITES	X	X	X	X	X	X	X
MAXFV	X	X	X	X	X	X	X
MINXCAP	X	X	X	X	X	X	X
MINNMV	X	X	X	X	X	X	X

EACH X REPRESENTS A SINGLE RUN (OR SET OF RUNS) OF THE JOINT CROSS SERVICE ANALYSIS TOOL AND WILL YIELD A SET (OR SETS) OF ALTERNATIVES FOR REVIEW BY THE JCSG

BRAC 95

Joint Cross-Service Group on Laboratories

Thursday, September 15, 1994, 1600

Minutes

17 NOV 1994

Attendance list is attached. * indicates Chair.

1. The meeting began with a status of the working group's progress in scoring data. The working group has almost completed scoring. Issues which arose predominantly dealt with understanding data responses and their consistency. Requests for clarification (RFC) were sent to activities where needed. Some scoring results are being front loaded into the DPADs model so when all scoring data is complete functional value compilation will require short turnaround time.

2. The next topic briefed was the status of the data. This discussion centered on problems which arose in interpreting how the questions were answered and how these problems were resolved.

3. Discussion then ensued on the status of RFCs from the Military Departments. The working group stated that final RFCs from Military Department's should be in within a week.

4. Discussion then turned to Phase II of the Analysis Plan. In this phase, appendices to the Analysis Plan are being drafted to addresses the limitations of the analytical process; supplemental evaluation guidelines; how the optimization model will be used; how solution sets will be analyzed with the "Fit Check" measures; how operational feasibility will be incorporated; how additional optimization runs can be approved; and what form/content the alternatives will take. There may be additional appendices to deal with the Final Phase which would cover Military Department cost analysis and Laboratory JCSG support of Military Department considerations. The Group approved the modification of the Analysis Plan to incorporate appendices as appropriate for Phase II.

7. The meeting concluded at 1645.

Approved: _____
Anita K. Jones
Chair

BRAC 95

Joint Cross-Service Group on Laboratories

September 15, 1994

List of Attendees

* Dr. Anita Jones, Chairman
Dr. Craig Dorman, Study Team Leader
Mr. George Singley, ASARDA
Mr. Steve Balint, HQ AMC
RADM David Oliver, ASN RDA
Mr. John Trick, Navy BSAT
CDR Scott Evans, Navy BSAT
Mr Matt Mleziva, Air Force
Lt Col Paul Copp, Air Force
Mr. Michael McAndrew, ODASD(ER&BRAC) BCU
Mr. Tom Perdue, OSD (DUSD(AT))
Mr. Don Johnson, OSD (P&R)
Mr. Hal Henry, C3I
Mr. Dan Bortner, DoDIG
Ms. Nancee LaBute, DoDIG
MAJ Robin Pope, OSD (DR&E)

LJCSG STATUS

DR. C. DORMAN

15 SEPT 1994

STATUS OF SCORING

- 1ST PASS COMPLETE
- PRELIMINARY SCORE OF AVAIL DATA COMPLETE
- RFC'S PENDING
- FUNCTIONAL CAPACITY/REQUIREMENT PRELIMINARY DATA ENTRY COMPLETE
- DPADS FRONT-END PRELIMINARY DATA ENTRY ONGOING

STATUS OF DATA

- **LIMITED COMPARABILITY OF DATA DUE TO:**
  - ORGANIZATIONAL/STRUCTURAL DIFFERENCES
  - FUNCTIONAL VS PRODUCT STRUCTURE
  - INCLUSIONARY VS EXCLUSIONARY APPROACH
  - INTERPRETATION (BY ACTIVITY, MEASURE, CSF, . . .)

- **ATTEMPTS TO ACCOMMODATE:**
  - RFC'S
  - SUPPLEMENTAL SCORING EVALUATION CRITERIA
  - ADJUST PROCESS TO REDUCE IMPACT
    - REDUCE DEPENDENCE ON ABSOLUTE VALUES
    - INCREASE DEPENDENCE ON PROFESSIONAL JUDGEMENT

STATUS OF RFC'S

SUBJECT	# OF ACTIVITIES WITH CERTIFIED RESPONSE OUTSTANDING			
	A	N	AF	AFRRI
TOT PERSONNEL	3	6(4)	2	-
PAPERS (S&T)	27	18(13)	9	2
ACAT SYSTEMS (EMD)	27	14(9)	7	-
MISC	11	11(8)	11	1
TOTAL	68	49(34)	29	3

( ) = # OF ADVANCED RESPONSES SUBMITTED

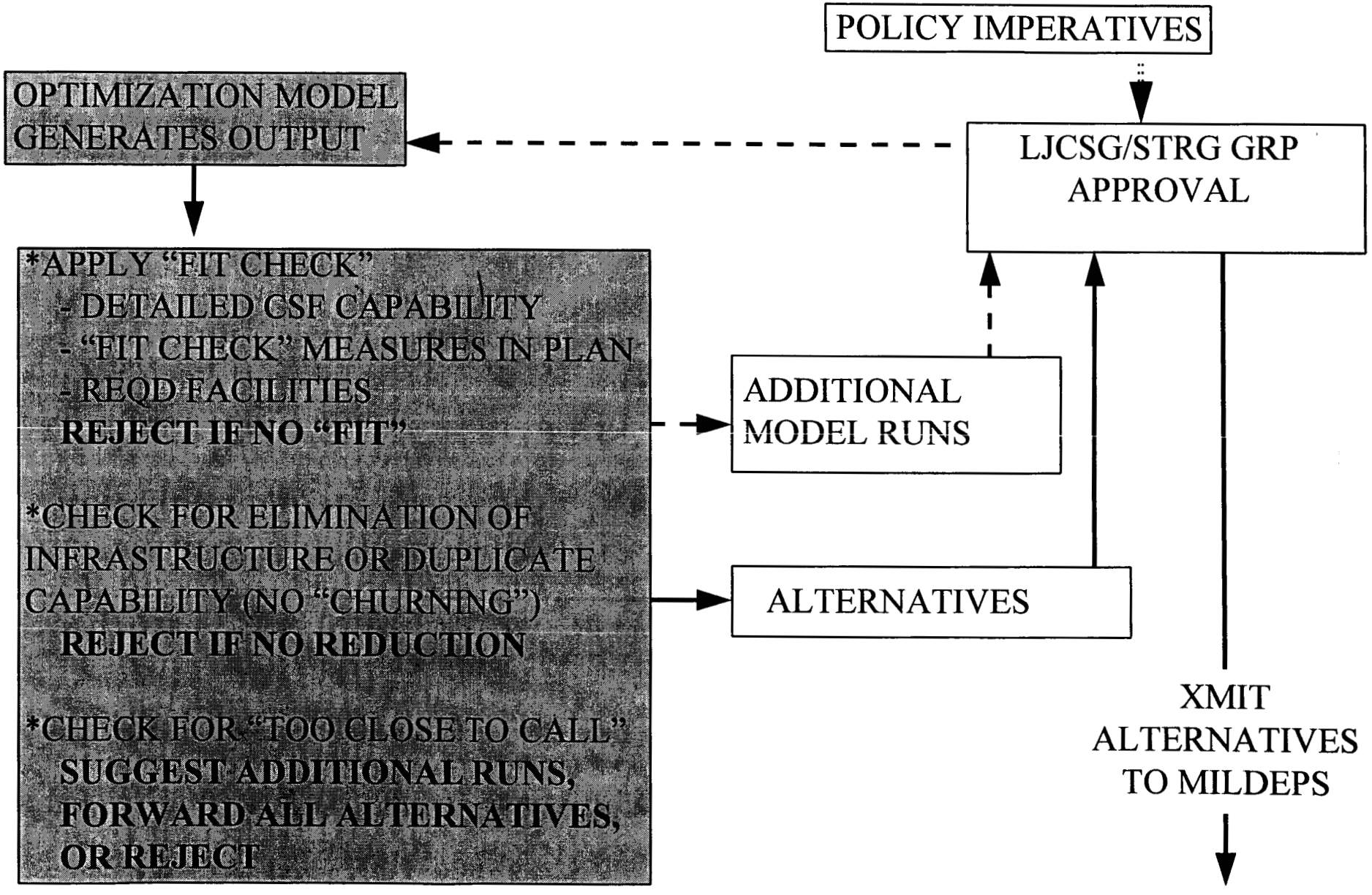
ANALYSIS PLAN UPDATE

- PHASE II
  - LIMITATIONS OF ANALYTICAL PROCESS
    - DESCRIPTION OF FINDINGS (APPENDIX I)
  - SUPPLEMENTAL EVALUATION GUIDELINES
    - ENSURES CONSISTENT SCORING (APPENDIX H)
  - RUNNING THE OPTIMIZATION MODEL
    - ADJUST MATRIX:
      - BASELINE AND -20% FUNCTIONAL REQUIREMENT
    - ADD SENSITIVITY ANALYSIS RUNS:
      - THRESHOLD
        - DELETION OF SMALL WORKYEAR CSF W/IN ACTY
        - DELETION OF SMALL WORKYEAR ACTY
        - DELETION OF CSF WITH SMALL WKYRS, FEW ACTY
      - COMBINATION OF RELATED CSF'S (eg. C4I)
  -

ANALYSIS PLAN UPDATE (CONT)

- PHASE II (CONT)
  - "FIT CHECK"
  - OPERATIONAL FEASIBILITY
  - SUGGESTED ADDITIONAL RUNS
    - MUST BE APPROVED BY LJCSG
  - FORM / CONTENT OF ALTERNATIVES
    - ACTY, CSF's - RELOCATE/CONSOLIDATE
    - SUPPORTING DATA - "ADVISORY COMMENTS"
- FINAL PHASE - MILDEP CONSIDERATIONS
  - MILDEP COST ANALYSIS (COBRA)
  - LJCSG SUPPORT OF MILDEP CONSIDERATIONS

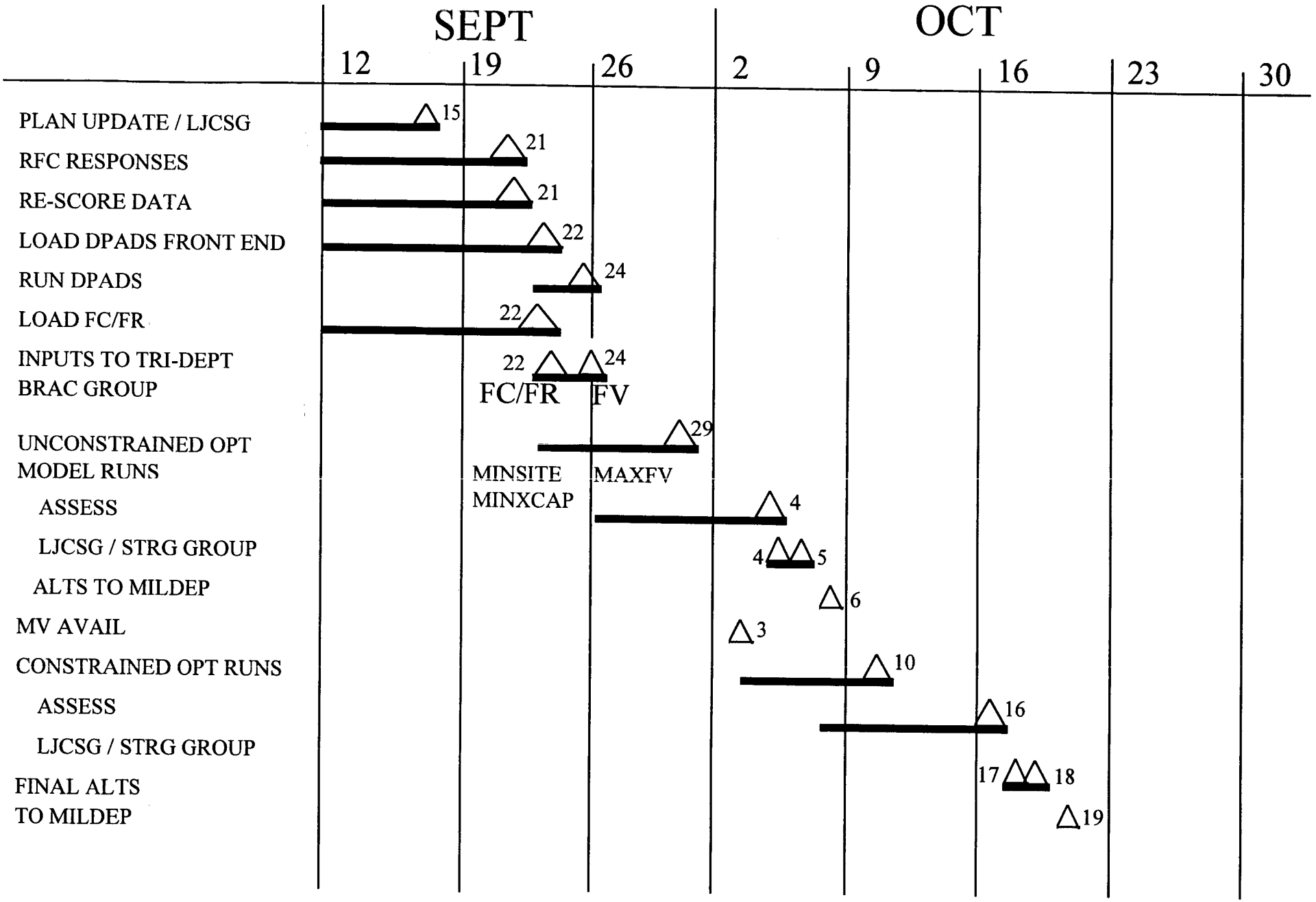
PHASE II LJCSG ANALYSIS PLAN



SCHEDULE ASSUMPTIONS

- FINAL CERTIFICATIONS AVAIL NLT 21 SEP
- MILITARY VALUES AVAIL NLT 3 OCT
- SENSITIVITY ANALYSIS MODEL RUN APPROVAL
- LJCSG MTGS: 4 AND 17 OCT
- STEERING GROUP MTGS: 5 AND 18 OCT

SCHEDULE


SEPT
OCT
12
19
26
2
9
16
23
30
PLAN UPDATE / LJCSG
15
RFC RESPONSES
21
RE-SCORE DATA
21
LOAD DPADS FRONT END
22
RUN DPADS
24
LOAD FC/FR
22
INPUTS TO TRI-DEPT
BRAC GROUP
22
24
FC/FR
FV
UNCONSTRAINED OPT
MODEL RUNS
29
MINSITE
MINXCAP
MAXFV
ASSESS
4
LJCSG / STRG GROUP
4
5
ALTS TO MILDEP
6
MV AVAIL
3
CONSTRAINED OPT RUNS
10
ASSESS
16
LJCSG / STRG GROUP
17
18
FINAL ALTS
TO MILDEP
19

BRAC 95

Joint Cross-Service Group on Laboratories

Monday, October 3, 1994, 1300

Minutes

1. The meeting began with a status of the working group's progress. The working group completed scoring on October 2, frontloading the DPAD model is complete, and analysis of functional requirements is also completed.

2 An issue which arose during the functional requirement analysis is that the optimization model has problems where Functional Requirement exceeds the Functional Capacity. This happens when considering past BRAC actions which have not been implemented and the anticipated capacity is not incorporated yet. A proposed fix would be to artificially say that when FR>FC then we must set FR=FC then run FR=FC and then run the model for FR minus 20%. This fix represents a change to the current analysis plan and must be approved by the Group. The Group agreed with the solution and tasked the working group to continue.

3. Discussion then turned to what runs from the optimization model the Group would find most beneficial. A main point in this discussion was problems associated with consolidated common support function (CSF) runs. To do the consolidated runs the scoring data would have to be modified to pull out factors common across all the affected CSFs.

4. Discussion ensued on the area of C4I. Because the Services are organized differently in this area, the certified data was inconsistant among the Services. To adequately address C4I, a supplemental data call will need to be sent out to obtain the necessary acquisition data to do a cross-service analysis. Discussion of time and benefit arose. The Group agreed that this area can be fruitful if the requisite certified data can be obtained in a timely manner.

5. Further discussion took place in each category with respect to consolidating categories to attain maximum reductions. The Group agreed that the categories that have greatest potential for consolidating are in C4I and Energetics. The Service representatives agreed to put together teams of functional experts to help the working group draft data calls by the end of the week in these two areas.

6. The Group then discussed the status of modifications to the analysis plan. The working group stated that Appendix G (Phase III Update) was complete, Appendix H (Scoring Conventions) will be modified base on today's decision to adopt the procedure when FR>FC, and Appendix I (Data Comparability) is being finalized. The Group agreed that once all three appendices are completed they will be forwarded to the Chairman for signature.

7. The final discussion pertained to the schedule. The working group determined that the unconstrained optimization runs would be available on October 17. If military value is received from the Military Departments on October 13 as planned, the constrained runs and alternatives will be available to the Group by October 27.

8. The meeting concluded at 1345.

Approved: Anita K. Jones
Chairman

BRAC 95

Joint Cross-Service Group on Laboratories

October 3, 1994

List of Attendees

* Dr. Anita Jones, Chairman
Dr. Craig Dorman, Study Team Leader
Mr. George Singley, ASARDA
Mr. Steve Balint, HQ AMC
RADM David Oliver, ASN RDA
Mr. John Trick, Navy BSAT
CDR Scott Evans, Navy BSAT
Mr Matt Mleziva, Air Force
Lt Col Paul Copp, Air Force
Mr. Michael McAndrew, ODASD(ER&BRAC) BCU
Mr. Tom Perdue, OSD (DUSD(AT))
Mr. Don Johnson, OSD (P&R)
Mr. Hal Henry, C3I
Mr. Dan Bortner, DoDIG
Ms. Nancee LaBute, DoDIG
MAJ Robin Pope, OSD (DR&E)

LABORATORY JOINT CROSS SERVICE GROUP

DR. CRAIG DORMAN

3 OCT 1994

LJCSG STATUS

- SCORING COMPLETE
- DPADS FRONT END DATA ENTRY COMPLETE
- DPADS RUN THIS WEEK
- FUNC REQ / FUNC CAPACITY COMPLETE

AIR VEHICLES FR

CSF	S&T	EMD	ISE
FIXED STRUCTURE	497	4669	121
FIXED PROPULSION	542	461	61
FIXED AVIONICS	1080	2516	1418
FIXED FLIGHT SUBSYS	603	1890	318
ROTARY STRUCTURE	76	14	6
ROTARY PROPULSION	121	40	56
ROTARY AVIONICS	15	123	103
ROTARY FLIGHT SUBSYS	267	191	159

WEAPONS FR

CSF	S&T	EMD	ISE
ICBMS/SLBMS	4	933	63
MISSILES/ROCKETS	793	3008	2352
CRUISE MISSILES	37	576	223
GUIDED PROJECTILES	61	214	12
BOMBS	403	162	194
GUNS & AMMO	788	1066	2146
DIRECTED ENERGY	1052	14	0

C4I & SPACE FRs

CSF	S&T	EMD	ISE
C4I AIRBORNE	1453	2788	238
C4I FIXED GROUND	171	824	1029
C4I GROUND MOBILE	436	478	311
SPACE LAUNCH VEHICLES	276	673	3
SPACE SATELLITES	624	2828	75
SPACE GROUND CONTROL	0	610	17

PERVASIVE FRs

CSF	S&T
ADVANCED MATERIALS	1048
ELECTRONIC DEVICES	711
ENVIRONMENTAL QUALITY	929
ENVIRONMENTAL SCIENCES	1322
HUMAN SYSTEMS	2582
INFECTIOUS DISEASES	521
MANPOWER & PERSONNEL	301
TRAINING SYSTEMS	529

FR GREATER THAN FC IN 8 CSF/LCs

- OPTION 1
  - WHERE FR>FC, SET FR=FC; RUN FR-20%
- OPTION 2
  - RUN FR-20%, EXCEPT FOR ROTARY PROPULSION SET AT FR-35%

CONSOLIDATED RUNS

- COMMON PROBLEMS
  - TOTAL ACTIVITY DATA NOT AVAILABLE
    - ACQUISITION COMMANDS
    - SERVICE UNIQUE FUNCTIONS
  - SCORING AND FV DEPENDENT ON CSF DEFINITION
  - WOULD REQUIRE RESCORING AND DPAD MODIFICATION

APPENDIX G, H, I STATUS

- APPENDIX G (PHASE III UPDATE) UNCHANGED
- APPENDIX H (SCORING CONVENTIONS) BEING UPDATED
- APPENDIX I (DATA COMPARABILITY) BEING FINALIZED

SCHEDULE

- UNCONSTRAINED RECOMMENDATIONS AVAILABLE 17 OCT TO THE LJCSG

- WITH MV DELIVERED NLT 13 OCT, CONSTRAINED RECOMMENDATIONS AVAILABLE 27 OCT TO THE LJCSG

BRAC 95

Joint Cross-Service Group on Laboratories

October 5, 1994

Minutes

Attendance list is attached. * indicates Chair.

1. The service principals of the LJCSG met with Dr. Dorman and technical experts to review and finalize supplemental data calls designed to address the functional areas of C4I and Energetic materials. This action having been directed at the last LJCSG meeting.

2. The group reviewed the initial products prepared by two teams of technical experts, one team in each of the functional areas under consideration. Discussion focused on developing a data call that was achievable within the time frame of the BRAC process yet providing information with sufficient detail to be useful in developing alternatives.

3. After providing the technical experts with further guidance the group recessed until 1730hrs.

4. The revised data call addressing C4I was reviewed and approved with minor changes. The data call for energetic materials was approved with the understanding that it would follow the same approach as the C4I data call.

5. The group directed Major Pope to coordinate the data calls with the OSD BRAC office and to insure the executive secretary of the Steering group approved the process the group envisioned for these supplemental data calls including the use of technical experts.

6. The meeting concluded at approximately 1930.

Approved: _____
Craig E. Dorman
Acting Chairman

BRAC 95

Joint Cross-Service Group on Laboratories

October 5, 1994

List of Attendees

List of Attendees

*Dr. Craig E. Dorman, Acting Chairman
Mr. George Singley, ASARDA
Mr. Steve Balint, HQ AMC
RADM David Oliver, ASNRDA
Mr. John Trick, Navy BSAT
Mr. Jim Mattice, ASAF-ACQ
Mr. Matt Mleziva, Air Force
Maj Robin Pope, OSD(DR&E)

Technical Experts

ORG	NAME, TITLE	subject
Wright Lab Armament Directorate, Eglin AFB	Gary H. Parsons, Chief Energetic Materials Branch	energetics
Phillips Lab, Propulsion Directorate, Edwards AFB	Robert C. Corley, Chief Scientist	energetics
Phillips Lab, Propulsion Directorate, Edwards AFB	Steven Rogers	energetics
AMC	Michael F. Fisette, Principal deputy for technology	energetics, C4I
CECOM	Victor J. Ferlise, Deputy to the CG	C4I
ESC Hanscom AFB	COL Ken Collins, Director of Quality Initiatives and Strategic Planning	C4I
ARDEC, Pickatinny	George Taylor	energetics
CECOM	Gene Famolari	C4I
Pentagon ASF/AQ	LTC Fred Gilbert	C4I

BRAC 95

Joint Cross-Service Group on Laboratories

October 17-18, 1994

Minutes 17 NOV 1994

Attendance list is attached. * indicates Chair.

1. Dr. Dorman defined the purpose and agenda of the meeting using the attached slide.

2. The group reviewed and approved the alternatives presented by the working group.

3. The Group outlined the key points to be included in the memorandum forwarding the alternatives to the Services. Dr. Dorman took the action to insure the cover memorandum was prepared and the package was coordinated with the OSD BRAC office.

Approved:_____
Anita K. Jones
Chair

LJCSG
10-17/18-94

- FR, FC, FV Calculated
- Optimization Model Runs Completed
- Awaiting MV
- Yet to do: C4I, Energetics, Combined Human Systems/Manpower-Personnel
- Today & Tomorrow: Review Unconstrained Alternatives

BRAC 95

Joint Cross-Service Group on Laboratories

October 17-18, 1994

List of Attendees

List of Attendees

*Dr. Anita K. Jones, Chair
Dr. Craig E. Dorman
Mr. John Bolino, 18 Oct only
Mr. Steve Miller
Mr. Don Johnson, 17 Oct only
Mr. Paris Genalis
Mr. Ken VanHove
Mr. Mike McAndrew, 18Oct only
Mr. George Singley
LTC Dan Thomas
Mr. Steve Balint, 18 Oct only
Mrs. Kathy Polmateer
LTC Powell, 17 Oct only
Mr. John Trick
CDR Scott Evans
Mr. Jim Mattice
Mr. Matt Mleziva
LTC Mike Binion
Mr. Tom Frysinger
Maj Robin Pope

BRAC 95

Joint Cross-Service Group on Laboratories

October 20, 1994

Minutes

Attendance list is attached. * indicates Chair.

The group received presentations by each Service on how work in energetic materials is organized and conducted.

Approved: _____
Craig E. Dorman
Acting Chairman

BRAC 95

Joint Cross-Service Group on Laboratories

October 20, 1994

List of Attendees

List of Attendees

*Dr. Craig E. Dorman
Mr. George Singley
Mr. Jim Mattice
RADM Oliver
Mr. John Trick
Mr. Rick Collier
LTC Dan Thomas
Mr. Steve Balint
LTC Powell
Mr. Matt Mleziva
LTC Mike Binion
Maj Robin Pope

Technical advisors/briefers

Army
BG Bottie, Pecatinny
Mr. Mike Fisette, AMC
Dr. Bill Stephens, MICOM
Mr. Carmine Spinelli, Picatinny
Dr. Joe Laman
Navy
Mr. Ira Blatstein, NSWC
Mr. Tom Clare, NSWC
Mr. Dave Reece, NSWC
Mr. Ron Derr, NAWC
Mr. Dan Gross, NAWC
Mr. Roger Smith, NSWC
RADM Newman, NAWC
RADM McGinley, NAVSEASYSCOM
Air Force
Dr. Daniels, AEDC
Mr. Randall Quinn, AEDC
LTC Vince Albert, AEDC
Col Bob Karner, Phillips, Edwards
Mr. Lee Myer, Phillips, Edwards
Dr Mike Caluda, Eglin AFB
Mr. Paul Shirey, Eglin AFB
Mr. Greg Parsons, Eglin AFB
.COL Gerry Daugherty, Eglin AFB
COL Dave McNierney, Support Team
CPT R. Curtis McNeil, Support Team
Mr. Ed Taconi, SAF/AQT

BRAC 95

Joint Cross-Service Group on Laboratories

Tuesday, November 1, 1994, 1330

Minutes

Attendance list is attached. * indicates Chair.

1. The meeting began with a briefing on the results of the unconstrained optimization runs. Two runs were made...the first run only considering the individual common support functions and the second combining several of the like common support functions. The first set was run on October 20 and the second set was run on October 31. Although the working group had to override some model output in the first run due to unique features not recognized by the model, they did not override any in the second because there were more sites left open in the second run.

2. The Group decided that because the two sets of output provide different results, both sets of runs will be transmitted to the Military Departments for their review/consideration.

3. Discussion then arose on the Training Systems alternative. The concern was that, as worded, the alternative is unclear whether the proposed action is to collocate the activity instead of merge activities. The Group agreed to reword the alternative specifying the location and to ensure the alternative reflects a collocation of activities.

4. The working group then discussed analysis procedures for C4I and Energetics. C4I is quite general but Energetics has several components. The working group also discussed the status of the supplemental data calls for these two areas. The Army certified data has been delivered to the working group and the Air Force and Navy data is expected in by the end of the week.

5. The working group next discussed scheduling. The working group stated that the Military Departments are expecting their representatives to return to participate in their respective BRAC processes. At the same time the Lab JCSG expects the working group to perform the analysis on the C4I and Energetics data once received. This problem of timing is further exacerbated due to military value not being released yet (i.e. constrained runs will still need to be run and analyzed). After discussion, it was agreed that the representatives would be of more value within their Service teams and would return immediately after completion of Military Value runs. Dr. Dorman stated that because the Group does not know when the military value or the certified data will come to the JCSG, he would to perform the analysis and document the analysis approach/plan of the supplemental data calls and, at the same time, make available the certified data to each Military Department so they can analyze the data independently in their BRAC processes. The Group agreed to this recommendation.

6. The previous problem brought out the question of whether the C4I or Energetics analysis can even be completed in time for the Military Department's to perform meaningful analysis. The Group decided it would be beneficial to send the Military Departments the alternatives already prepared for C4I and Energetics based on the unconstrained model runs, in the event that the supplemental data calls are not received and analyzed in time. If the supplemental data calls arrive with enough time for analysis and additional alternative development, the new alternatives will be presented to the JCSG and then forwarded to the Military Departments to superceed the individual runs.

7. The meeting concluded at 1515.

Approved: _____
Anita K. Jones
Chairman

Activity	HUMAN SYSTEMS	MANPOWER & PERSONNEL	INFECTIOUS DISEASES	TRAINING SYSTEMS	HUM-PERS	INFECTIOUS DISEASES	TRAINING SYSTEMS
AERODYN-MOFFET	x				x		
USAARL FT RUCKER	x	x			x		
AFRRI	X				X		
ARDEC-ST LOUIS	x				X		
ARL-APG	X				X		
ARM-BROOKS	X	X		x	X		x
ARM-WPAFB	X				X		
NAVBIOLAB	x				x		
NAWC CHINA LAKE	X			x	X		x
NAMRC PENSACOLA	X	x			x		
NDRI GREAT LAKES	x		x		x	x	
NHRC SAN DIEGO	x				x		
NMRI BETHESDA	X	x	X		X	X	
NPRDC SAN DIEGO	X	x		x	X		x
NAWC PAX RIVER	X				X		
USARI ALEXANDRIA		x		x	X		x
RIEM NATICK	x	x			x		
WRAIR WASH DC	X		X		X	X	
ARM-WILLIAMS				X			X
NAWC ORLANDO		X		X			X
STRICOM		X		X			X
RIID FT DETRICK			X			X	

LJCSG WG Current Plan

- **Mid-Nov**: Consolidation into an office at TEC Complex
- **2 NOV-31 Dec**:
  - -- MILDEPs expect LJCSG WG members to return to participate in respective MILDEP's BRAC processes
  - -- LJCSG expects WG members to conduct C4I & Energetics supplemental analysis
  - -- Constrained Runs (w/MV) still outstanding pending MILDEP delivery of MV
  - -- Recommend LJCSG Data access & duplication by MILDEP BRAC personnel
- **1 JAN 95**:
  - -- MILDEP Recommendations to OSD
  - -- IAW Perry BRAC 95 Guidance Memo-LJCSG Oversight Completed

BRAC 95

Joint Cross-Service Group on Laboratories

November 1, 1994

ALTERNATIVES TO MILDEPS

List of Attendees

* Dr. Anita Jones, Chairman
Dr. Craig Dorman, Study Team Leader
Mr. George Singley, Army
LTC Dan Thomas, Army
Mrs. Cathy Polmaker, Army
RADM Marc Palaez, Navy
Mr. John Trick, Navy
CDR Scott Evans, Navy
Mr Matt Mleziva, Air Force
Col Mike Binion, Air Force
Mr. Michael McAndrew, ODASD(I) BC
Mr. John Bolino, DT&E
Mr. Steve Miller, PA&E
Mr. Dan Bortner, OUSD(C)
Ms. Nancee LaBute, DoDIG
Mr. Ken VanHove, DoDIG
MAJ Robin Pope, OSD (DR&E)

HUMAN SYSTEMS/MANPOWER & PERSONNEL

* **MODEL OUTPUT:**

Activity		Life Cycle	Functional Capacity	MAXFV Load	MINSITE Load	MINXCAP Load	FV
AERODYN-MOFFET	HUM-PERS	ST	30	0	0	30	2.4
USAARL FT RUCKER	HUM-PERS	ST	186	0	0	186	2.8
AFRRI	HUM-PERS	ST	297	297	297	297	2.9
ARDEC-ST LOUIS	HUM-PERS	ST	5.4	0	0.027	2.7	2.4
ARL-APG	HUM-PERS	ST	222	222	222	0	3.6
ARM-BROOKS	HUM-PERS	ST	815.7	815.7	815.7	815.7	3.9
ARM-WPAFB	HUM-PERS	ST	518	518	518	518	3.6
NAVBIOLAB	HUM-PERS	ST	22.5	0	0	22.5	2.6
NAWC CHINA LAKE	HUM-PERS	ST	3.5	3.5	3.5	3.5	4.0
NAMRC PENSACOLA	HUM-PERS	ST	49.5	49.5	0	0	3.8
NDRI GREAT LAKES	HUM-PERS	ST	37	0	0	0	2.8
NHRC SAN DIEGO	HUM-PERS	ST	122	0	0	122	2.6
NMRI BETHESDA	HUM-PERS	ST	253.8	0	253.8	0	2.8
NPRDC SAN DIEGO	HUM-PERS	ST	81.5	81.5	0	81.5	3.0
NAWC PAX RIVER	HUM-PERS	ST	27.8	27.8	27.8	27.8	3.2
USARI ALEXANDRIA	HUM-PERS	ST	101.6	39.3	70.473	101.6	2.8
RIEM NATICK	HUM-PERS	ST	154	154	0	0	3.2
WRAIR WASH DC	HUM-PERS	ST	97.7	97.7	97.7	97.7	4.5

* **ALTERNATIVES CONSIDERED BY THE LJCSG:**

1 -- **The Armed Forces Radiobiological Research Institute, Bethesda (AFFRI) continues Human Systems/Manpower & Personnel functions and serves as a co-location/consolidation receiving site for Army and Navy Human Systems/Manpower & Personnel subfunctions for which AFFRI has the capability that the Army or Navy does not have at their receiving sites.**

Army consolidates Human Systems/Manpower & Personnel functions to a maximum of 4 sites. Human Systems/Manpower & Personnel subfunctions being consolidated that require capability that doesn't exist at Army receiving sites, should be co-located/consolidated in the Navy, Air Force or AFFRI when that capability exists, in lieu of establishing new capabilities at the Army receiving sites.

Navy consolidates Human Systems/Manpower & Personnel functions to a maximum of 4 sites. Human Systems/Manpower & Personnel subfunctions being consolidated that require capability that doesn't exist at Navy receiving sites, should be co-located/consolidated in the Army, Air Force or AFRRI when that capability exists, in lieu of establishing new capabilities at the Navy receiving sites.

Air Force continues Human Systems/Manpower & Personnel functions at a maximum of 2 sites and serves as co-location/consolidation receiving sites for Army and Navy Human Systems/Manpower & Personnel subfunctions for which the Air Force has the capability that the Army or Navy does not have at their consolidation receiving sites.

2 -- Retain existing capabilities, low probability of infrastructure reduction.

3 -- Alternative 1 except the Armed Forces Radiobiological Research Institute, Bethesda does not serve as a receiving site for additional Human Systems/Manpower & Personnel subfunctions. Although AFRRI has a capacity of 297 workyears and the optimization model fully loads them, relocating additional Human Systems/Manpower & Personnel subfunctions to AFRRI is not practical. AFRRI specializes solely in Ionizing Radiation research and is the only activity engaged in Ionizing Radiation research. To establish other Human Systems/Manpower & Personnel subfunctions capability at AFRRI is not practical when there is already more capacity than required in the balance of the infrastructure.

Additionally, AFFRI's workload shows a significant steady decline, with only 79 workyears programmed in FY97. The continued need for Ionizing Radiation research needs to be carefully considered as well as other alternatives for accomplishing the research, in lieu of maintaining capability and capacity at AFFRI.

* SELECTED ALTERNATIVE FOR MILDEP CONSIDERATION:

Alternative 3 - Considerable duplication of capability exists across a heterogeneous mix of diverse Human Systems/Manpower & Personnel subfunctions requiring differing skill/knowledge bases and equipment/facilities. Sufficient information to determine specific workload distribution of these diverse subfunctions does not exist. The Military Departments need to determine the optimal dispersal of Human Systems/Manpower & Personnel subfunctions to consolidation receiving sites from the activities ceasing Human Systems/Manpower & Personnel functions.

* **ANALYSIS/RATIONALE:**
Mission Compatibility

Activity	Physiology in Extreme Environment	Human Performance	Toxicology	Non-Ionizing Radiation	Biodynamic	Human System Interface	Ionizing Radiation	Dentistry	Operational Medicine	Manpower Assessment, Selection & Classification
WRAIR								X	X	
ARM_BROOKS		X		X	X	X				X
NAWC CHINA LK		X				X				
ARM_WPAFB		X	X		X	X				
ARL_APG		X				X				
NAMRL PCOLA		X			X					X
NAWC PAX RVR					X	X				
USARIEM	X	X								X
NPRDC, SAN DIEGO		X								X
AFRRI							X			
NAV DENTAL INST								X		
NMRI, BETHESDA	X	X	X						X	
AARL, FT RUC		X			X					X
NAV HEALTH RSCH		X							X	
NAVY BIOLAB					X					
AVRDEC, MOFF					X	X				
AVRDEC, ST LOU						X				
USARI ALEX. VA										X

Although the Optimization Model only loads the Naval Medical Research Institute in the MINSITE case, it is recommended that it continue Human Systems/Manpower & Personnel functions. It is one of Two activities currently performing the Physiology in Extreme Environment Subfunction, the other being the Army Research Institute of Environmental Medicine, Natick which the Optimization Model does not load. Under the Infectious Diseases CSF, the Naval Medical Research Institute remains workloaded.

Facilities and Equipment Compatibility
GREATER THAN $10M ASSETS

ARMSTRONG LAB BROOKS AFB
- Human Rated Centrifuge $13.9M
- Altitude & Environmental Simulation Chambers $21.3M
- 20 Microwave Transmitters $28M

ARMSTRONG LAB WRIGHT-PAT AFB
- Dynamic Environment Simulator Centrifuge $22.2M

NAVAL AEROSPACE MEDICAL RESEARCH LAB PENSACOLA
- Corriolis Acceleration Platform $20M
- Human Disorientation Device $10M

ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE NATICK
Climatic Chamber Facility w/ temperature, rain and wind $50M

ARMED FORCES RADIOBIOLOGICAL RESEARCH INSTITUTE BETHESDA
TRIGA Reactor $16.2M
Human Systems Linear Electron Accelerator $14.7M

NAVAL MEDICAL RESEARCH INSTITUTE BETHESDA
Man-Rated Diving Chamber Complex $30M
Hemoglobin Production Facility $10M

ARMY AEROMEDICAL RESEARCH LAB FT. RUCKER
Helicopter Research Simulator $20M
Specially Instrumented Aircraft, 2 Rotary & 1 Fixed wing $25M
Man Rated Multi axis Ride Simulator $10M

ARMY AVIATION RESEARCH, DEVELOPMENT & ENGINEERING CENTER MOFFETT FIELD
Crew Station R&D Facility $34M
Helicopter Human Factors Research Facility $11M
Automation Sciences Research Facility $12M

ARMY RESEARCH INSTITUTE ALEXANDRIA VA
Rotary Wing Flight Simulator $27.8M

Relocation Constraints/Restrictions (Fit Check)

It appears the Climatic Chamber at the Army Research Institute of Environmental Medicine, Natick is unique amongst Activities performing Human Systems Research. However, it appears the Climatic Chamber may be moveable, as it appears it may be modular in construction. Another possible alternative would be to leave the facility in tact under the installation host activity, USANRDEC and have USANRDEC provide the necessary service to the Human Systems community. USANRDEC is already providing other climatic and research chamber support to USARIEM.

The Helicopter Research Simulator at Army Aeromedical Research Lab, Ft. Rucker appears to be easily relocatable. The specially instrumented aircraft appear to be flight worthy and could be flown to a new location. The Man-rated Multi-axis Ride Simulator also appears to be relocatable; however, similar capability exists at several other activities performing biodynamics.

The ability to relocate the equipment/facilities at Army Aviation Research, Development & Engineering Center, Moffett Field is not readily apparant. However, it does appear the Crew Station R&D Facility is comprised mainly of computer hardware and consoles. Further, based on the functions performed, similar capabilities probably exist elsewhere.

*** ADVISORY COMMENTS :**

The Armed Forces Radiobiological Research Institute, Bethesda has two major pieces of equipment. The Human Systems Linear Electron Accelerator $14M appears to be relocateable. The TRIGA Reactor $16.2M appears to be a different problem. With significantly declining workload, the real need for a reactor should be reviewed and a determination made as to whether it could be deactivated in place.

INFECTIOUS DISEASES

* **MODEL OUTPUT:**

Activity		Life Cycle	Functional Capacity	MINXCAP Load	MINSITE Load	MAXFV Load	MINNM V Load	FV
WRAIR	INFECT	ST	395.3	395.3	395.3	395.3		6.1
NMRI, BETHESDA	INFECT	ST	107	0	21.74	21.74		3.1
RIID, FT DETRICK	INFECT	ST	29.9	21.74	0	0		3
NAV DENTAL INST	INFECT	ST	37	0	0	0		2

* **ALTERNATIVES CONSIDERED BY THE LJCSG:**

1 -- **Army consolidate infectious diseases at a single site**
Navy consolidate infectious diseases at a single site

2 -- **Retain existing capabilites, low probability of infrastructure reduction**

3 -- **Navy consolidate infectious diseases at a single site**

* **SELECTED ALTERNATIVE FOR MILDEP CONSIDERATION:**

ALTERNATIVE 3

* **ANALYSIS/RATIONALE:**
Mission Compatibility

WALTER REED ARMY INSTITUTE OF RESEARCH "conducts field surveys to identify threats to health and safety of soldiers in peace and war, conducts basic research that may have applicability to those threats, develops solutions (vaccines,drugs, doctrine) based on that science, and performs field tests of the newly-developed products. This work spans the full spectrum of military biomedicine, including all the medical Common Support Functions (Infectious Diseases, Human Systems, Combat Casualty Care, Combat Dentistry, Chemical-Biological Defense)."

NAVAL MEDICAL RESEARCH INSTITUTE "Conducts basic and applied research on the development of vaccines and other methods for the prevention, rapid diagnosis, and treatment of infectious diseases of military importance. Conducts basic and applied research on the epidemiology of infectious diseases and provides assessments of the potential effects of new emerging disease threats in the areas of military interest. Conducts basic and applied research on rapid, field-deployable methods for the identification and diagnosis of potential biological warfare agents."

ARMY MEDICAL RESEARCH INSTITUTE OF INFECTIOUS DISEASES "Conducts research to develop strategies, products, information, procedures and training for medical defense against highly hazardous infectious diseases that require special laboratory containment for study...and for medical defense against biological

warfare threats such as microbial agents and toxins." "USAMRIID is the only maximum biological containment facility within DoD and one of only three in the U.S."

NAVAL DENTAL RESEARCH INSTITUTE "Conducts research in dental and allied sciences relative to dental health of Navy and Marine Corps personnel, with special emphasis on the recruit. Provides continuing scientific competence through staff and consulting services to accomplish dental research relevant to the present and future mission of the Navy. Maintain a program of fundemental research in areas of military importance to develop skills and knowledge in anticipation of futere Navy and Marine Corps dental problems."

Although the optimization model only loaded USARIID FT. DETRICK in the MINXCAP case, it represents a critical capability with unique high cost facilities. This capability is likely to become more critical in the future.

***ADVISORY COMMENTS:**

The optimization model output contiues NMRI Bethesda in infectious diseases because the DoD functional requirement is slightly greater than the functional capacity of Walter Reed Army Institute of Research. The Navy should co-locate/consolidate as much infectious disease work as possible with the Army at Walter Reed.

INFECTIOUS DISEASES

* **MODEL OUTPUT:**

Activity		Life Cycle	Functional Capacity	MINXCAP Load	MINSITE Load	MAXFV Load	MINNM V Load	FV
WRAIR	INFECT	ST	395.3	395.3	395.3	395.3		6.1
NMRI, BETHESDA	INFECT	ST	107	21.74	21.74	21.74		3.1
RIID, FT DETRICK	INFECT	ST	29.9	0	0	0		3
NAV DENTAL INST	INFECT	ST	37	0	0	0		2

* **ALTERNATIVES CONSIDERED BY THE LJCSG:**

1 -- Army consolidate infectious diseases at a single site
Navy consolidate infectious diseases at a single site

2 -- Retain existing capabilites, low probability of infrastructure reduction

3 -- Navy consolidate infectious diseases at a single site

* **SELECTED ALTERNATIVE FOR MILDEP CONSIDERATION:**

ALTERNATIVE 3

* **ANALYSIS/RATIONALE:**
Mission Compatibility

WALTER REED ARMY INSTITUTE OF RESEARCH "conducts field surveys to identify threats to health and safety of soldiers in peace and war, conducts basic research that may have applicability to those threats, develops solutions (vaccines,drugs, doctrine) based on that science, and performs field tests of the newly-developed products. This work spans the full spectrum of military biomedicine, including all the medical Common Support Functions (Infectious Diseases, Human Systems, Combat Casualty Care, Combat Dentistry, Chemical-Biological Defense)."

NAVAL MEDICAL RESEARCH INSTITUTE "Conducts basic and applied research on the development of vaccines and other methods for the prevention, rapid diagnosis, and treatment of infectious diseases of military importance. Conducts basic and applied research on the epidemiology of infectious diseases and provides assessments of the potential effects of new emerging disease threats in the areas of military interest. Conducts basic and applied research on rapid, field-deployable methods for the identification and diagnosis of potential biological warfare agents."

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maximum biological containment facility within DoD and one of only three in the U.S."

NAVAL DENTAL RESEARCH INSTITUTE "Conducts research in dental and allied sciences relative to dental health of Navy and Marine Corps personnel, with special emphasis on the recruit. Provides continuing scientific competence through staff and consulting services to accomplish dental research relevant to the present and future mission of the Navy. Maintain a program of fundemental research in areas of military importance to develop skills and knowledge in anticipation of futere Navy and Marine Corps dental problems."

Although the optimization model "zeroed out" USARIID FT. DETRICK, it represents a critical capability with unique high cost facilities. This capability is likely to become more critical in the future.

***ADVISORY COMMENTS:**

The optimization model output contiues NMRI Bethesda in infectious diseases because the DoD functional requirement is slightly greater than the functional capacity of Walter Reed Army Institute of Research. The Navy should co-locate/consolidate as much infectious disease work as possible with the Army at Walter Reed.

HUMAN SYSTEMS

* MODEL OUTPUT:

Activity		Life Cycle	Functional Capacity	MINXCAP Load	MINSITE Load	MAXFV Load	MINNMV Load	FV
WRAIR	HUMAN	ST	97.7	97.7	97.7	98		4.4
ARM_BROOKS	HUMAN	ST	688.3	688.3	688.3	688		4.2
NAWC CHINA LK	HUMAN	ST	3.5	3.5	3.5	3.5		3.9
ARM_WPAFB	HUMAN	ST	518	518	518	518		3.7
ARL_APG	HUMAN	ST	222	0	222	222		3.6
NAMRC PCOLA	HUMAN	ST	42.6	42.6	0	43		3.6
NAWC PAX RVR	HUMAN	ST	27.8	27.8	27.8	28		3.2
USARIEM	HUMAN	ST	127	0	0	127		3.2
NPRDC, SAN DIEGO	HUMAN	ST	2	0	2	2		3.1
AFRRI	HUMAN	ST	297	297	297	297		2.9
NAV DENTAL INST	HUMAN	ST	37	0	0	0		2.8
NMRI, BETHESDA	HUMAN	ST	244.4	244.4	209.14	0		2.8
USAARL, FT RUC	HUMAN	ST	147.1	0	0	40		2.8
NAV HEALTH RSCH	HUMAN	ST	122	122	0	0		2.6
NAVY BIOLAB	HUMAN	ST	22.5	0	0	0		2.6
AVRDEC, MOFF	HUMAN	ST	30	24.14	0	0		2.4
AVRDEC, ST LOU	HUMAN	ST	5.4	0	0	0		2.4

* ALTERNATIVES CONSIDERED BY THE LJCSG:

1 -- **The Armed Forces Radiobiological Research Institute, Bethesda (AFFRI) continues Human Systems functions and serves as a co-location/consolidation receiving site for Army and Navy Human Systems subfunctions for which AFFRI has the capability that the Army or Navy does not have at their receiving sites.**

Army consolidates Human Systems functions to a maximum of 2 sites. Human Systems subfunctions being consolidated that require capability that doesn't exist at Army receiving sites, should be co-located/consolidated in the Navy, Air Force or AFFRI when that capability exists, in lieu of establishing new capabilities at the Army receiving sites.

Navy consolidates Human Systems functions to a maximum of 5 sites. Human Systems subfunctions being consolidated that require capability that doesn't exist at Navy receiving sites, should be co-located/consolidated in the Army, Air Force or AFRRI when that capability exists, in lieu of establishing new capabilities at the Navy receiving sites.

Air Force continues Human Systems functions at a maximum of 2 sites and serves as co-location/consolidation receiving sites for Army and Navy Human

Systems subfunctions for which the Air Force has the capability that the Army or Navy does not have at their consolidation receiving sites.

2 -- Retain existing capabilities, low probability of infrastructure reduction.

3 -- Alternative 1 except the Armed Forces Radiobiological Research Institute, Bethesda does not serve as a receiving site for additional Human Systems subfunctions. Although AFRRI has a capacity of 297 workyears and the optimization model fully loads them, relocating additional Human Systems subfunctions to AFRRI is not practical. AFRRI specializes solely in Ionizing Radiation research and is the only activity engaged in Ionizing Radiation research. To establish other Human Systems subfunctions capability at AFRRI is not practical when there is already more capacity than required in the balance of the infrastructure.

Additionally, AFFRI's workload shows a significant steady decline, with only 79 workyears programmed in FY97. The continued need for Ionizing Radiation research needs to be carefully considered as well as other alternatives for accomplishing the research, in lieu of maintaining capability and capacity at AFFRI.

* SELECTED ALTERNATIVE FOR MILDEP CONSIDERATION:

Alternative 3 - Considerable duplication of capability exists across a heterogeneous mix of diverse human systems subfunctions requiring differing skill/knowledge bases and equipment/facilities. Sufficient information to determine specific workload distribution of these diverse subfunctions does not exist. The Military Departments need to determine the optimal dispersal of Human Systems subfunctions to consolidation receiving sites from the activities ceasing Human Systems functions.

* **ANALYSIS/RATIONALE:**
Mission Compatibility

Activity	Physiology in Extreme Environment	Human Performance	Toxicology	Non-Ionizing Radiation	Biodynamic	Human System Interface	Ionizing Radiation	Dentistry	Operational Medicine
WRAIR								x	x
ARM_BROOKS		x		x	x	x			
'AWC CHINA LK		x				x			
.RM_WPAFB		x	x		x	x			
ARL_APG		x				x			
NAMRC PCOLA		x			x				
NAWC PAX RVR					x	x			
USARIEM	x	x							
NPRDC, SAN DIEGO		x							
AFRRI							x		
NAV DENTAL INST								x	
NMRI, BETHESDA	x	x	x						x
USAARL, FT RUC		x			x				
NAV HEALTH RSCH		x							x
NAVY BIOLAB					x				
AVRDEC, MOFF					x	x			
AVRDEC, ST LOU						x			

Facilities and Equipment Compatibility
GREATER THAN $10M ASSETS

ARMSTRONG LAB BROOKS AFB
Human Rated Centrifuge $13.9M
Altitude & Environmental Simulation Chambers $21.3M

20 Microwave Transmitters $28M

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Man-Rated Diving Chamber Complex $30M
Hemoglobin Production Facility $10M

ARMY AEROMEDICAL RESEARCH LAB FT. RUCKER
Helicopter Research Simulator $20M
Specially Instrumented Aircraft, 2 Rotary & 1 Fixed wing $25M
Man Rated Multi axis Ride Simulator $10M

ARMY AVIATION RESEARCH, DEVELOPMENT & ENGINEERING CENTER MOFFETT FIELD
Crew Station R&D Facility $34M
Helicopter Human Factors Research Facility $11M
Automation Sciences Research Facility $12M

Relocation Constraints/Restrictions (Fit Check)

It appears the Climatic Chamber at the Army Research Institute of Environmental Medicine, Natick is unique amongst Activities performing Human Systems Research. However, it appears the Climatic Chamber may be moveable, as it appears it may be modular in construction. Another possible alternative would be to leave the facility in tact under the installation host activity, USANRDEC and have USANRDEC provide the necessary service to the Human Systems community. USANRDEC is already providing other climatic and research chamber support to USARIEM.

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The ability to relocate the equipment/facilities at Army Aviation Research, Development & Engineering Center, Moffett Field is not readily apparant. However, it does appear the Crew Station R&D Facility is comprised mainly of computer hardware and consoles. Further, based on the functions performed, similar capabilities probably exist elsewhere.

*** ADVISORY COMMENTS :**

The Armed Forces Radiobiological Research Institute, Bethesda has two major pieces of equipment. The Human Systems Linear Electron Accelerator $14M appears to be relocateable. The TRIGA Reactor $16.2M appears to be a different problem. With significantly declining workload, the real need for a reactor should be reviewed and a determination made as to whether it could be deactivated in place.

An optimization model run is planned with human systems combined with manpower & personnel.

MANPOWER & PERSONNEL

* **MODEL OUTPUT:**

Activity	Life Cycle	Functional Capacity	MINXCAP Load	MINSITE Load	MAXFV Load	MINNMV Load	FV
USARIEM	ST	27	0	0	27		45
NPRDC, SAN DIEGO	ST	79.5	0	79.5	79.5		42
USARI, ALEXANDRIA	ST	101.6	101.6	101.6	101.6		38
ARM_BROOKS	ST	127.4	127.4	59.46	32.46		34
NAMRC PCOLA	ST	6.9	6.9	0	0		24
NMRI, BETHESDA	ST	9.4	4.66	0	0		21
USAARL, FT RUC	ST	38.9	0	0	0		19

* **ALTERNATIVES CONSIDERED BY THE LJCSG:**

1 -- Army consolidate at USARI Alexandria

Navy consolidate at NPRDC San Diego

Air Force consolidate at Armstrong Lab Brooks AFB

2 -- Retain existing capabilities, low probability of infrastructure reduction

3 -- Army consolidate manpower & personnel with training systemsat STRICOM Orlando or with Manpower & Personnel at the Air Force's Armstrong Lab Brooks AFB.

Navy consolidate manpower & personnel with training systems at NAWC Orlando

Air Force consolidate manpower & Personnel at Armstrong Lab Brooks AFB.

* **SELECTED ALTERNATIVE FOR MILDEP CONSIDERATION:**

Alternative 3

* **ANALYSIS/RATIONALE:**

Mission Compatibility

There is considerable inter-relationships between the Man Power & Personnel, Training

Systems, and Human Systems Common Support Functions (CSFs), with differentiation often very subjective, at best. Many of the activities total work is confined to only these CSFs and they have reported performance of work in more than one of these CSFs. Analysis must involve considerations across all of these CSFs. The Training Systems CSF has already undergone significant Cross-Service consolidation/co-location. The decrease in out year requirements necessitates futher consolidation to reduce unwarranted infrastructure. Navy consolidation in Training Systems should cease performance of work by NPRDC San Diego. Additionally, NPRDC only has capacity to perform 2 workyears in Human Systems. This leaves NPRDC with function in only Manpower & Personnel. In lieu of the Navy maintaining NPRDC, it is recommended that its Manpower & Personnel workload be combined with Training Systems at NAWC Orlando.

Similarly, USARI Alexandria's Training Systems work is recommened to be consolidated with STRICOM Orlando.

Facilities and Equipment Compatibility
Relocation Constraints/Restrictions (Fit Check)
Other

* ADVISORY COMMENTS :

TRAINING SYSTEMS

* **MODEL OUTPUT**:

Activity		Life Cycle	Functional Capacity	MINXCAP Load	MINSITE Load	MAXFV Load	FV
U S A R I , ALEXANDRIA	TRAIN	ST	157.3	157.3	157.3	157.3	5.4
ARM_WMS	TRAIN	ST	168	0	168	142.813	4.1
NPRDC, SAN DIEGO	TRAIN	ST	122.1	122.1	0	122.1	4.1
NAWC ORLANDO	TRAIN	ST	125.4	125.4	97.54	0.627	3.9
ARM_BROOKS	TRAIN	ST	96.3	18.04	0	0	3.7
STRICOM	TRAIN	ST	8	0.04	0.04	0.04	2.4
NAWC CHINA LK	TRAIN	ST	0.5	0	0	0	2.3

* **ALTERNATIVES CONSIDERED BY THE LJCSG:**

1 -- **At a minimum:**
Army consolidate Training Systems S&T work at a single site
Navy consolidate Training Systems S&T work at two sites
Air Force consolidate Training Systems S&T work at a single site

2 -- **Retain existing capabilities, low probability of infrastructure reduction**

3 -- **Army, Navy, and Air Force co-locate all Training Systems S&T work at NAWC Training Systems Division, Orlando,FL.**

* **SELECTED ALTERNATIVE FOR MILDEP CONSIDERATION:**

Alternative 3

* **ANALYSIS/RATIONALE:**

Mission Compatibility: No major anomolies noted

Facilities and Equipment Compatibility: No major anomolies noted

Relocation Constraints/Restrictions (Fit Check): None

Other: It should be noted that NAWC Training Systems Division Orlando performed 936 workyears of training systems work in FY 1993, the majority of which was uncounted because Engineering Development workload is not counted in pervassive CSFs. Under Agreement on Armed Services Training and Personnel Systems Science and Technology Evaluation and Management (TAPSTEM) Committee signed November 1990, the NAWC Orlando mission is to be the principal Navy center for research and development, test and evaluation, acquisition

and product support of training systems; to provide interservice coordination and training systems support for the Army and Air Force; and to perform such other functions and tasks as directed by higher authority.

Additionally, STRICOM is colocated with NAWC Orlando, being a tenant of NAWC Orlando. STRICOM performed 229 workyears of training Systems work in FY1993, the majority of which was uncounted. The Air Force Aircrew Training Research Division of Armstrong Lab at Williams AFB is already planned for relocation to the Central Florida Research Park in Orlando to join NAWC Orlando and STRICOM. Further, the colocation of NASA-KSC and approximately 150 contractors in the Center of Excellence in Central Florida allows concentration of resourses to accomplish similar missions and tasks, avoids duplication of efforts, promotes technology sharing and produces cost avoidances in travel and technical synergism between government/ industry/ academia.

*** ADVISORY COMMENTS:** Subfunctions being consolidated that require capability that doesn't exist at a MILDEPs receiving sites, should be considered for consolidation in another MILDEP when that capability exists, in lieu of establishing new capabilities at the receiving sites.

TRAINING SYSTEMS

* **MODEL OUTPUT:**

Activity		Life Cycle	Functional Capacity	MINXCAP Load	MINSITE Load	MAXFV Load	FV
U S A R I , ALEXANDRIA	TRAIN	ST	157.3	157.3	157.3	157.3	5.4
ARM_WMS	TRAIN	ST	168	168	168	143.48	4.1
NPRDC, SAN DIEGO	TRAIN	ST	122.1	0	97.5775	122.1	4.1
NAWC ORLANDO	TRAIN	ST	125.4	0	0	0	3.9
ARM_BROOKS	TRAIN	ST	96.3	96.3	0	0	3.7
STRICOM	TRAIN	ST	8	1.2775	0	0	2.4
NAWC CHINA LK	TRAIN	ST	0.5	0.0025	0.0025	0	2.3

* **ALTERNATIVES CONSIDERED BY THE LJCSG:**

1 -- At a minimum:
Army consolidate Training Systems S&T work at a single site
Navy consolidate Training Systems S&T work at a single site
Air Force consolidate Training Systems S&T work at a single site

2 -- Retain existing capabilities, low probability of infrastructure reduction

3 -- Army, Navy, and Air Force co-locate all Training Systems S&T work at NAWC Training Systems Division, Orlando,FL.

* **SELECTED ALTERNATIVE FOR MILDEP CONSIDERATION:**

Alternative 3

* **ANALYSIS/RATIONALE:**

Mission Compatibility: No major anomolies noted

Facilities and Equipment Compatibility: No major anomolies noted

Relocation Constraints/Restrictions (Fit Check): None

Other: It should be noted that although the optimization model "zeroed out" NAWC Training Systems Division Orlando, and STRICOM Orlando, this was impacted by not including Engineering Development workload in pervasive Common Support Functions. NAWC Orlando performed 936 workyears of training systems work in FY 1993, the majority of which was uncounted. Under Agreement on Armed Services Training and Personnel Systems Science and Technology Evaluation and

Management (TAPSTEM) Committee signed November 1990, the NAWC Orlando mission is to be the principal Navy center for research and development, test and evaluation, acquisition and product support of training systems; to provide interservice coordination and training systems support for the Army and Air Force; and to perform such other functions and tasks as directed by higher authority.

Additionally, STRICOM is colocated with NAWC Orlando, being a tenant of NAWC Orlando. STRICOM performed 229 workyears of training Systems work in FY1993, the majority of which was uncounted. The Air Force Aircrew Training Research Division of Armstrong Lab at Williams AFB is already planned for relocation to the Central Florida Research Park in Orlando to join NAWC Orlando and STRICOM. Further, the colocation of NASA-KSC and approximately 150 contractors in the Center of Excellence in Central Florida allows concentration of resourses to accomplish similar missions and tasks, avoids duplication of efforts, promotes technology sharing and produces cost avoidances in travel and technical synergism between government/ industry/ academia.

*** ADVISORY COMMENTS:** *Subfunctions being consolidated* that require capability that doesn't exist at a MILDEPs receiving sites, should be considered for consolidation in another MILDEP when that capability exists, in lieu of establishing new capabilities at the receiving sites.

BRAC 95

Joint Cross-Service Group on Laboratories

Monday, November 21, 1994, 1400

Minutes

Attendance list is attached. * indicates Chair.

1. The meeting began with the subgroup briefing the results of their analysis using Military Value in the optimization model. The result showed that 27 of the 29 unconstrained results remained the same in the constrained runs. The remaining two results made minor changes. The first difference was in the Satellites (LJCSG #17) where the facilities and equipment capability section was amended to read that "the degree of facilities and equipment compatibility was not apparent or clearly exhibited in the data call responses for S&T and ED locations. However, the relative levels of on-site technical/scientific work must be weighted heavily in the consideration of consolidation alternatives. This should be considered by the MILDEPs in their economic analyses." No change was made to the selected alternatives. The second difference was in the Environmental Sciences alternative (LJCSG #23). The change in this alternative made the receiving location generic, specifically, Alternative 1 now should read "The Army should consolidate to one activity; the Navy to two activities; and the Air Force to one activity."

2. The subgroup then briefed three editorial corrections to the alternatives. The first correction is in the Fixed Flight Subsystems (LJCSG #4) which corrects a typographic error from China Lake to Lakehurst. The second correction is in the Cruise Missile alternative (LJCSG #11) which corrects a typographical error from NAWC Indy to Indian Head. The final correction is in the Conventional Missiles and Rockets alternative (LJCSG #10) correcting a typographical error to read NAWC Indy MINXCAP=0.28 vice 0. The LJCSG agreed to these changes and will incorporate them in the memorandum forwarding the constrained alternatives to the MILDEPs for consideration.

3. The subgroup then briefed the status of supplemental data calls on C4I and Energetics. They stated that all supplemental data calls were received from the MILDEPs and data is available to the MILDEPS for analysis/consideration.

4. Dr. Dorman then briefed the Group on three dates in December (12-14) established for feedback sessions to the LJCSG from the MILDEPs on the constrained and unconstrained alternatives. The constrained alternatives will be forwarded as soon as OSD is briefed which is set for tomorrow.

5. The Test & Evaluation JCSG representative, Mr. John Burt, was asked to provide a synopsis of their results. Mr. Burt briefed how the optimization runs, both constrained and unconstrained, moved workload into approximately 9 "core" sites. However, even after relocating workload into the core sites, substantial excess capacity remained. To achieve significant infrastructure reductions, the T&E JCSG has to consider removing workload at a core site and distributing it to other core sites. Mr. Burt went on to add that in discussions between the T&E JCSG and LJCSG one overlapping Lab and T&E area that could reduce infrastructure through joint JCSG consolidation was in the area of air weapons. The synergy of R&D and T&E collocation in this area makes a joint alternative worth examining.

6. Dr. Dorman then briefed the proposed process for additional LJCSG alternatives for C4I and Energetics. The basis for this plan stems from several Steering Group meetings, and comments from the DepSecDef at Review Group meetings asking the T&E and Laboratory JCSGs to meet

and examine possible alternatives where consolidation would be beneficial and cost-effective. Dr. Dorman then briefed from the attached slides the vision, rationale, analytical process used, objectives and results of his interaction with the T&E JCSG representatives. Both T&E and Laboratory JCSGs agreed that with the existing alternatives of each group considerable excess capacity still remains. Combining similar T&E and Lab functions could lead to more reductions in excess capacity. Integration makes functional sense and is sometimes desirable. Because of the high value placed on land, air and sea ranges it often makes more sense to move lab activities to T&E sites than vice versa. The T&E and Lab JCSG representatives also looked at moving activities from lower FV to higher FV or MV--in most cases this called for leaving activities at installations that were fully filled by the optimization model and moving from the "second choices" which were left with less than full functional capacity. Dr. Dorman also stated that they recognized that neither capacity or requirements were absolute (i.e. go beyond what the model identified as full capacity). To facilitate this review, Dr. Dorman stated that they looked at the macro level -- looking at activity and installation alternatives. They objective of this review was to retain in only one Service military capability used by 2 or more Services and consolidate workload across Services to reduce capacity -- the same objectives stipulated in the January 7, 1994 DepSecDef BRAC 95 kickoff memorandum.

7. Dr. Dorman then briefed on the results of this analysis. For Air Vehicles, moves from lab to T&E sites are logical. The view graphs indicate examples. After discussion, the group concluded that this type of move made sense only when a MILDEP was already considering a move of the lab activity; but in such cases, T&E sites should be considered as viable gaining commands. Air Weapons analysis showed consistent tendencies to fully fill NAWC China Lake. Alternative #10 already suggested a move of conventional missile and rocket work to NAWC China Lake. Similarly, analysis of the energetics data also suggested a move of propellant work, and some explosive work, to NAWC China Lake. T&E has suggested that although Eglin and NAWC China Lake both were "core" for air launched weapons, either had adequate capacity for DoD needs. The lab data consistently favors NAWC China Lake, and appropriate alternatives include moves of lab work from Phillips lab Edwards AFB to NAWC China Lake, and all air weapons related RDT&E from Eglin to NAWC China Lake. The other energetics data requires additional analysis. There were no compelling new conclusions for space systems or other, previously considered individual alternatives.

8. Dr. Dorman then briefed the results of his analysis of the C4I supplemental data call. He began by providing the basic guidelines underlying his analysis. Assumptions used were that workload attrition was based on current fiscal year minus at least 20%, an additional 10-20% manpower reduction for support functions, no base operating support would be relocated, and no moves to FFRDC space or previously closed sites. He went on to state the activities he examined were Navy's SPAWAR and NRaD, the Army's CECOM Ft. Monmouth complex and the Air Forces' Electronic Systems Command, Rome Hanscom, and Rome Griffiss. Based on the supplemental data calls he determined that the Navy's NISE-E/W and NAVMASSO activities were unique to Navy fleet needs and offered little cross-service commonality for consideration. Likewise, the Air Force's Phillips Laboratory at Hanscom was excluded because it dealt with geophysics work, and Army's night vision work at Ft. Belvoir is also unique. The attached slides show a detailed look at each of the activities considered. The resulting alternatives recommended by to the LJCSG are to collocate SPAWAR to Fort Monmouth or Hanscom AFB; collocate ESC to Fort Monmouth; collocate Rome Griffiss to NRaD, Fort Monmouth, Fort Belvoir or Wright-Patterson AFB or a combination of the same; and collocate Rome Hanscom to NRaD or Fort Monmouth. Certain combinations were further discussed, for example relocating Fort Monmouth to Hanscom AFB, but the Group concluded that these movements were restricted due to the amount of workload the receiving site could handle (in this case Fort Monmouth workload, @7,200 workyears, couldn't fit into Hanscom AFB).

9. Discussion ensued on what needs to be done now to translate this data/analysis to alternatives

which are doable. Dr. Dorman stated that he will finalize the alternatives as discussed here today, coordinate them with OSD BRAC and send them to the Military Departments for consideration.

10. The meeting concluded at 1540.

Approved: _____
Anita K. Jones
Chair, LJCSG

BRAC 95

Joint Cross-Service Group on Laboratories

November 21, 1994

List of Attendees

* Dr. Anita Jones, Chairman
Dr. Craig Dorman, Study Team Leader
Mr. George Singley, Army
LTC Dave Powell, Army
LTC Dan Thomas, Army
Mr. John Trick, Navy
CDR Scott Evans, Navy
Mr. Jim Mattice, Air Force
Mr. Matt Mleziva, Air Force
Col Mike Binion, Air Force
Mr. Michael McAndrew, ODASD(I) BC
Mr. Dan Bortner, OUSD(C)
Mr. John Burt, DT&E
Mr. Nick Toomer, DOT&E
Ms. Nancee LaBute, DoDIG
Mr. Ken Van Hove, DoDIG
Mr. Steve Miller, PA&E

LJCSG MV ANALYSIS

- 27 OF 29 ALTERNATIVES ARE THE SAME
  - ALTERNATIVES ANNOTATED W/ MINNMV MODEL OUTPUT COLUMN AND STATEMENT "NO CHANGE TO SELECTED ALTERNATIVE"
- CHANGES MADE:
  - #17 (SATELLITES) REVISED FACILITY AND EQUIPMENT ANALYSIS
  - #23 (ENV SCIENCE) REVISED TO "GENERIC" CONSOLIDATION

NOTE - THREE CORRECTIONS:

- #4 (F/W FLT SUBSYS) TYPO [LAKEHURST VICE CHINA LAKE]
- #11 (CRUISE MISSILES) TYPO [INDIAN HEAD VICE NAWC INDY]
- #10 (CONV MSLS & RKTS) TYPO [NAWC INDY MINXCAP = 0.28 VICE 0]

Additional Alternatives: Analysis Plan

- Vision
- Rationale
- Process
- Objective
- Results

Additional Alternatives: Analysis Plan

Vision:

- R&D and T&E functions will become more integrated.
- Testing will be introduced earlier in the development process.
- Institutional funding and pricing can be rationalized

Additional Alternatives: Analysis Plan

Rationale

- Separate Lab and T&E JCSG Alternatives will not eliminate all excess capacity.
- FR-20% only yielded FC-27%. Actual FR anticipated to be @ FC-35%
- If combined, even more excess capacity can be eliminated
- Many Lab and T&E functions overlap. Integration of RDT&E functions is logical, feasible, often desirable.
- Usually more logical to move lab activities to T&E sites due to range space.

Additional Alternatives: Analysis Plan

Process

- Look for opportunities to consolidate into "centers of excellence" where critical mass can be realized.
- Move from lower to higher Functional or Military Value; in most cases, leave those fully filled by model...look to move "second choices" which were left with fill<<FC
- Recognize that neither capacity nor requirement are absolute.
- Based on similarities in Lab - T&E capabilities.

Additional Alternatives: Analysis Plan

Process

- In general move from lower to higher Value.
- Exception, High Value with small capacity.
- Role up to more macro level - look for activity and installation alternatives.

	LABS				T&E sites
		FV	FC	Load	
Common Support Function (s)					
	LAB A				T&E A
	LAB B				T&E B
	LAB C				T&E C
	LAB D				
Common Support Function					
	LAB A				T&E A
	LAB B				T&E B
	LAB C				T&E C
Look across sub-categories (macro view)					

Additional Alternatives: Analysis Plan

Objective

- Retain in only one Service militarily unique capability used by 2 or more Services.
- Consolidate workload across Services to reduce capacity.

LAB T&E

Air Vehicles		FV	S&T FC	S&T LJCSG ALT	ED FC	ED LJCSG ALT	ISE FC	ISE LJCSG ALT
Fixed Avionics	Naval Air Warfare Center, Aircraft Division, Patuxent River	78	211.3	211.30	551	551.00	165.4	165.40
	Naval Air Warfare Center, Weapons Division, China Lake	57	35	35.00	276.2	276.20	451.6	451.60
	Naval Air Warfare Center, Weapons Division, Point Mugu	50			410	410.00	517.4	517.40
	Wright Lab, Wright-Patterson AFB	46	792.7	617.50				
	Aeronautical Systems Center, Wright-Patterson AFB	42			1043	775.90		
	FR=			863.80		2013.10		1134.40

EDWARDS PAX

Air Vehicles		FV	S&T FC	S&T LJCSG ALT	ED FC	ED LJCSG ALT	ISE FC	ISE LJCSG ALT
Fixed - Flight Subsystems	Naval Air Warfare Center, Aircraft Division, Lakehurst	60			1022	1022.00	269.2	254.20
	Naval Air Warfare Center, Weapons Division, China Lake	60	21	21.00	69.1	0.00		
	Naval Air Warfare Center, Aircraft Division, Patuxent River	50	5.6	5.60	51.6	51.60	29.6	0.00
	Wright Lab, Wright-Patterson AFB	47	566.2	455.50				
	Aeronautical Systems Center, Wright-Patterson AFB	40			537	438.50		
	FR=			482.10		1512.10		254.20

EDWARDS

Air Vehicles		FV	S&T FC	S&T LJCSG ALT	ED FC	ED LJCSG ALT	ISE FC	ISE LJCSG ALT
Fixed - Propulsion	Wright Lab, Wright-Patterson AFB	62	444.6	432.10				
	Naval Air Warfare Center, Aircraft Division, Patuxent River	54	81.1	0.00	170.7	170.70	46.2	40.50
	Aeronautical Systems Center, Wright-Patterson AFB	45			264	197.90		
	FR=			432.10		368.60		40.50

AEDC

LAB T&E

Air Vehicles

Fixed - Structure

	FV	S&T		ED		ISE	
		FC	LJCSG ALT	FC	LJCSG ALT	FC	LJCSG ALT
Naval Air Warfare Center, Aircraft Division, Patuxent River	50	71.7	71.70	43.7	43.70	8.2	8.20
Aeronautical Systems Center, Wright-Patterson AFB	50			4599	3691.30		
Wright Lab, Wright-Patterson AFB	48	412.5	324.90				
Naval Air Warfare Center, Weapons Division, China Lake	45	4.5	0.00	12.1	0.00	20.5	20.50
Missile Research, Development and Engineering Center, Redstone Arsenal, AL	34			40	0.00	4	4.00
Warner-Robins Air Logistics Center, Robins AFB (In-service engineering)	34					37.9	37.90
Oklahoma City Air Logistics Center, Tinker AFB (In-Service engineering)	33					12.2	0 - 12.2
San Antonio Air Logistics Center, Kelly AFB (In-service engineering)	33					11	0 - 9
Aeronautical Systems Center (Mod Center), Wright-Patterson AFB	31	7.1	0.00	14.2	0.00	27.4	0 - 26.1
Ogden Air Logistics Center, Hill AFB (In-service engineering)	30					4.9	0 - 4.9
Aviation Research, Development and Engineering Center, St Louis, MO	16					2.2	0.00
FR=			396.60		3735.00		70.60

AEDC

EDWARDS

Possibly below critical mass

Little workload spread over many sites.

No single site with enough capacity to support a clear alternative.

A consolidated center of excellence with ISE capacity is indicated.

LAB T&E

Air Vehicles		FV	S&T		ED		ISE		Yuma	Edwards
			FC	LJCSG ALT	FC	LJCSG ALT	FC	LJCSG ALT		
Rotary - Avionics	Naval Air Warfare Center, Aircraft Division, Patuxent River	60	9.2	9.20	34.9	34.90	37.4	37.40		
	Naval Air Warfare Center, Weapons Division, China Lake	50	2.2	2.20	10.1	10.10	21.7	21.70		
	Naval Research Lab, Washington D.C.	41	1.2	0.60	1.7	1.70	9.4	9.40		
	Naval Air Warfare Center, Aircraft Division, Indianapolis	36			69.7	51.30				
	Naval Air Warfare Center, Weapons Division, Point Mugu	33			7	0.00	7	7.00		
	Aviation Research, Development and Engineering Center, St Louis, MO	32	2.2	0.00	9.8	0.00	29.4	7.22		
	FR=			12.00		98.00		82.72	192.72	

Air Vehicles		FV	S&T		ED		ISE		Yuma	Edwards
			FC	LJCSG ALT	FC	LJCSG ALT	FC	LJCSG ALT		
Rotary - Flight Subsystem	Aviation Research, Development and Engineering Center, St Louis, MO	54	61	61.00	105.7	105.70	157.5	127.28		
	Naval Air Warfare Center, Aircraft Division, Lakehurst	53	1.2	1.20	53.6	47.10	14	0.00		
	Aviation Troop Command, Aviation Applied Technology Directorate, Fort Eustis, VA	47	131.6	131.60	92.3	0.00	39.2	0.00		
	Aviation Troop Command, Aeroflight Dynamics Directorate, Moffitt Field, CA	38	149	19.96						
	FR=			213.76		152.80		127.28	493.84	

LAB

T&E

Air Vehicles		FV	S&T		ED		ISE	
			FC	LJCSG ALT	FC	LJCSG ALT	FC	LJCSG ALT
Rotary - Propulsion	ARL, NASA Lewis, OH	49	47	47.00				
	Naval Air Warfare Center, Aircraft Division, Patuxent River	49	3	3.00	16.5	16.50	12.5	12.50
	Aviation Research, Development and Engineering Center, St Louis, MO	39	2.2	2.20	12	6.29	27.2	21.14
	Aviation Troop Command, Aviation Applied Technology Directorate, Fort Eustis, VA	26	38.1	20.02			2.3	0.00
	FR=			72.22		22.79		33.64

Yuma AEDC

128.65

Air Vehicles		FV	S&T		ED		ISE	
			FC	LJCSG ALT	FC	LJCSG ALT	FC	LJCSG ALT
Rotary - Structure	Aviation Research, Development and Engineering Center, St Louis, MO	45	17.4	17.40	14.2	11.12	4.4	4.40
	ARL, NASA Langley, VA	35	37	37.00				
	Aviation Troop Command, Aviation Applied Technology Directorate, Fort Eustis, VA	26	33.5	6.00				
	FR=			60.40		11.12		4.40

Yuma AEDC

75.92

Air Vehicles - Rotary: Total of all CSFs and life cycles

891.13

Yuma AEDC

Achieve critical mass at Yuma/AEDC.

LAB T&E

WEAPONS

Weapons - Bombs

	FV	S&T		ED		ISE	
		FC	LJCSG	FC	LJCSG	FC	LJCSG
Naval Air Warfare Center, Weapons Division, China Lake	53	12.8	12.80	64.9	64.90	101.8	101.80
Naval Surface Warfare Center, Indian Head Division	46			1.7	0.00	21.4	0.00
Wright Lab, Eglin AFB	45	563.1	309.60				
Aeronautical Systems Center, Eglin AFB	39			131	64.86		
Naval Air Warfare Center, Aircraft Division, Indianapolis	34					11.8	11.80
Naval Air Warfare Center, Weapons Division, Point Mugu	29					105	41.20
FR=			322.40		129.76		154.80

T&E

China Lake, WSMR, UTTR -- greatest capacity.

Eglin, Yuma -- some capacity

Weapons - Conventional Missiles/Rockets

	FV	S&T		ED		ISE	
		FC	LJCSG	FC	LJCSG	FC	LJCSG
Naval Air Warfare Center, Weapons Division, China Lake	77	129.2	129.20	871.7	871.70	1409.9	1409.90
Naval Surface Warfare Center, Indian Head Division	62	16.1	0.00	51	0.00	213.7	0.00
Missile Research, Development and Engineering Center, Redstone Arsenal, AL	59	743	505.04	1683	1534.78	415	415.00
Naval Surface Warfare Center, Dahlgren Division	44	32.5	0.00	151.3	0.00	56.5	53.13
Naval Air Warfare Center, Weapons Division, Point Mugu	38			11	0.00	730	3.65
FR=			634.24		2406.48		1881.68

OK

LAB T&E

Weapons - Cruise Missiles

	FV	S&T		ED		ISE	
		FC	LJCSG	FC	LJCSG	FC	LJCSG
Naval Air Warfare Center, Weapons Division, China Lake	67	19.2	19.20	98	98.00	153.3	153.30
Naval Surface Warfare Center, Dahlgren Division	48	16.8	10.64	173.8	173.80		
Naval Surface Warfare Center, Indian Head Division	44					42.1	0.00
Aeronautical Systems Center, Wright-Patterson AFB	43			325	189.16		
Naval Air Warfare Center, Aircraft Division, Patuxent River	40	1.5	0.00	10	0.00	22.5	22.50
Naval Air Warfare Center, Weapons Division, Point Mugu	36			12	0.00	25	2.28
FR=			29.84		460.96		178.08

Mugu, Edwards, China Lake

Weapons - Directed Energy

	FV	S&T		ED		ISE	
		FC	LJCSG	FC	LJCSG	FC	LJCSG
Naval Air Warfare Center, Weapons Division, China Lake	4.5	5.5	5.50				
Phillips Lab, Kirtland AFB	3.7	1164	827.78	14	11.20		
FR=			833.28		11.20		0.00

WSMR

Weapons - Guided Projectiles

	FV	S&T		ED		ISE	
		FC	LJCSG	FC	LJCSG	FC	LJCSG
Armaments Research, Development and Engineering Center, Picatinny Arsenal, NJ	57	72.3	48.72	125.5	125.50	14.7	9.84
Naval Surface Warfare Center, Dahlgren Division	43			7.7	7.70		
Aeronautical Systems Center, Eglin AFB	40			118	37.68		
FR=			48.72		170.88		9.84

LAB T&E

Weapons - Guns and Ammunition

	FV	S&T		ED		ISE	
		FC	LJCSG	FC	LJCSG	FC	LJCSG
Naval Surface Warfare Center, Indian Head Division	63	3.6	0.00	2.2	0.00	35.2	0.00
Armaments Research, Development and Engineering Center, Picatinny Arsenal, NJ	60	629.5	629.50	863.5	852.80	2496.8	1716.72
Naval Air Warfare Center, Weapons Division, China Lake	44	2.1	1.14	10.6	0.00	17.2	0.00
FR=			630.64		852.80		1716.72

Weapons - ICBMs/SLBMs

	FV	S&T		ED		ISE	
		FC	LJCSG	FC	LJCSG	FC	LJCSG
Naval Surface Warfare Center, Dahlgren Division	64	0.5	0.50	261.4	261.40	30.2	30.20
Naval Surface Warfare Center, Indian Head Division	55					13	0.00
Naval Air Warfare Center, Weapons Division, China Lake	48	4.3	2.54	21.1	21.10	33.5	20.44
Space & Missile Center, Norton AFB	46			2011	463.74		
FR=			3.04		746.24		50.64

LAB T&E

WEAPONS	Aeronautical Systems Center, Eglin AFB	39			131	64.86			
		40			118	37.68			
						102.54			103
	Wright Lab, Eglin AFB	45	563.1	309.60					310
	Aeronautical Systems Center, Wright-Patterson	43			325	189.16			189
	Armaments Research, Development and Engineering Center, Picatinny Arsenal, NJ	57	72.3	48.72	125.5	125.50	14.7	9.84	
		60	629.5	629.50	863.5	852.80	2496.8	1716.72	
				678.22		978.30		1726.56	3383
	Missile Research, Development and Engineering Center,	59	743	505.04	1683	1534.78	415	415.00	2455
	Naval Air Warfare Center, Aircraft Division, Indianapolis	34					11.8	11.80	12
	Naval Air Warfare Center, Aircraft Division, Patuxent River	40	1.5	0.00	10	0.00	22.5	22.50	23
	Naval Air Warfare Center, Weapons Division, China Lake	53	12.8	12.80	64.9	64.90	101.8	101.80	
		77	129.2	129.20	871.7	871.70	1409.9	1409.90	
		67	19.2	19.20	98	98.00	153.3	153.30	
		4.5	5.5	5.50					
		44	2.1	1.14	10.6	0.00	17.2	0.00	
		48	4.3	2.54	21.1	21.10	33.5	20.44	
				170.38		1055.70		1685.44	2912
	Naval Air Warfare Center, Weapons Division, Point Mugu	29					105	41.20	
		38			11	0.00	730	3.65	
		36			12	0.00	25	2.28	
						0.00		47.13	47
	Naval Surface Warfare Center, Dahlgren Division	44	32.5	0.00	151.3	0.00	56.5	53.13	
		48	16.8	10.64	173.8	173.80			
		43			7.7	7.70			
	SLBM >	64	0.5	0.50	261.4	261.40	30.2	30.20	
				11.14		442.90		83.33	537
	Phillips Lab, Kirtland AFB	3.7	1164	827.78	14	11.20			839
DEW >									
ICBM >	Space & Missile Center,	46			2011	463.74			464

T&E

A CL WSMR UTTR

B Eglin Yuma

Energetics

E:
Picatinny
IH
CL
Eglin

P:
P/Ed
CL
M

Pyro:
Pick
Crane

LAB T&E

Vandenberg Patrick

Space Systems - Ground Control Systems

	FV	S&T		ED		ISE	
		FC	LJCSG	FC	LJCSG	FC	LJCSG
Sacramento Air Logistics Center, Peterson AFB (In-service engineering)	32					15	13.80
Space & Missile Center, Los Angeles AFB	28			614	488.10		
FR=			0.00		488.10		13.80

Space Systems - Launch Vehicles

	FV	S&T		ED		ISE	
		FC	LJCSG	FC	LJCSG	FC	LJCSG
Phillips Lab, Edwards AFB	46	623.5	221.12				
Space & Missile Center, Los Angeles AFB	44			822	538.40		
Naval Air Warfare Center, Weapons Division, China Lake	31					3.3	2.00
FR=			221.12		538.40		2.00

Space Systems - Satellites

	FV	S&T		ED		ISE	
		FC	LJCSG	FC	LJCSG	FC	LJCSG
Naval Air Warfare Center, Weapons Division, China Lake	49	2.2	2.20				
Space & Missile Center, Los Angeles AFB	49			2765	2262.50		
Naval Command, Control, and Ocean Surveillance Center, RDT&E Division, San Diego	41	25.8	25.80	168.5	0.00	65.5	59.80
Naval Surface Warfare Center, Dahlgren Division	37	0.2	0.20	7.2	0.00	6.4	0.00
Naval Research Lab, Washington D.C.	36	32.4	32.40	396.1	0.00		
Naval Surface Warfare Center, Crane Division	32	12.8	12.80				
Phillips Lab, Kirtland AFB	27	550	425.90				
FR=			499.30		2262.50		59.80

LAB T&E

Huachuha

C4I Systems - Airborne C4I	FV	S&T FC	S&T LJCSG ALT	ED FC	ED LJCSG ALT	ISE FC	ISE LJCSG ALT
Communications Electronic Command Research, Development and Engineering Center, Ft Monmoth, NJ	42	295.7	295.70	316.6	316.60		
Electronic Systems Center, Hanscom AFB	40			3003.4	1913.56		
Rome Lab, Hanscom AFB	34	218	0.00				
Naval Command, Control, and Ocean Surveillance Center, RDT&E Division, San Diego	28	69.9	69.90	99.2	0.00		
Rome Lab, Griffiss AFB	27	1099.1	796.48				
FR=			1162.08		2230.16		0.00

C4I Systems - Fixed Ground-Based C4I	FV	S&T FC	S&T LJCSG ALT	ED FC	ED LJCSG ALT	ISE FC	ISE LJCSG ALT
Naval Command, Control, and Ocean Surveillance Center, RDT&E Division, San Diego	61	59.4	59.40	380.3	380.30		
Communications Electronic Command Research, Development and Engineering Center, Ft Monmoth, NJ	49	75.5	75.50	77.6	77.60	53.5	53.50
Naval Command, Control, and Ocean Surveillance Center, In-Service Engineering Division, Charleston	40			39.3	39.30	688.5	688.50
Naval Air Warfare Center, Aircraft Division, Patuxent River	38			16	16.00	115	81.52
Missile Research, Development and Engineering Center, Redstone Arsenal, AL	37	19	1.90	109	109.00	1	0.00
Naval Air Warfare Center, Weapons Division, Point Mugu	31			80	36.92		
FR=			136.80		659.12		823.52

C4I Systems - Ground Mobile C4I	FV	S&T FC	S&T LJCSG	ED FC	ED LJCSG	ISE FC	ISE LJCSG
Communications Electronic Command Research, Development and Engineering Center, Ft Monmoth, NJ	70	350.2	348.80	393.2	382.48	273.6	248.72
FR=			348.80		382.48		248.72

C4I / ENERGETICS

- ALL SUPPLEMENTAL DATA CALLS RECEIVED
- DATA AVAILABLE FOR MILDEP CONSIDERATION / ANALYSIS

C4I

- **BASIC GUIDELINES:**
  - COLLOCATE COMMON FUNCTIONS (Acquisition, R&D) for maximum leverage and capacity elimination
  - Assume continued attrition ...CFY-20% at least
  - Additional 10-20% for support functions
  - No BOS, etc moves
  - No moves to FFRDC space or to previously closed sites
- **ACTIVITIES AT ISSUE:**
  - Navy: SPAWAR; NRaD; NISE-E,W; NAVMASSO
    ISE, Support; leave near Fleet
    Little cross-service commonality
  - Army: CECOM, Ft M; PEOs, tenants, Ft M; CECOM, Ft B
    Leave: Night Vision
  - Air Force: ESC, Hanscom; Rome, H & G; (Phillips, H: 445 wy)

SPAWAR

- Funtions: HQ; Acquisition; PEO/PM, Procurement Support; Warfare Architecture
- Moving per BRAC 93 (NCR)
- C4I move orphans PD40 (NRL), PD80
- Magnitude: FY93: 1158 C4I
  - Deltas: -4%/yr thru 99 (-250)
    - PD50/60 Combination (-25?)
    - Leave SW30 (Arch) intact (-21)
    - Add'l via support fcns (-50)
  - Total move =@ 800, 150K sqft
- ALTS:
  - NRaD (Non-compatible functions, NO cross-service gain)
  - Hanscom: Functional similarity w/ESC; support fm LL, MITRE; significant alterations required. Fills capacity.
  - Ft Monmouth: Functional similarity ++. Space, some housing available. Additional capacity available

NRaD

- Functions: R&D, C4I and ocean sueveillance
- Total WY =@2500
- C4I wy = 1615 (2/3)
- Locked to Pt Loma, Fleet...unique afloat work
- Available space: AF Plant 19 (NISE-W), 12-1500
  620 WY (C4I afloat)

ESC, Hanscom

- Functions: Acquisition, PEO/PM; BOS
- Heavy use of MITRE (370 on, 1088 off-base), SETA (552 on, 448 off-base)
- Available space (750 wy, 180K sq ft) needs conversion; suitable then for offices
- Workforce: 2000 C4I fy93 (many in FFRDC space)
  - Deltas: Attrition per drawdown (-400)
    Support staff consolidation (-100)
  - Move: 1500 or less
- Alternatives:
  - Ft Monmouth: Can accomodate with office space conversion; would collocate all acquisition if Navy also moved. Lease space (on lease thru 99) available for MITRE/SETA
  - Host SPAWAR

Rome, Hanscom

- Functions: S&T; Electronic Devices, Antennnas, NL optics, speech, comsec ...
- Aging facilities
- Three antenna sites
- Size: Planned 164 in FY97(106 Technical)
  - Nearing critical mass, esp with anticip[ated additional drawdown: FR-20=80S&E
- ALTs:
  - Absorb work at WL, Rome G, LL
  - Colocate at NRaD, CRDEC (EPSD spaces) for cross-service benefit
  - Assign field sites to LL

Rome, Griffiss

- Functions: S&T
- Five field sites
- Little technical support in area, or on base
- Plenty of room !
- Size: FY97=850; FR-20=680
- Alts:
  - Absorb Rome, Hanscom
  - Collocate with other MILDEPs to gain support, critical mass, commonality: CECOM, NRaD, TEC, WL
  - Move to Hanscom (Significant cost and construction required)

CECOM, Ft Monmouth

- Functions: Full service: S&T, ED, ISE, Acquisition, Logistics, PEO/PM, other C4I tenants
- Consolidating on the Fort. EPSD departing very high quality electronics labs
- Too big to move: >7200 C4I
  - Gov: 5200 CECOM, 550 PEO/PM, 480 C4I tenants
  - Contractors on base: 1000+
- Space Available:
  - 1085wy w/little-no mod
  - addl 2200 w/ renovation/conversion
  - 463 housing units avail in 97
  - 600K sq ft lease space being vacated by CECOM HQ
- ALTS:
  - Accomodate SPAWAR and/or ESC
  - Accomodate AF S&T in EPSD spaces

BRAC 95

Joint Cross-Service Group on Laboratories

Monday, December 12, 1994, 1000

Minutes

Attendance list is attached. * indicates Chair.

1. The meeting began with the Air Force representative providing initial feedback on how they are progressing with analysis of the Lab JCSG alternatives forwarded in November. The Air Force representative stated that they are continuing analysis of the first 3 sets of alternatives and internally discussing the fourth set.

2. The Air Force briefing began with an overview of the Air Force mission, the Air Force lab structure, their objectives for conducting analysis, and then briefed the lab common support function response.

3. The attached slides indicate the Air Force position relative to the lab alternatives in sets one through three. In general, of the alternatives reviewed by the Air Force BSEC, most were accepted for analysis. In one area, Conventional Missiles and Rockets, the Air Force determined that they will not analyze the alternative provided because the alternative is incompatible with the Air Force mission in this area, breaks up DT&E and OT&E collocation, breaks up operational community collocation and other weapon collocation. Also in the area of C4I the Air Force feels more dialogue is needed and will instigate the necessary meetings in the future. The Air Force is considering optional alternatives in the area of Electronic Devices and Training Systems. They would like to internally consolidate Air Force assets and are examining changing the BRAC 93 recommendation to relocate Armstrong Laboratory from the former Williams AFB, AZ to Orlando, FL.

4. Summary comments made are that the Air Force is not exercising the guidance to perform COBRA analysis on alternatives that the Lab JCSG suggested. This analysis is necessary to compare the costs and benefits of the alternatives.

5. The meeting concluded at 1515.

Approved: _____
Anita K. Jones
Chairman

CLOSE HOLD

BRAC 95

Joint Cross-Service Group on Laboratories

December 12, 1994

List of Attendees

* Dr. Anita Jones, Chairman
Dr. Craig Dorman, Study Team Leader
Mr. George Singley, Army
LTC Dave Powell, Army
LTC Dan Thomas, Army
Mrs. Cathy Polmaker, Army
RADM David Oliver, Navy
CAPT Mike Casey, Navy
Mr Matt Mleziva, Air Force
Col Mike Binion, Air Force
Maj Mike Wallace, Air Force
Mr. Robert Bayer, DASD(I)
Mr. Michael McAndrew, ODASD(I) BC
Mr. Hal Henry, C3I
Mr. Dan Bortner, DoDIG
Ms. Nancee LaBute, DoDIG
MAJ Robin Pope, OSD (DR&E)

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AF Response to LJCSG Alternatives

File: C:\Report\Lab\LJCS1212.PPT

1

Mleziva
12 Dec 94 (r1)

Outline

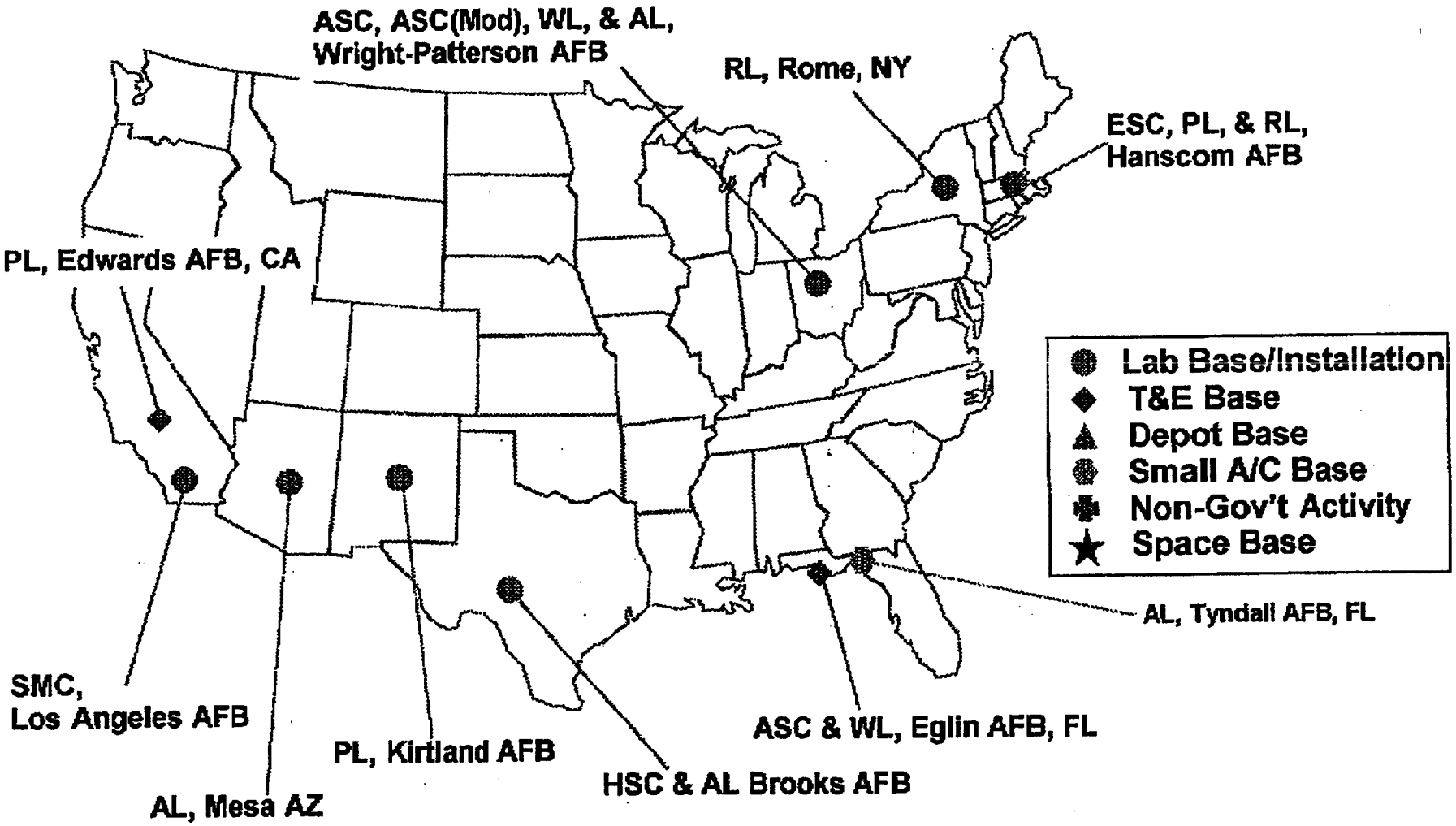
- Air Force Mission
- Air Force "Lab" Structure
- Objectives
- CSF Responses
- Summary

Air Force Mission

- Fly, Fight, Win
  - Aircraft
  - Weapons
  - Information
- Space

FOR OFFICIAL USE ONLY

Air Force "Lab" Locations



Objectives

- Reduce Infrastructure
- Reduce Costs
- Consolidate

CSF Responses

Fixed Wing CSFs

- Accept LJCSG Alternatives
  - S&T Consolidated at WL-WPAFB
  - EMD Consolidated at ASC-WPAFB
    - Offer to Host Army
    - Offer to Host Navy Propulsion S&T

Rotary Wing CSFs

- No Comments (No AF Work)

Weapons CSFs

- Accept Most LJCSG Alternatives
  - ICBM/SLBM EMD at SMC/Det 10-Norton
  - Cruise Missile EMD at ASC-WPAFB
  - Guided Projectile EMD at ASC-Eglin
  - Bombs S&T/EMD at ASC & WL - Eglin
  - Directed Energy S&T/EMD at PL-Kirtland
    - Offer to Host Army S&T
  - Army as Reliance Guns & Ammo Executive

Space CSFs

- Accept LJCSG Alternatives
  - Launch Vehicles at PL-EAFB/KAFB & SMC-LAAFB
  - Satellites at PL-KAFB (S&T) & SMC-LAAFB (EMD)
    - Offer to Host Navy EMD
  - Ground Control Systems EMD at SMC-LAAFB
    - Offer to Host Navy EMD

C^4I CSFs

- LJCSG Alternatives Essentially Focused
  - Airborne in AF
  - Fixed in Navy
  - Mobile in Army
- No Infrastructure Reduction with Exchange of Work
- Suggest MILDEPs Examine:
  - MILDEP Focus
  - MILDEP Full Spectrum

Pervasive CSFs

- Accept Most LJCSG Alternatives
  - Advanced Materials at WL-WPAFB
  - Environmental Quality at AL-TAFB
  - Environmental Science at PL-HAFB
  - Manpower & Personnel at AL-BAFB
  - Human Systems at AL-BAFB/WPAFB
  - Infectious Diseases (No Comment-No AF Work)

Additional Alternatives Under Consideration

(Beyond Those Proposed by LJCSG)

- Electronic Devices
  - Internal Air Force Consolidation
- Training Systems
  - Internal Air Force Options

One Exception

- Conventional Missiles & Rockets
  - Mission Compatibility
  - DT&E/OT&E Collocation
  - Operational Community Collocation
  - Other Weapons Collocation

In-Service Engineering (ISE)

- AF ISE Work Done at AF Depots
  - Collocated with Product
  - Small Numbers
  - Peterson AFB Exception
- AF ISE Will be Consolidated with Depots

Summary

- AF Agrees with Majority of LJCSG Alternatives
  - One Exception
  - Some Additional Alternatives
- LJCSG Alternatives Offer Potential for Infrastructure Reduction
- Discussions Being Opened With Other MILDEPs

BRAC 95

Joint Cross-Service Group on Laboratories

Tuesday, December 13, 1994, 1400

Minutes

Attendance list is attached. * indicates Chair.

1. The meeting began with the Army representative briefing their BRAC process and how the JCSG alternatives were incorporated. The Army then discussed where they are with analyzing the Lab alternatives. They stated that there is a lot of workload push around, but significant gains in energetics and C4I. They went on to add that they are proactively analyzing the fourth set of alternatives submitted by the Lab JCSG.

2. The Army stated that they are continuing detailed work on all the alternatives in defining what really will move (equipment and people) and are discussing with the other Military Departments the requirements needed for both losers and gainers. Meetings are scheduled this week to begin this dialogue.

3. The meeting concluded at 1440.

Approved: _____
Anita K. Jones
Chairman

BRAC 95

Joint Cross-Service Group on Laboratories

December 13, 1994

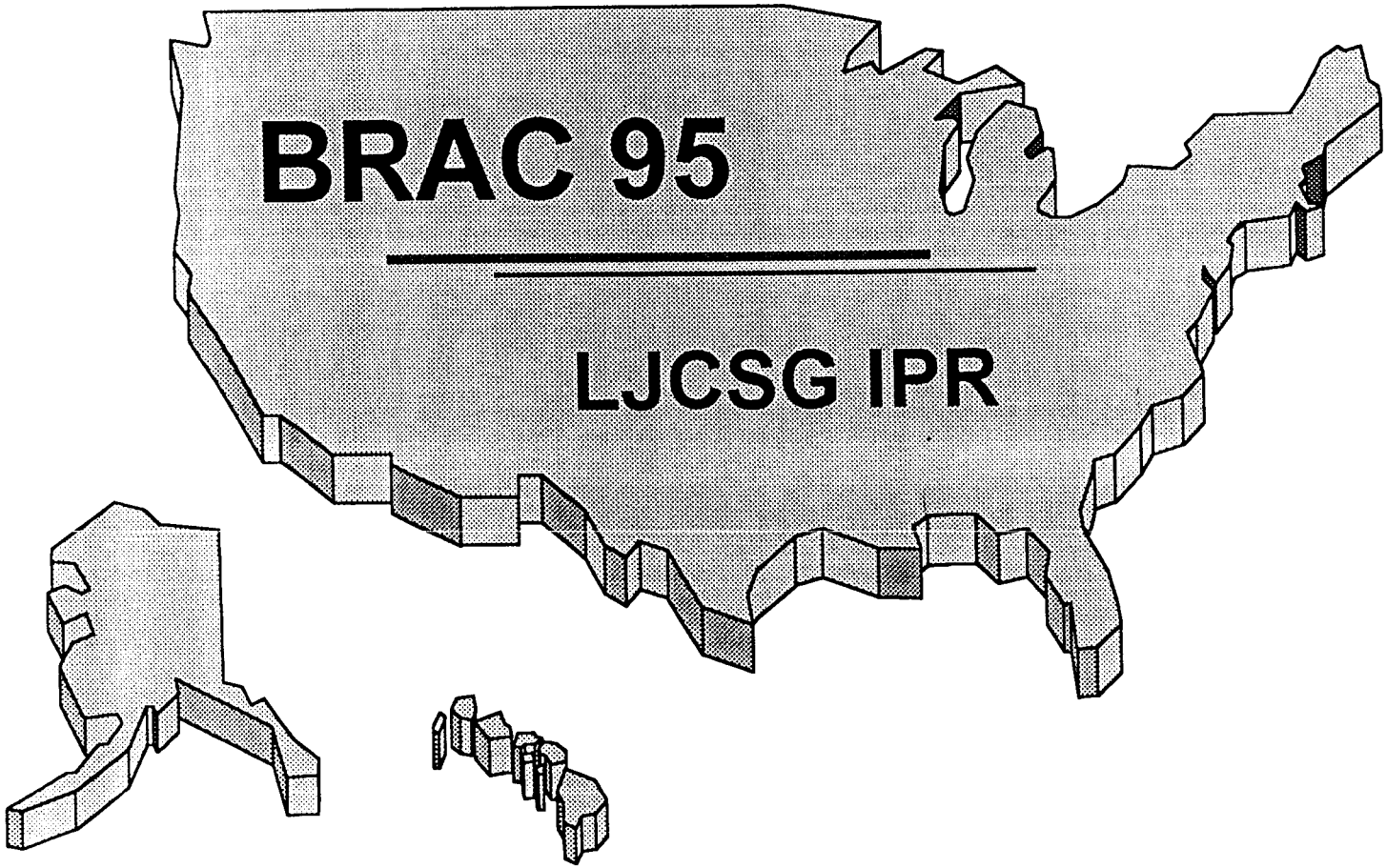
List of Attendees

* Dr. Anita Jones, Chairman
Dr. Craig Dorman, Study Team Leader
Mr. George Singley, Army
COL Mike Jones, Army
LTC Dave Powell, Army
LTC Dan Thomas, Army
Mrs. Cathy Polmaker, Army
Mr Matt Mleziva, Air Force
Col Mike Binion, Air Force
Mr. Robert Bayer, DASD(I)
Mr. Bob Meyer, ODASD(I) BC
Mr. Michael McAndrew, ODASD(I) BC
Mr. Hal Henry, C3I
Mr. Dan Bortner, DoDIG
Ms. Nancee LaBute, DoDIG
MAJ Robin Pope, OSD (DR&E)

DIRECTOR OF MANAGEMENT
OFFICE OF THE CHIEF OF STAFF
UNITED STATES ARMY

BRAC 95

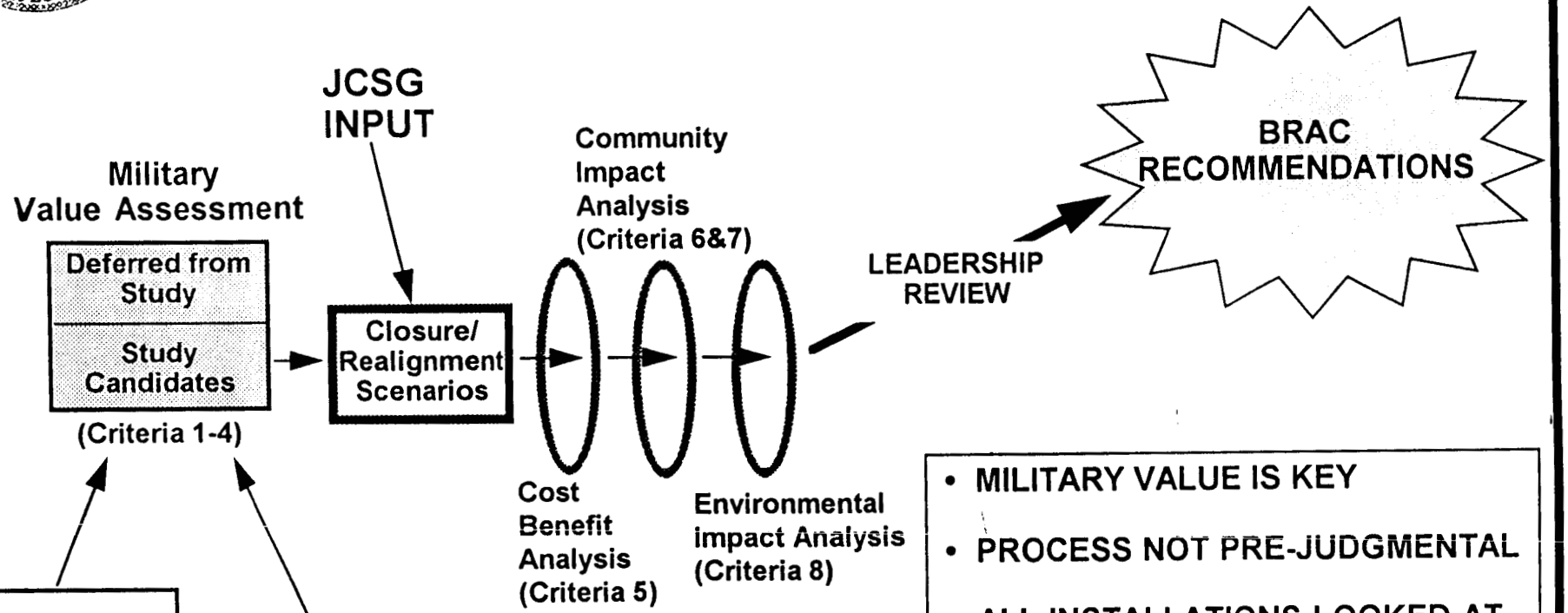
LJCSG IPR



PURPOSE

- ARMY BRAC 95 PROCESS OVERVIEW
- STATUS OF JCSG ALTERNATIVES
- ARMY CONCERNS

ARMY BRAC METHODOLOGY



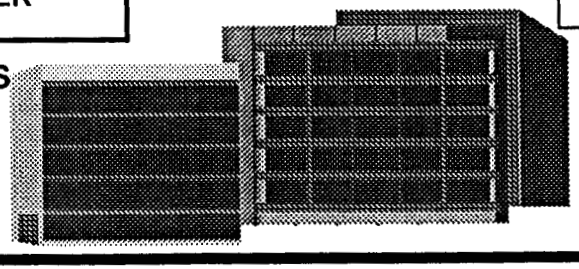
Operational Requirements & Force Structure Plan

STATIONING STRATEGY

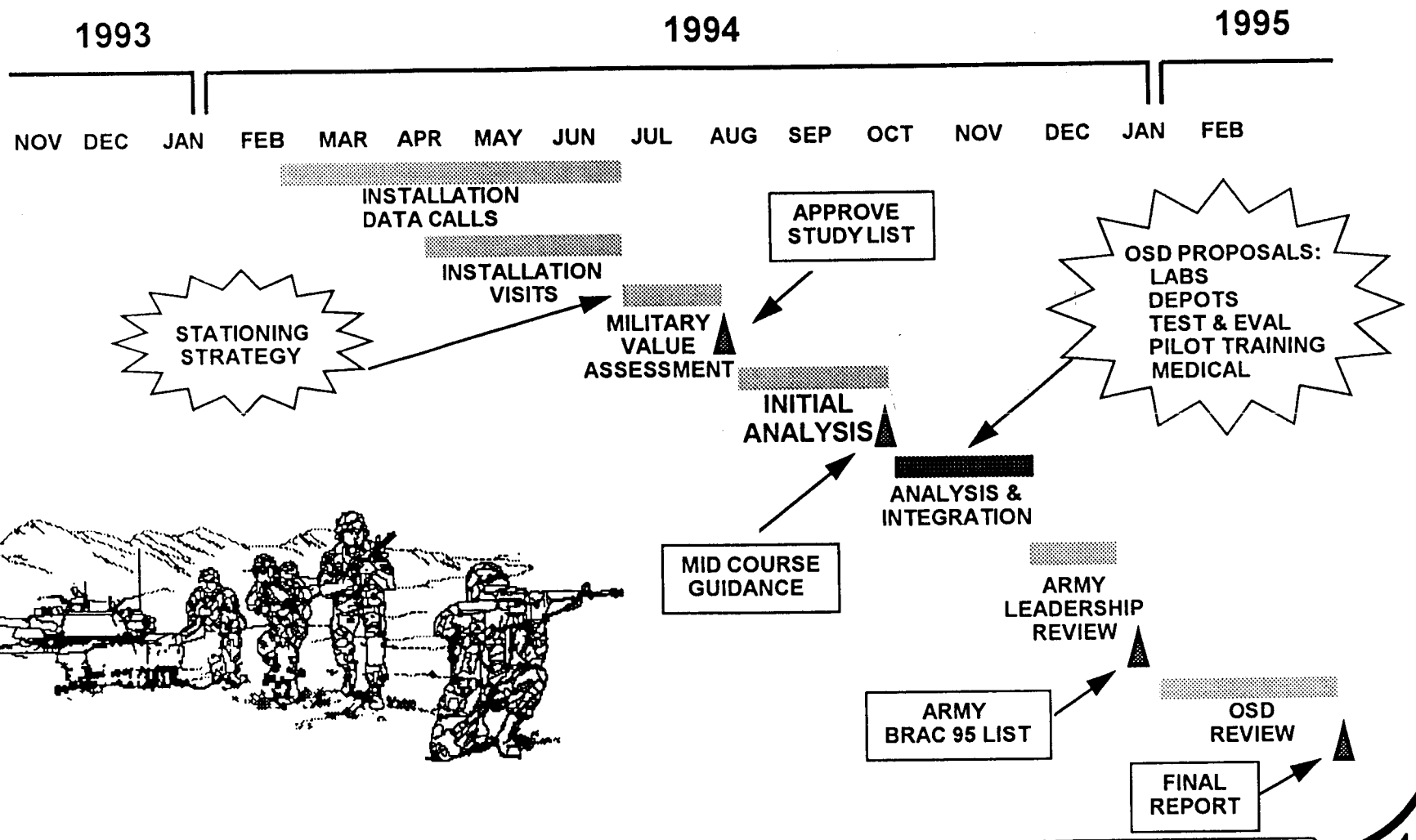
CRITERIA 1-4
- MISSION REQUIREMENT
- LAND & FACILITIES
- FUTURE REQUIREMENTS
- COST & MANPOWER

DATA CALLS

- MILITARY VALUE IS KEY
- PROCESS NOT PRE-JUDGMENTAL
- ALL INSTALLATIONS LOOKED AT EQUALLY
- RECOMMENDATIONS DRIVEN BY ANALYSIS



ARMY BRAC 95 TIME LINES



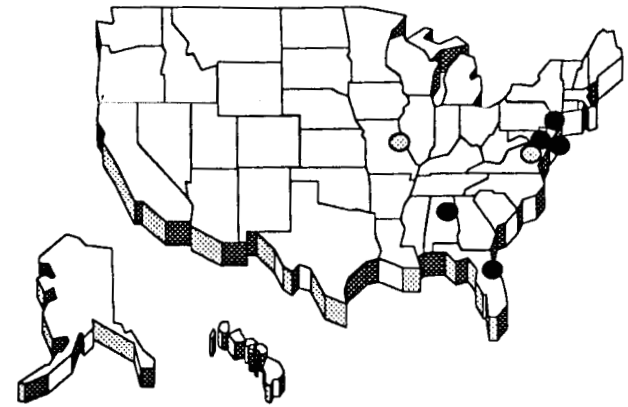
MILDEP - JCSG INTEGRATION

DEC — JAN

JCSG ALTERNATIVES → INITIAL IMPRESSION REPORT → ANALYSIS AND INTEGRATION → ARMY RECOMMENDATIONS

- GREATLY COMPRESSED CYCLE
- DEMANDS TRI-SERVICE COOPERATION
- INCOMPLETE ANALYSIS MAY BE UNAVOIDABLE

LABORATORIES
JOINT CROSS-SERVICE GROUP
RECOMMENDED ALTERNATIVES



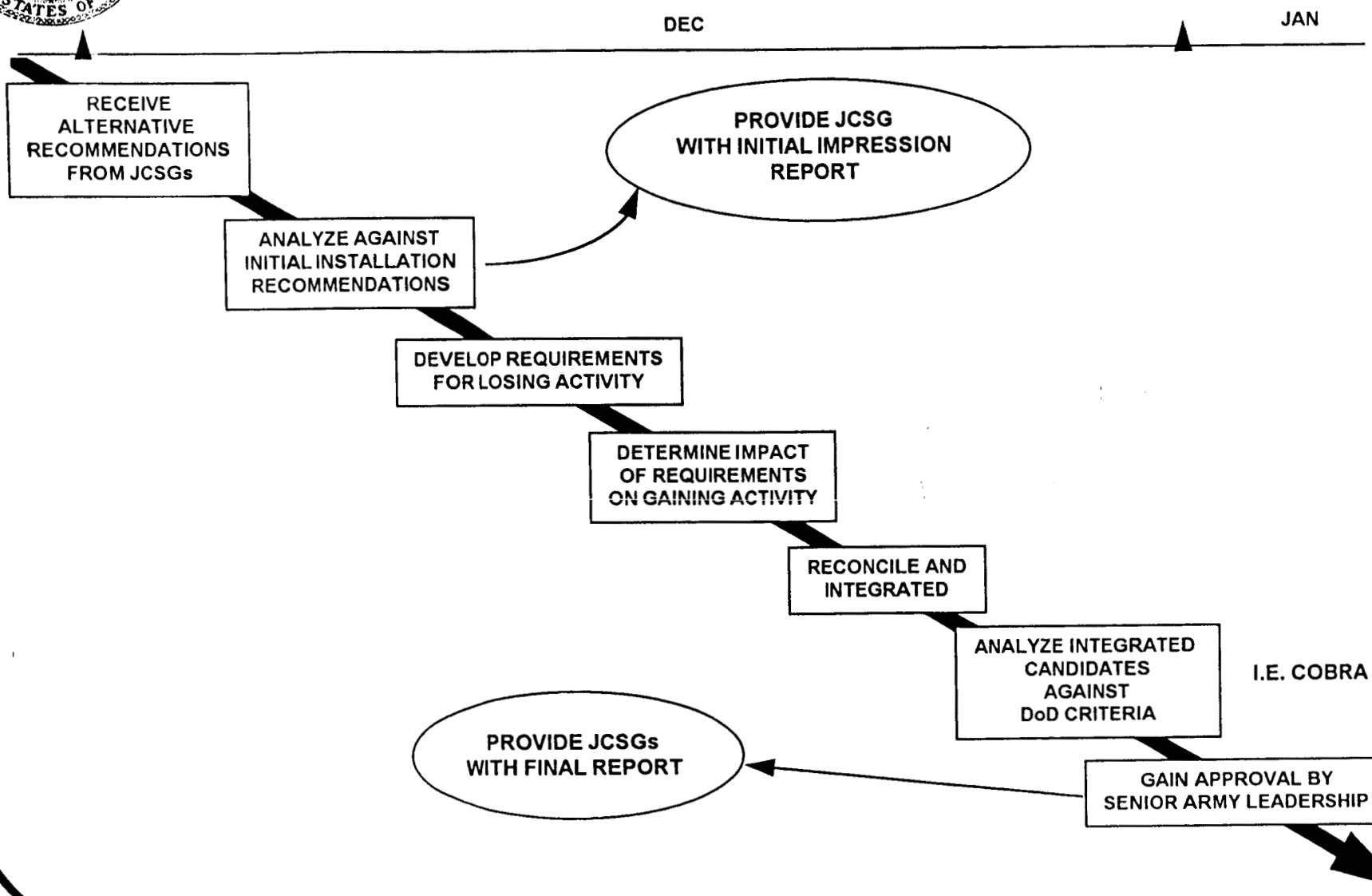
ARMY GAINS A LOT IN ENERGETICS &C4I
A LOT OF MINOR PUSH AROUNDS

○ LOSING ACTIVITIES	TO	● GAINING ACTIVITIES
MRDEC, REDSTONE, AL - AVN SUBSYSTEMS (MINOR WORKLOAD - UAV)		OTHER MILDEPS
AVRDEC, SY LOUIS, MO - AVN SYSTEMS (MINOR WORKLOAD)		OTHER MILDEPS
ARI, ALEXANDRIA, VA - MANPOWER/PERSONNEL/ TRAINING SYSTEMS (MOVE ACTIVITY)		COLLOCATE WITH STRICOM, ORLANDO, FL
OTHER MILDEPS		ARL, ADELPHI, MD - ELECTRONIC DEVICES
OTHER MILDEPS		MRDEC, REDSTONE, AL - CONVENTIONAL ROCKETS/ MISSILES
OTHER MILDEPS		ARDEC, PICATINNY, NJ - GUIDED PROJECTILES, GUNS & AMMUNITIONS, & ENERGETICS
OTHER MILDEPS		CERDEC, FT MONMOUTH, NJ - C4I

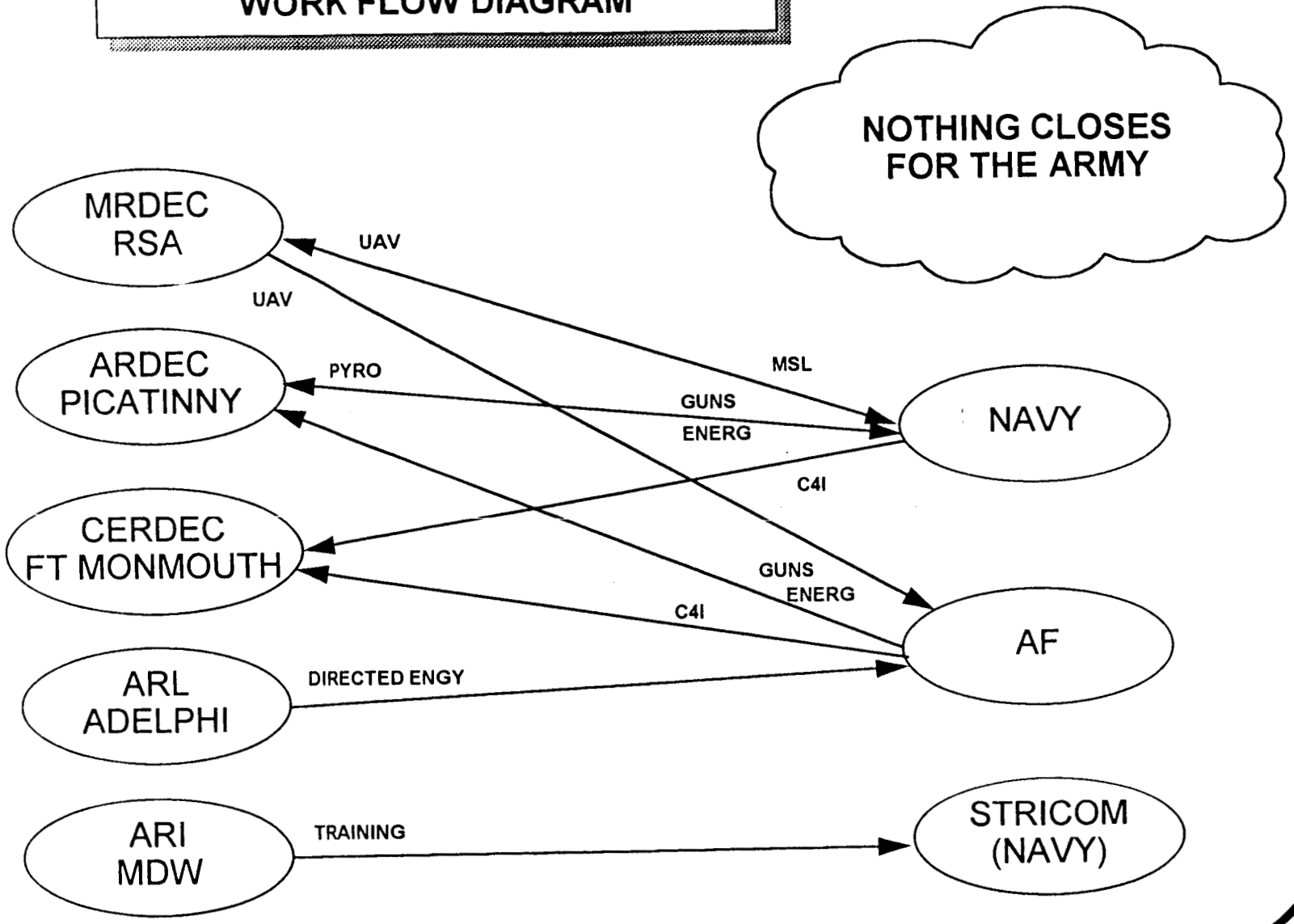
BOTTOM LINE

- PICATINNY AND FT MONMOUTH ARE LARGE GAINERS
- ALL OTHER ARE MINOR WORKLOAD SHIFTS

MILDEP - JCSG INTEGRATION



JCSG ALTERNATIVES
WORK FLOW DIAGRAM



LABORAOTRY JOINT CROSS SERVICE ANALYSIS REQUIREMENTS ARMY LOSING INSTALLATIONS

LOSER	GAINER	CSF	REQ	DATA STATUS RESPONSE	DECONFLICT
MRDEC - RSA	NAWC-PAX	FIXED WING	X		
MRDEC - RSA	AF AT ASC-WPAFB	FIXED WING	X		
ARL - ADELPHI	AF PHILLIPS-KIRTLAND	DIRECTED ENERGY	X		
MRDEC-RSA	NAVY - CHINA LAKE	ENERGETICS	X		
PICATINNY	NAWC, CRANE, IN	ENERGETICS	X		
ARI, VA	NAVY - STRICOM, FL	TRAINING	X		

Data Call Requirements on each Losing activity:

- Personnel Requirements / Detail Breakout of movements
- Facility Requirements
- Special Movement Needs

Static Data (COBRA Screen 4) from all Gaining Installations

LABORATORY JOINT CROSS SERVICE ANALYSIS REQUIREMENTS ARMY GAINING INSTALLATIONS

GAINER	LOSER	CATEGORY	DATA STATUS REQ	RESPONSE	SCREEN 4	DECONFLICT
MRDEC	NAVY - CHINA LAKE	MISSILE/ROCKETS				
ARDEC	NAVY & AIR FORCE	GUNS & AMMO				
CERDEC	NAVY - NCCOSC, SAN DIEGO	C4I				
CERDEC	AF - ESC, HANSOM	C4I				
CERDEC	NAVY - SPAWAR	C4I	X	X	X	
ARDEC	NSWC, INDIAN HEAD, MD	ENERGETICS				
ARDEC	EGLIN, AFB	ENERGETICS				
WRAIR	NAVY -MRI	INFECTIOUS DIS	X	X		

As the gaining installation, requests for COBRA screen 4 data to be provided

Response: Manpower, Facilities, Special Equipment, Movement of Equipment

ARMY CONCERNS

- C4I / ENERGETICS ALTERNATIVES WERE NOT DERIVED FROM THE SAME ANALYTICAL PLAN AS OTHER ALTERNATIVES - AUDITABILITY
- LACK OF TIME TO ANALYZE AND INTEGRATE ALTERNATIVES
- TRI-SERVICE COORDINATION REQUIRED - LOSERS AND GAINERS
- ALTERNATIVES ARE PRIMARILY MINOR WORKLOAD SHIFTS
- WORKLOAD SHIFTS WITHOUT CLOSURE OR PERSONNEL ELIMINATION WILL NOT PRODUCE SAVINGS

SUMMARY

- THE ARMY IS EXAMINING THE WORK PACKAGES RECOMMENDED BY THE LABORATORY JCSG - MILDEP COORDINATION WORKING WELL
- THIS IS A COMPLEX PROBLEM - THE ARMY HAS BEEN WORKING ON SCENARIOS FOR 6 MONTHS
- ARMY RECOMMENDATIONS WILL BE COMPLETED BY 3 JAN

BOTTOM LINE: SUPPORT THE ARMY OF THE FUTURE

K

BRAC 95

Joint Cross-Service Group on Laboratories

Wednesday, December 14, 1994, 1000

Minutes

Attendance list is attached. * indicates Chair.

1. The meeting began with a briefing by the Navy representative on the status of Navy analysis of Lab alternatives. He stated that much of the work provided by the alternatives is in the minutia (i.e. no impact to the Navy's internal closure or realignment recommendations). The Navy's internal focus is on protecting the capability to work on shipboard equipment and those alternatives that impact this area are receiving higher priority while the remaining alternatives will continue to be considered.

2. One area that the Navy will not pursue is moving space satellite work out of NRL into Los Angeles AFB, CA. They Navy analysis concluded that it doesn't make sense to break this out of NRL activities.

3. The Navy is actively working on Lab alternative set number 4 but must rely on other Military Departments since they are net gainers. To date, the Navy has not received requests from other Military Departments with respect to sharing information. The Army responded that their request is being finalized today and should be transmitted shortly. The Air Force stated that for the items they considered their requests will be transmitted by the end of the week or early next week. At issue is whether the Air Force will participate in alternative set #4. If the Air Force refuses to conduct analysis on these alternatives means that no Military Department will receive data pertaining to the alternatives, so no Military Department can perform necessary costing analysis.

4. The Navy stated that they will be performing the analysis for retaining and consolidating Military Department research offices into Balston leased space as an earlier DDR&E memorandum requested. Because this would be a change to a BRAC 93 recommendation, analysis of this alternative must be based on the move directed from BRAC 93. Dr. Jones indicated that the SAE's will meet with her later to further discuss tresearch office collocation.

5. Slides used in this presentation are being held by the Navy BSAT office. The meeting concluded at 1050.

Approved: _____
Anita K. Jones
Chairman

BRAC 95

Joint Cross-Service Group on Laboratories

December 14, 1994

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Mr. Bob Meyer, ODASD(I) BC
Mr. Michael McAndrew, ODASD(I) BC
Mr. Hal Henry, C3I
Mr. Dan Bortner, DoDIG
Ms. Nancee LaBute, DoDIG
MAJ Robin Pope, OSD (DR&E)