THE UNDER SECRETARY OF DEFENSE

3010 DEFENSE PENTAGON
WASHINGTON, DC 20301-3010

ACQUISITION,
TECHNOLOGY
AND LOGISTICS

DEC 19 2003

MEMORANDUM FOR INFRASTRUCTURE STEERING GROUP MEMBERS

Subject: Coordination of the Technical Joint Cross-Service Group's Final Capacity Analysis Reports

The Technical JCSG's final Capacity Analysis Report is attached for your review and coordination. The Technical JCSG revised the report in accordance with ISG direction.

Please provide your formal coordination and any comments on this report by January 5, 2004. Your coordination will constitute the ISG's approval of the methodology and functions for each of the JCSG's capacity analysis.

If you have any questions, please contact Mr. Pete Potochney, Director, BRAC, at (703) 614-5356.

Michael W. Wynne
Acting USD (Acquisition, Technology & Logistics)
Chairman, Infrastructure Steering Group

TECHNICAL
JOINT CROSS SERVICE GROUP

Capacity Analysis Report

Transforming Through Base Realignment and Closure

Section 1: Introduction

This report responds to the two Memoranda from the Acting Under Secretary of Defense (Acquisition, Technology and Logistics) USD (AT&L) as the Chairman of the Infrastructure Steering Group (ISG), dated July 16, 2003 and August 6, 2003. This report, from the Technical JCSG to the Infrastructure Steering Group (ISG), summarizes our proposed approach for conducting technical capacity analysis. The report provides:

- definition of technical functions
- metrics to measure current DoD owned throughput capacity for technical functions (as well a defining their maximum potential capacity)
- definition of surge capacity in technical functions and a method for determining surge capacity requirements

<u>Definition of Technical Functions</u>

The Technical JCSG capacity analysis assumes the Department's entire technical capability can be captured by three functional areas:

- Research (Science & Technology, S&T)
- Development & Acquisition (D&A)
- Test & Evaluation (T&E)

The following functions and sub functions will be analyzed within the Technical Joint Cross Service Group (TJCSG) as defined in the Memorandum to the Chairman of the ISG, dated 1 April 03:

a. Research Function

1. *Basic Research* sub function
    a. Supports research that produces new knowledge in a scientific or technology area of interest to the military.
    b. Basic research may lead to applied research & advanced technology developments which will improve military functional capabilities.
    c. A majority of basic research awards go to universities.

2. *Exploratory Development* sub function
    a. Applied research into new technologies for specific military applications or further development of existing technology for new military applications.
    b. Systematic study to understand the means to meet a recognized and specific national security requirement.
    c. It may include design, development, and improvement of prototypes and new processes to meet general mission area requirements.

3. *Advanced Development* sub function
    a. Advanced development is technology development that supports larger scale hardware development, integration, and experiments that can demonstrate capability in more operationally realistic settings.
    b. Development of subsystems or components and efforts to integrate them into system prototypes for field experiments and/or tests in a simulated environment.
    c. Projects in this category have a direct relevance to identified military needs.
    d. Projects in this category do not necessarily lead to subsequent development or procurement phases.

b. Development & Acquisition Function

1. *System Development and Demonstration* sub function
    a. System specific efforts that help expedite technology transition from the laboratory to operational use.
    b. Emphasis is on proving component and subsystem maturity prior to integration in major and complex systems and may involve risk reduction initiatives.
2. *System Modifications* sub function
    a. Improve product affordability, system reliability, maintainability, and supportability via technology refreshment
3. *Experimentation and Concept Demonstration* sub function
    a. Exploit mature and maturing technologies to solve military problems.
4. *Product/In-Service Life Cycle Support* sub function
    a. Engineering support for system peculiar capabilities in order to conduct check-out of the system and/or subsystem after they have undergone a modification, upgrade or improvement.

c. Test and Evaluation Function

1. *Developmental Test and Evaluation (DT&E)* sub function
    a. Evaluates technical performance and safety
2. *Operational Test and Evaluation (OT&E)* sub function
    a. Evaluates operational effectiveness and suitability under realistic operational conditions including combat
    b. Determine thresholds in the approved Capability Performance Document
    c. Determine if critical operational issues have been satisfied and improve combat operations.

These functions are most typically done at laboratories; warfare centers; research, development, and engineering centers; test ranges; acquisition product centers, etc.

Organizational Structure

Figure 1 depicts the organizational structure, and includes the interdependencies with other joint cross service groups.

Military	Civilian	Contractor
15 (5 FTE)	70 (3 FTE)	10 (1 FTE)

Figure 1: TJCSG Organizational Structure

Dr. Ron Sega, Director, Defense Research and Engineering (DDR&E) chairs the TJCSG. The members are:

- Brig Gen William Catto (Commander Marine Corps Systems Command)
- RADM Jay Cohen (Chief of Naval Research)
- Dr. John Foulkes (Director Army Test and Evaluation Management Agency)
- Dr. J. Daniel Stewart (Executive Director, Air Force Materiel Command)
- Mr. John Erb (Deputy Director for Strategic Logistics, J-4, Joint Staff)

There are five Technical Working Groups (WG) represented by SES/General Officers: C4ISR; Land, Sea, Air, and Space Systems; Weapons and Armaments; Innovative Systems; and Enabling Technologies. Each technical WG will examine capabilities in their assigned area across the three functions (research, development and acquisition, and test and evaluation).

An Analytical Team (AT) will analyze the data with all technical WGs and the TJCSG, as required, making the results available to the TJCSG members, the Capability Integration Team and members of all the five technical WGs. The Analytic Team may develop common approaches and tools for each Technical Working Group to use to analyze the data. Each Technical Working Group will provide the results of the analysis to the TJCSG for final approval.

The Capabilities Integration Team (CIT) will integrate and reconcile the products of the Technical Working Groups for, and in collaboration with, the TJCSG.

The resources (funding and personnel) for the first nine months (March to November, 2003) of the TJCSG have been provided by contributions from the Army, Navy, Air Force and various OSD organizations involved on an as needed basis. The Navy has offered to provide space for the duration of BRAC 2005 where deliberative data can be securely stored and analyzed. The approach for resources over the next six months (through May 2004) will continue to be provided by the components on an as needed basis. To date, over 100 people (many at the SES/GO level) are working in some capacity on the various groups in the TJCSG. We estimate the full time equivalence (FTE) of these 100 people is approximately nine. We estimate the FTE will remain near nine for the next six months. Once the capacity data is received from the Services, we estimate the total FTE through May 2005 will be twenty five.

Refinements Based on SECDEF Approval

The TJCSG acknowledges responsibility to work collaboratively to determine the technical capacity for the following capabilities:

Support from the TJCSG for a Ranges Subgroup under the Education & Training (E&T) JCSG to address all range technical functions, including testing, training, and collective training. The statement in our April 1, 2003 report that the test and evaluation function "includes ranges and facilities whose primary mission is Test and Evaluation" has been removed. The ranges whose primary mission is test and evaluation will be analyzed in collaboration with the E&T JCSG.

The TJCSG has overall responsibility for determining the capacity to develop information technology. The Headquarters and Support Activities (H&SA) JCSG has responsibility to measure the overall capacity of communications from a base-level perspective. The TJCSG will work closely with the H&SA JCSG through its Defense Information Systems Agency (DISA) representative.

The capacity for medical and dental aspects of human systems research will be measured by the TJCSG with support from the Medical JCSG. A member of a Medical JCSG Research Development and Acquisition working group will be a member of the Enabling Technology Technical Working Group addressing medical and dental technology.

SECTION 2: Approach to Capacity Analysis

We have reduced our military forces over the past fifteen years (beginning with BRAC 1988). This reduction was made possible, in part, because modern technology enables our forces to perform their missions more effectively and efficiently. The TJCSG believes the technical capacity needed by the DoD is critical to securing an effective force structure; however, there is no well defined relation between technical capacity and force structure. The purpose and product of the technical functions are to ensure a continuing stream of technologically superior capabilities and systems that are applied so as to enable US forces to have superior operational capabilities.

Assumptions Used for Developing the Attributes and Metrics

The TJCSG begins with the assumption that the three technical functions and their sub functions should be viewed from five technical perspectives:

1. Air, Land, Sea & Space Systems
2. Weapons & Armaments
3. Command, Control, Communications, Computers, Intelligence, Surveillance & Reconnaissance (C4ISR)
4. Enabling Technology
5. Innovative Systems

The TJCSG established five Technical Working Groups, each to view the functions from each of the five technical perspectives. The Technical Working Groups advise the TJCSG concerning the logical attributes for each function and sub function from their technical perspective.

The five Technical Working Groups met individually, as well as collectively, at a TJCSG off-site workshop held in August 2003. The Technical Working Groups identified four attributes common to all three functions. Subsequently it was determined by the Capability Integration Team that one attribute (natural resources) was not a capacity attribute (it is a military value attribute). The remaining attributes are:

People
Facilities & Equipment
Workload

The Technical Working Groups agreed to subdivide their technical perspectives into finer pieces which they call technical capability areas. The technical capability areas are the Project Reliance areas defined in the Defense Technology Area Plan (DTAP) of 2003. The thirteen technical capability areas are air platforms, battlespace environments, biomedical, chemical & biological defense, ground vehicles, sea vehicles, human systems, information systems, materials & processes, nuclear, space platforms, weapons, and sensors, electronics and electronic warfare. The full definition of each will be found in the DTAP.

The Technical Working Groups have overlapping interest in many technical capability areas. The Technical Working Groups found there was no practical way to subdivide technical capability areas so as to make each technical capability area of interest to a single Technical Working Group.

The Technical Working Groups recommended that the TJCSG not confine its capacity analysis to a two-dimensional space of functions and attributes because consideration of technical capability areas enters into the process. Rather the Technical Working Groups recommended a three-dimensional analysis (see figure 2) of three functions (each with sub functions), three attributes, and thirteen technical capability areas.

The overlapping arrows in figure 2 corresponding to each of the Technical Working Groups are notional, intended to make clear that each technical capability area may be relevant to more than one Technical Working Group.

Figure 2: Technical Functions, Attributes, and Technical Capability Areas

The capacity analysis questions were chosen by the TJCSG from those submitted by the working groups. The capacity analysis phase will catalog not only how the infrastructure is currently used, but also ask questions which will enable us to determine if the capacity is flexible to accommodating alternate and additional uses in other technical functions or in other technical capability areas if alternate/additional equipment and alternate/additional technical staff were brought to a location.

Attributes of the Functions

The five Technical Working Groups identified three common, measurable attributes that characterize the development of technical products for DoD. The common capacity attributes are:

1. **People** (human intellectual resources): In order to continue to develop superior capabilities, the technical functions must recruit and retain quality people. Whether it is the research function, the development & acquisition function, or the test & evaluation function, the foundation is people. The people include scientists and engineers, business managers, program managers, etc. These people have specialized skills over a wide range of disciplines. For example, the skills of a medical research scientist are quite different from those of an acquisition manager or a test range engineer.

   The September 30, 2001 Quadrennial Defense Review Report states that DoD needs a technical "support structure that is equally agile, flexible, and innovative." Organizing a technical infrastructure that will attract talented people because the infrastructure in which they will work is agile and flexible is a desirable outcome of BRAC. We refer to the talented people as intellectual capacity. The intellectual capacity of the workforce is measured by items such as educational credentials and acquisition credentials. The total workforce assigned to a technical location is measured whether military, civilian, or non-government employees.

2. **Facilities and equipment**: Development of quality technical products requires infrastructure outfitted with appropriate facilities and equipment. The capacity analysis will measure facilities and equipment using appropriate units. Examples of units of measure are building floor space and percentage of floor space used. Inventory of major equipment (valued over $1M), its size, weight, frequency of use, and the technical capability areas and functions for which it is used. The capacity analysis will consider which spaces might be re-configured to perform additional functions or different functions for the needs of another of the thirteen capability areas.

   The capacity analysis will measure the availability or expansion potential for research, development & acquisition, and test & evaluation across the thirteen technical capability areas

3. **Workload**: Workload represents the product of how we apply our people, facilities and equipment, subject to the constraints associated with our facilities. Examples of units of measure are operating hours, funding, number of tests, number of test hours, number of acquisition programs by acquisition category, and the amount of the program funding available to the facility.

   Our technical capacity has evolved over a period of decades. Some of our technical infrastructure is over 50 years old. It is possible that some facilities are operating at less than their full capacity or were not designed with agility and flexibility in mind. Historical data will be sought to estimate the maximum demonstrated capacity of the facility and to estimate the ability of the facility to do work in different functions or different technical capability areas.

   Since BRAC 2005 looks 20 years into the future, the infrastructure we retain must remain relevant in the future. The Department needs a flexible and agile technical infrastructure which can provide for a technical future we cannot predict. During later phases of BRAC the TJCSG will ask questions to give the respondent the opportunity to make clear the flexibility of a facility to be used for different purposes than the facility has been used in the past. During later phases of BRAC the TJCSG will consider the potential of using existing technical resources in a different way.

<u>Metrics Measuring the Capacity of Each Attribute</u>

While the three attributes are common to all three functions, the metrics for each attribute may be different for each function as well as for capabilities within each sub function. The skills characterizing a talented research scientist (Nobel prize-like scientific insight) are different from the skills characterizing a talented test & evaluation engineer (precision in measuring and assessing tested system performance) are different from the skill characterizing an insightful acquisition program manager (smart buyer insight and business acumen).

The three attributes are listed below. We suggest both metrics and units (*in italics)* that will be used to measure each attribute. In many questions, the capacity data will be measured and then averaged over three fiscal years (FY01-FY03).

1. **People**
   a. Total Personnel—technical & non-technical (military & government with occupational series, and contractors)—and the technical capability area with which each person is most closely associated. Workforce academic credentials (*high school diploma, associate degree, bachelor's degree, master's degree, and Ph.D.)* and professionally certified acquisition corps members (*civilian and military number by level and acquisition function).*
   b. The total number of full time equivalent work years done at the technical location in each of the thirteen technical capability areas and each of the

three functions during (i) the past three years (FY01-FY03); (ii) in the year which the technical location performed the most full time equivalent works years during the past ten years (FY94-FY03); and if the technical location is configured to provide space for a work force capable of performing more full time equivalent work years than the maximum done in the past ten years it can (iii) report the maximum full time equivalent work years done in the currently available space if it was before 1994.

2. **Facilities & Equipment**
    a. List technical, administrative, and other space *(square feet, square miles)* and frequency of use
    b. List major (>$1M) and unique facilities and equipment *(size, weight)* and frequency of use
    c. Technical space, major and unique facilities, and equipment includes information management, information technology, and communications facilities, equipment, and space.

3. **Workload**
    a. Funding *($)*, distributed over the three technical function for each of the thirteen technical capability areas for the past three years (FY01-FY03) and for the peak funding year during the past ten years (FY94-FY03). The source of the funding (by Military Service, other DoD, other Federal agencies, and non-Federal sources) is to be identified.
    b. If the configuration of the technical location is unchanged, and the maximum funding year was prior to FY94, the total funding *($)* for that year.
    c. Test resource workload in FY01-FY03 (*number of tests, test hours, overtime labor hours, function test resource most usually supports, technical capability area test resource most usually supports)*
    d. Acquisition Programs (*total number of ACAT programs)*

<u>Process to measure surge capacity of each attribute</u>

Historically, in the technical functions, technical surge is achieved through reallocation of people, facilities and equipment, and workload. That was the procedure we used to provide thermobaric weapons in 2001.

The TJCSG believes there are two elements of technical surge. One element is surge capacity which enables us to do more of what we currently do (or have done in the past) and to do it with more technical agility than we have done in the past.

The second element is more elusive: surge to do technology not done before (e.g., the Manhattan Project of the 2nd World War). Here, our research function makes a discovery which creates a new technology whose war fighting benefit is revolutionary. It is difficult

to specify the technical surge capacity to provide an unknown technical product that will be discovered at an unknown moment in the future.

Given the difficulties in estimating surge, the TJCSG decided that a reasonable assumption is to assume that an additional 10% capacity above our current capacity is necessary to meet surge requirements.

Calculating Excess Capacity

Our fundamental equation for determining excess capacity relative to 2003 usage is:

Maximum Capacity - Current Capacity - Surge Capacity = Excess Capacity

Excess capacity is available for additional throughput in conjunction with a realignment action.

Formula for Work Years:
A formula to estimate the number of work years that might be brought to a location as part of a realignment action is:

Peak year FTE – last three years averaged FTE – surge (10% of last three years averaged FTE) = excess FTE capacity (available to receive realigned employees)

Formula for Equipment Use:
Maximum number of days equipment is available for use – last three years averaged use – surge (10% last three years averaged use) = excess equipment capacity (available for additional throughput)

Formula for Facility Use:
Maximum number of days facility is available for use – last three years averaged use – surge (10% last three years averaged use) = excess facility capacity (available for additional throughput)

Formula for Test Resource Workload:
Maximum number of days a test resource is available for use – last three years averaged use – surge (10% last three years averaged use) = excess test resource capacity (available for additional throughput)

Formula for Funding:
Maximum amount of funding ($) – last three years averaged funding – surge (10% of last three years averaged funding) = excess funding capacity

Formula for Building Use:
Net square feet of building – net square feet of building used in FY03 – surge (10% of FY03 usage) = excess building space

Battle Plan

We offer two views of our battle plan. A simple depiction in figure 3 and a more detailed view in figure 4. The detailed Battle Plan shows all of the major steps and the interfaces that the TJCSG will employ in order to generate its recommendations for BRAC 2005.

Section 3: Issues Impacting Analysis

We have overlaps with three other JCSG groups (Medical, Education & Training, Headquarters & Support Activities (includes interaction with DISA)) which must be monitored to assure that issues or conflicts do not arise. At this time we have no issues or conflicts relating to Ranges (E&T JCSG) or Communications and Information Technology (H&SA JCSG) or Medical (Medical JCSG). The TJCSG is coordinating its capacity analysis with each of these three JCSGs.

Figure 3: Simplified Battle Plan

Figure 4: TJCSG Detailed Battle Plan

The TJCSG finds no evidence of how DoD has explicitly planned for technical surge in the past. Rather, we believe it has been done in the manner we discuss in Section 2. We welcome insights from the ISG and Military Services that might lead to a more quantitative methodology for measuring technical surge capacity than we offer in this report.

APPPENDIX

This appendix is an abridged list of questions that the Technical Joint Cross Service Group submitted to OSD via the IQT on November 14, 2003. The list is abridge because the same question to measure full time equivalent (FTE) work years is asked 39 times (once for each of the thirteen technical capability areas and once for each of the three functions). The FTE question appears just once in the abridged question list. The same question is asked thirteen times for funding (once of each of the thirteen technical capability areas). The funding question appears just once in the abridged question list. Abridging the question list reduces the appendix page count from more than 160 pages to less than 30 pages.

JCSG: Technical

Sub Group: All

Index: Base Management: Buildings: Facilities Under Construction:

Reference #96: New buildings under construction in FY2003 to be used by the RDTE&A workforce
Question: Complete Table for buildings under construction and for new buildings for which construction funds have been appropriated through FY2004 which will be used by the RDTE&A workforce at your location.
Source / Reference: Facility Records
Amplification: When a building has a combination of technical, administrative & other spaces, multiple tables for the same building will be necessary.

Identify approval authority and specify appropriation and appropriation year that implements the plan.

In the Special RDTE&A Capacity Characteristics column, up to 600 characters may be entered to provide additional salient information which characterizes the capacity of the building to do technical (RDTE&A) functions.
Column Headings for this question

Column names	Data Type	Source/Reference	Amplification
Building Name (include number or unique identifier) (Text)	string99		
Type of Space (List) (List Values: Administrative, Technical, Other)	multiple choice		
Gross Building Square Feet (SF)	numeric		
Net Building Square Feet (SF)	numeric		
Special RDTE&A Capacity Characteristics (Text)	string600		
Year of appropriated funds (Yr)	date		
Approval authority and appropriation number (Text)	string50		

Index: Base Management: Buildings: Research Development Test Evaluation & Acquisition:

Reference #89: Major & Unique RDTE&A Equipment
Question: List major and unique RDTE&A equipment at the location and complete the table.

Include Information Management & Information Technology & Communications equipment.

The list should only include equipment (a) integral to the building in which it is located (e.g., requires special engineering such as reinforced floors, electromagnetic shielding, special ventilation, etc.), (b) replacement cost will exceed $1M, or (c) disassembly/reassembly cost will exceed $1M.
Source / Reference: Equipment Records
Amplification: Only count days the equipment was used for its intended RDTE&A function. For example, if research equipment exists but is currently being used for some other purpose such as maintenance, this usage should not be counted.

Research means basic research (6.1), applied research (6.2) and advanced development (6.3).

Test and Evaluation means Developmental Test and Evaluation (DT&E) and Operational Test and Evaluation (OT&E). Test and Evaluation also includes facilities that provide measurements and analyses for science and technology (S&T) development and acquisition (D&A), developmental test and evaluation, operational test and evaluation, live fire test and evaluation, contractor test and evaluation, joint test and evaluation, in-service engineering testing, safety certifications, concept refinement, advanced technology demonstrations, shelf-life and lot verification testing, and for experimentation when predominantly used for acquisition or materiel decisions.

Development and Acquisition means system development and demonstration, system modifications, experimentation and concept demonstration, and product/in-service life-cycle support.
Column Headings for this question

Column names	Data Type	Source/Reference	Amplification
Equipment Name (Text)	string99		
Purpose (Text)	string999		
Primary reason for classification as major equipment (List) (List Values: integral to building, replacement cost exceeds $1M, disassembly/reassembly cost exceeds $1M)	multiple choice		
Unique feature of equipment, if any (Text)	string500		
Equipment Footprint (SF)	numeric		
Volume (CY)	numeric		
Weight (Tons)	numeric		
FY03 Days used for RDTE&A (Day)	numeric		
FY02 Days used for RDTE&A (Day)	numeric		

FY01 Days used for RDTE&A (Day)	numeric		
FY03 Days Available for use (Day)	numeric		
FY02 Days Available for use (Day)	numeric		
FY01 Days Available for use (Day)	numeric		
FY03 Reason for being unavailable some days (Text)	string500		
FY02 Reason for being unavailable some days (Text)	string500		
FY01 Reason for being unavailable some days in (Text)	string500		
Used for Research Function in FY01 or FY02 or FY03 (Yes/No)	Yes/No		
Used for Development & Acquisiti Function in FY01 or FY02 or FY03 (Yes/No)	Yes/No		
Used for Test & Evaluation Function in FY01 or FY02 or FY03 (Yes/No)	Yes/No		
Supports Air Platforms (Yes/No)	Yes/No		
Supports Chemical & Biological Defense (Yes/No)	Yes/No		
Supports Information Systems (Yes/No)	Yes/No		
Supports Ground Vehicles (Yes/No)	Yes/No		
Supports Sea Vehicles (Yes/No)	Yes/No		
Supports Materials & Processes (Yes/No)	Yes/No		
Supports Biomedical (Yes/No)	Yes/No		
Supports Sensors, Electronics & Electronic Warfare (Yes/No)	Yes/No		
Supports Space Platforms (Yes/No)	Yes/No		
Supports Human Systems (Yes/No)	Yes/No		
Supports Weapons (Yes/No)	Yes/No		
Supports Nuclear Technology (Yes/No)	Yes/No		
Supports Battlespace Environments (Yes/No)	Yes/No		

Reference #91: Major & Unique RDTE&A Facilities
Question: Complete the table for all major and unique RDTE&A facilities at the location.

Include Information Management & Information Technology & Communications facilities.

Major & Unique RDTE&A facilities (including Information Management & Information Technology facilities) are those that fall into at least one of the following groups: (a) integral to the building in which it is located (e.g., requires special engineering such as reinforced floors, electromagnetic shielding, special ventilation, etc.), (b) replacement cost will exceed $1M, or (c) disassembly/reassembly cost will exceed $1M.
Source / Reference: Facility Records
Amplification: Only count days the facility was used for its intended RDTE&A function. For example, if a research facility exists but is currently being used for some other purpose such as storage, this usage should not be counted.

Research means basic research (6.1), applied research (6.2) and advanced development (6.3).

Test and Evaluation means Developmental Test and Evaluation (DT&E) and Operational Test and Evaluation (OT&E). Test and Evaluation also includes facilities that provide measurements and analyses for science and technology (S&T) development and acquisition (D&A), developmental test and evaluation, operational test and evaluation, live fire test and evaluation, contractor test and evaluation, joint test and evaluation, in-service engineering testing, safety certifications, concept refinement, advanced technology demonstrations, shelf-life and lot verification testing, and for experimentation when predominantly used for acquisition or materiel decisions.

Development and Acquisition means system development and demonstration, system modifications, experimentation and concept demonstration, and product/in-service life-cycle support.
Column Headings for this question

Column names	Data Type	Source/Reference	Amplification
Facility Name (Text)	string99		
Purpose (Text)	string999		
Primary reason for classification as major facility (List) (List Values: integral to building, replacement costs exceeds $1M, disassembly/reassembly cost exceeds $1M)	multiple choice		
Unique feature of facility, if any (Text)	string500		
Net Facility Square Feet (SF)	numeric		
Volume (CY)	numeric		

FY03 Days used for RDTE&A (Day)	numeric		
FY02 Days used for RDTE&A (Day)	numeric		
FY01 Days used for RDTE&A (Day)	numeric		
FY03 Days available for use (Day)	numeric		
FY02 Days available for use (Day)	numeric		
FY01 Days available for use (Day)	numeric		
FY03 Reason for being unavailable some days (Text)	string500		
FY02 Reason for being unavailable some days (Text)	string500		
FY01 Reason for being unavailable some days (Text)	string500		
Used for Research Function in FY01 or FY02 or FY03 (Yes/No)	Yes/No		
Used for Development & Acquisiti Function in FY01 or FY02 or FY03 (Yes/No)	Yes/No		
Used for Test & Evaluation Function in FY01 or FY02 or FY03 (Yes/No)	Yes/No		
Supports Air Platforms (Yes/No)	Yes/No		
Supports Chemical & Biological Defense (Yes/No)	Yes/No		
Supports Information Systems (Yes/No)	Yes/No		
Supports Ground Vehicles (Yes/No)	Yes/No		
Support Sea Vehicles (Yes/No)	Yes/No		
Supports Materials & Processes (Yes/No)	Yes/No		
Supports Biomedical (Yes/No)	Yes/No		
Supports Sensors, Electronics & Electronic Warfare (Yes/No)	Yes/No		
Supports Space Platforms (Yes/No)	Yes/No		
Supports Human Systems (Yes/No)	Yes/No		
Supports Weapons (Yes/No)	Yes/No		
Supports Nuclear Technology (Yes/No)	Yes/No		
Supports Battlespace Environments (Yes/No)	Yes/No		

Reference #94: Buildings used by the RDTE&A workforce at your location
Question: Complete Table for buildings which are used by the RDTE&A workforce at your location.
Source / Reference: Facility Records
Amplification: When a building has a combination of technical, administrative & other spaces, multiple tables for the same building will be necessary.

In the Special RDTE&A Capacity Characteristics column, up to 600 characters may be entered to provide additional salient information which characterizes the capacity of the building to do technical functions (RDTE&A).
Column Headings for this question

Column names	Data Type	Source/Reference	Amplification
Building Name (include number or unique identifier) (Text)	string99		
Type of Space (List) (List Values: Administrative, Technical, Other)	multiple choice		
Gross Building Square Feet (SF)	numeric		
Net Building Square Feet (SF)	numeric		
Net Building Square Feet Used in FY2003			
Special RDTE&A Capacity Characteristics (if any) (Text)	string600		

Index: Technical: Capability Areas: :

Reference #1: Technical Capability Areas Supported
Question: Enter "yes" in appropriate column(s) to identify Technical Capability Areas (a) that are supported within your location's mission (i.e., for which your location receives programmed funds or has programmed Full Time Equivalents (FTEs)), (b) in which direct mission-funded or reimbursable work was performed in FY01 or FY02 or FY03, or (c) that your location possesses capability to support.
Source / Reference: Comptroller Records, Commander/Director Assessment
Amplification: The technical capability areas are Project Reliance terms defined in the Defense Technology Area Plan (DTAP). Refer to the DTAP for full definitions. Abbreviated definitions follow.
1. Air Platforms - includes efforts devoted to manned and unmanned air vehicles to provide the warfighter: Fixed-Wing Vehicles, Rotary-Wing Vehicles, Turbine Engine Technology, aircraft power, and High-Speed Propulsion.
2. Battlespace Environments - addresses the natural environment of the battlespace for the purposes of the warfighter and the impact it has on the sensors, systems, and tactics the warfighter employs. Terrestrial Environments, Ocean Battlespace Environments, Lower Atmosphere, Space/Upper Atmosphere Environments.
3. Biomedical technology - support of the DoD mission to provide health support and services to U.S. armed forces. Combat Casualty Care, Infectious Diseases of

Military Importance, Military Operational Medicine, Medical Radiological Defense, Medical Biological Defense, Medical Chemical Defense.
4. CB Defense technology - development of technology to counter the threat of CB weapons and to ensure the safety and mission effectiveness of U.S. forces operating within a contaminated environment with minimal impact on logistics. CB Decontamination, CB Modeling & Simulation, CB Detection, CB Protection, Medical Chemical Defense, Medical Biological Defense.
5. Ground Vehicles - addresses platform and system technology sub areas that support ground vehicles (land combat and tactical vehicles and amphibious vehicles with a ground combat role).
6. Sea Vehicles - addresses platform and system technology sub areas that support sea vehicles (surface ship combatants and submarines).
7. Human Systems - develops and provides technologies, techniques and tools to ensure that people are properly selected, placed, trained, equipped, and sustained to perform effectively and safely. System Interfaces and Cognitive Processing, Personnel, Training and Leader Development, Protection, Sustainment and Physical Performance.
8. Information Systems – Knowledge and Management, Information Security, Communications and Networking, Modeling and Simulation Technology, Computing and Software Technology.
9. Materials/Processes – Environmental Quality, Manufacturing Technology, Civil Engineering, Materials/Processes for Survivability, Life Extension, & Affordability.
10. Nuclear Technology - develop, apply, and improve the technical capabilities needed for accomplishment of DoD's nuclear and nuclear weapons related missions and support of strategic deterrence. Systems Effects & Survivability, Test & Simulation Technology, Warfighter Support, Nuclear Environments and Effects, Nuclear Threat Reduction.
11. Sensors, Electronics, and Electronic Warfare - Radar Sensors, Electro-Optical Sensors, Acoustic Sensors, Automatic Target Recognition, Integrated Platform Electronics, RF Components, Electro-Optical Technology, Microelectronics, Electronic Materials, Electronic Integration Technology, EW Threat Warning, EW Self-Protection, and EW Control.
12. Space Platforms - efforts devoted to space and launch vehicles and space propulsion.
13. Weapons technology - efforts devoted to armament technologies for all new and upgraded nonnuclear weapon systems

Project Reliance also has T&E terms. These appear in the row headings, intended to provide additional clarity, and are defined as follows.

Air Combat: Addresses test capabilities for development and use of Fixed-wing and/or rotary-wing manned and unmanned aircraft and all related air operations mission and support systems throughout the system life cycle.

Air vehicle types unmanned air vehicles (UAVs), cruise missiles (excluding munitions aspects), technology demonstrations, support programs/projects and all phases of the system life cycle.
Total aircraft weapon system, the air vehicle, aircraft stores compatibility, aerial delivery, subsystems or functions, and software changes/updates.

Land Combat: Addresses test capabilities for land systems for:
Both the mounted and dismounted warriors, as well as urban operations and robotic support systems.
Platform and sub-system technologies such as battlefield digitization, propulsion and power, track and suspension, chassis and turret structures, vehicle subsystems, dynamics, integrated survivability, fuels and lubricants, and integration technologies as related to land vehicles.

Sea Combat: Addresses test capabilities involving the use of ships (surface and subsurface), manned and unmanned sea-mobile vehicles, shipboard systems, and land and air-based systems that support or function as extensions of shipboard systems. May include:
Hull, mechanical, and electrical systems for surface ships, submarines, and undersea unmanned vehicles
Signature and silencing systems (including acoustic and non-acoustic)
Propulsors
Combat systems (including guns and missile launchers but excluding projectiles and missiles) for anti-submarine warfare (ASW), anti-surface warfare (ASUW), anti-air warfare, discrete self-defense (not integral to other combat systems), strike, and theater air defense
Maritime C4I systems (shipboard and associated land-based radio frequency and satellite communications/switching networks, and tactical data processing and display)
Ship-based space and electronic warfare systems
Undersea surveillance systems (including land-based components thereof)
Ship-based aircraft ASW/ASUW (including unmanned aerial vehicles, but excluding airframes and flight support systems)
Sea-based special warfare/explosive ordnance disposal systems

Space Combat and Ballistic Missiles: Addresses test for development and use of capabilities to:
Gain and maintain control of activities conducted in or through space. These capabilities and activities include but are not limited to space surveillance, counterspace and missile defense.
Conduct of missions carried out by weapons systems operating in or through space for holding terrestrial targets at risk, to include non-nuclear and nuclear strike capabilities.

Enable or support military air, land, sea, and space operations, including navigation, satellite communications, environmental monitoring, surveillance and threat warning, and battle management and control.
Ensure infrastructure to enable launch operations, satellite operations, and recovery operations.

Armaments and Munitions: Addresses test capabilities for development and use of:
Torpedoes, mines (land and sea), bombs, guided bombs, missiles, guns, rockets, grenades, and ammunition, as well as non-lethal methods.
Weapon subsystems such as platform, guidance, warhead, fuse, seeker, and propulsion (chemical, electric, etc), as well as computer technologies, environmental effects (simulation, networked), micro-electronics and opto-electronics, software (network enhancement, modeling and simulation), human-system interfaces (neural networks, data integration), and lethality (endo/exoatmospheric kill vehicles).
Delivery and launch subsystems that originate from space, manned and unmanned aircraft, land and water, and deep and shallow underwater.
Targeting of time critical, highly mobile, urban and civilian-rich surroundings, deeply buried and hardened, shallow-water, and detection-resistant structures.
Technologies to improve target detection, guidance and control, propulsion and velocities, energetics, countermeasures, size and weight, joint and allied compatibility and interoperability, smart skins and data fusion, and weapons separation.
Survivability of U.S. systems to threat armaments and munitions, as well as survivability of threat platforms to U.S. weapons.
Undersea warfare mine and countermine warfare systems (including airborne systems)
Air-launched ASW projectiles, including subsurface targets, countermeasures and torpedoes

Electronic Combat (EC): Addresses test capabilities to:
Deny, degrade, disrupt, and destroy any adversary by electromagnetic means.
Includes the recognized electronic warfare mission areas of Electronic Attack (EA), Electronic Protection (EP) and Electronic Warfare Support (ES); as well as directed energy weapons such as laser and high power microwave.
To enhance the warfighters effectiveness in achieving "full spectrum dominance" (ref: Joint Vision 2020) across the entire electromagnetic spectrum.

Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR): Addresses test capabilities for development and use of:
Information technology for achieving a network-centric warfare capability that enables increased combat power by networking sensors, decision makers, and shooters to achieve shared awareness, increased speed of command, higher

tempo of operations, greater lethality, increased survivability, and a degree of self-synchronization.
Information superiority into combat power by effectively linking knowledgeable entities in the battlespace.
The shift to an open-architecture, network-centric focus to allow the joint warfighter to achieve greater agility in responding to changes in threat and exploiting continuing advances in technology."
Information security, information assurance and information warfare.
Frequency spectrum management and control.
Example of how your grid will look

Technical Capability Area	Within Mission (Yes/No)	FY03 Work Conducted (Yes/No)	FY02 Work Conducted (Yes/No)	FY01 Work Conducted (Yes/No)	Possess Capability (Yes/No)
Air Platforms (Air Combat)					
Chemical & Biological Defense					
Information Systems Technology (C4ISR)					
Ground Vehicles (Land Combat)					
Sea Vehicles (Sea Combat)					
Materials & Processes					
Biomedical					
Sensors, Electronics, and Electronic Warfare (Electron Combat)					
Space Platforms (Space Combat & Ballistic Missiles					
Human Systems					
Weapons (Munitions &					

Armaments plus Directed Energy)					
Nuclear Technology					
Battlespace Environments					

Reference #4: ACAT Programs
Question: List the total number of ACAT I, II, III and IV Programs your location administers.
Source / Reference: OSD & Military Service listings of ACAT programs
Amplification: Only the location that administers the appropriated funds for the ACAT program shall count this function.

List by technical capability area, associating each program with no more than one technical capability area. When an ACAT program might be associated with multiple technical capability areas, pick one under which to report the program.
Example of how your grid will look

Technical Capability Area	# ACAT I Programs in FY 03 (Count)	# ACAT II Programs in FY 03 (Count)	# ACAT III Programs in FY 03 (Count)	# ACAT IV Programs in FY 03 (Count)	# ACAT I Programs in FY 02 (Count)	# ACAT I Programs in FY 01 (Count)	# ACAT II Programs in FY 02 (Count)	# ACAT II Programs in FY 01 (Count)	# ACAT III Programs in FY 02 (Count)	# ACAT III Programs in FY 02 (Count)	# ACAT IV Programs in FY 02 (Count)	# ACAT IV Programs in FY 01 (Count)	Total (Count)
Air Platforms (Air Combat)													
Chemical & Biological Defense													
Infor													

mation Systems Technology (C4ISR)													
Ground Vehicles (Land Combat)													
Sea Vehicles (Sea Combat)													
Materials & Processes													
Biomedical													
Sensors, Electronics, and Electronic Warfare (Electron Com													

bat)													
Space Platforms (Space Combat & Ballistic Missiles)													
Human Systems													
Weapons (Munitions & Armaments plus Directed Energy)													
Nuclear Technology													
Battlespace Environments													
Total													

Index: Technical: People: :

Reference #7: Professional Occupational specialties
Question: For each of technical capability areas supported by your location, list each job series number (GS series, military area of concentration, military occupational series, or equivalent) and the number of individuals in each job series at your location who supported the technical capability area in FY03.

Since "others" job titles may not conform to Office of Personnel Management Occupational Series, sort others in the table using the PATCOB letter (P or A or T or C or O or B).
Source / Reference: Personnel Records
Amplification: The sum of all the entries is intended to be equal to the number of people performing RDTE&A related functions at the location.

Individuals must be associated with no more than one technical capability area. Where an employee works in more than one technical capability area, the person is to be associated with the area in which a plurality of time was worked in FY03.

Attempt to associate non-technical employees with technical capability area. When non-technical employees cannot be associated with a technical capability area, the entry in the first column will be “none.”

Others are defined to be non-government personnel (e.g., all on-site contractors such as SETA, A&AS, A76, all on-site FFRDC personnel, Intergovernmental Personnel Act appointees, etc.) for which the location is obliged to provide space.

The definition of each PATCOB letter is:
P: Professional. White collar occupations that require knowledge in a field of science or learning characteristically acquired through education or training equivalent to a bachelor's or higher degree with major study in or pertinent to the specialized field, as distinguished from general education. The work of a professional occupation requires the exercise of discretion, judgment, and personal responsibility for the application of an organized body of knowledge that is constantly studied to make new discoveries and interpretations, and to improve the data, materials, and methods.

A: Administrative. White collar occupations that involve the exercise of analytical ability, judgment, discretion, and personal responsibility, and the application of a substantial body of knowledge of principles, concepts, and practices applicable to one or more fields of administration or management. While these positions do not require specialized educational majors, they do involve the type of skills (analytical, research, writing, judgment) typically gained through a college level general education, or through progressively responsible experience. Occupation series in this category typically follow a two-grade interval pattern.

T: Technical. White collar occupations that involve work typically associated with and supportive of a professional or administrative field, that is nonroutine in nature; that involves extensive practical knowledge, gained through on-job experience and/or specific training less than that represented by college graduation. Work in these occupations may involve substantial elements of the work of the professional or administrative field, but requires less than full competence in the field involved. Occupation series in this category typically follow a one-grade interval pattern.

C: Clerical. White collar occupations that involve structured work in support of office, business, or fiscal operations; performed in accordance with established policies, or techniques; and requiring training, experience, or working knowledge related to the tasks to be performed.

O: Other white collar. White collar occupations that cannot be related to the above professional, administrative, technical, or clerical categories.

B: Blue collar. Occupations comprising the trades, crafts, and manual labor (unskilled, semiskilled, and skilled), including foreman and supervisory positions entailing trade, craft, or laboring experience and knowledge as the paramount requirement.

Column Headings for this question

Column names	Data Type	Source/Reference	Amplification
Technical Capability Area (List) (List Values: Air Platform (T&E: Air Vehicle, Chemical & Biological Defense, Information Systems Technology, Ground Vehicles, Sea Vehicles, Materials & Processes, Biomedical, Sensors, Electronics, and Electronic Warfare, Space Platforms, Human Systems, Weapons (Armaments & Munitions; Directed Energy), Nuclear Technology (Armaments & Munitions), Battlespace Environments)	multiple choice		
Civilian Occupational Series Number (Text)	string50		
Civilian Number of Personnel (Count)	numeric		
Military Occupational Code (Text)	string50		
Military Number of Personnel	numeric		

(Count)			
Others distributed among closest related PATCOB Codes (Text)	string20		
Others, Number of Personnel (Count)	numeric		

Reference #8: Personnel Education Levels
Question: Provide the total number of Government employees (military & civilian) and other personnel engaged in RDTE&A activities at your location in FY03, broken out by highest academic degree level attained.
Source / Reference: Personnel Records
Amplification: Other means non-government personnel (e.g., all on-site contractors such as SETA, A&AS, A76, all on-site FFRDC personnel, Intergovernmental Personnel Act appointees, etc.) for which the location is obliged to provide space.
Example of how your grid will look

Highest Degree	Civilian (Pers)	Military (Pers)	Other (Pers)
High School (diploma and less)			
Associate			
Bachelor			
Masters			
Doctorate & higher (include MD/DVM/etc)			

Reference #9: Acquisition Workforce Function/Certification Levels of Civilians
Question: List the number of civilians performing RDTE&A functions in FY03 that are certified in accordance with the Defense Acquisition Workforce Improvement Act (DAWIA).
Source / Reference: Personnel Records
Amplification: Provide a breakout of staff by acquisition workforce function and DAWIA certification level.

People certified in more than one area are to be counted in each area certified.
Example of how your grid will look

Acquisition Function	Cert Level I (Pers)	Cert Level II (Pers)	Cert Level III (Pers)	Total (Pers)
Acquisition Logistics				
Auditing				
Business, Cost Estimating & Financial Management				
Contracting				
Facilities Engineering				
Industrial and/or Contract				

Property Management				
Information Technology				
Production, Quality and Manufacturing				
Purchasing & Procurement Technician				
Program Management				
Systems Planning, RD&E--Science & Technology Manager				
Systems Planning, RD&E--Systems Engineering				
Test & Evaluation				
Total				

Reference #137: Acquisition Workforce Function/Certification Levels of Military
Question: List the number of military staff performing RDTE&A functions in FY03 that are certified in accordance with the Defense Acquisition Workforce Improvement Act (DAWIA).
Source / Reference: Personnel Records
Amplification: Provide a breakout of staff by acquisition workforce function and DAWIA certification level.

People certified in more than one area are to be counted in each area certified.
Example of how your grid will look

Acquisition Function	Cert Level I (Pers)	Cert Level II (Pers)	Cert Level III (Pers)	Total (Pers)
Acquisition Logistics				
Auditing				
Business, Cost Estimating & Financial Management				
Contracting				
Facilities Engineering				
Industrial and/or Contract Property Management				
Information Technology				
Production, Quality and Manufacturing				
Purchasing & Procurement Technician				
Program Management				
Systems Planning, RD&E--Science & Technology Manager				
Systems Planning, RD&E--				

Systems Engineering				
Test & Evaluation				
Total				

Index: Technical: Workload: :

Reference #110: Full Time Equivalents (FTEs): Air Platform Research
Question: For the function identified provide the number of full time equivalents for three years (FY01, FY02, FY03) and the peak year (from FY94 through FY03) for work years at the location. For each fiscal year actual FTEs (based on a 2087 hour work year) executed by (a) DoD civilians, (b) military personnel, and (c) other non-government personnel (e.g., all on-site contractors such as SETA, A&AS, A76, all on-site FFRDC personnel, Intergovernmental Personnel Act appointees, etc.) for which the location is obliged to provide space.

Research means basic research (6.1), applied research (6.2) and advanced development (6.3).
Note: The facilities supporting these functions include but are not limited to: laboratories; test ranges; product centers; warfare centers; research, development and engineering centers.
Source / Reference: Personnel records
Amplification: There is exactly one peak employment year at each location. It is the year (beginning with FY94) that the location had the most FTE participating in RDTE&A funded activities (summed over all the functions (R, D&A, T&E) and summed over the thirteen technical capability areas).

The total number of FTE summed over the thirteen technical capability areas and summed over the three functions is not to exceed the total RDTE&A FTE executed by the location.

The peak year RDTE&A FTE data is to correspond to the location as currently configured. RDTE&A FTE data to determine the peak year should not include technical capacity that no longer exists (e.g., technical capacity which has been removed by prior BRAC transfers from the location; technical capacity which has been dismantled, demolished, abandoned, etc.).

The rows of the table relate to the Office of Personnel Management Occupational Category tables (PATCOB). The definition of each PATCOB letter is:
P: Professional. White collar occupations that require knowledge in a field of science or learning characteristically acquired through education or training equivalent to a bachelor's or higher degree with major study in or pertinent to the specialized field, as distinguished from general education. The work of a professional occupation requires the exercise of discretion, judgment, and personal responsibility for the application of an organized body of knowledge that

is constantly studied to make new discoveries and interpretations, and to improve the data, materials, and methods.

A: Administrative. White collar occupations that involve the exercise of analytical ability, judgment, discretion, and personal responsibility, and the application of a substantial body of knowledge of principles, concepts, and practices applicable to one or more fields of administration or management. While these positions do not require specialized educational majors, they do involve the type of skills (analytical, research, writing, judgment) typically gained through a college level general education, or through progressively responsible experience. Occupation series in this category typically follow a two-grade interval pattern.

T: Technical. White collar occupations that involve work typically associated with and supportive of a professional or administrative field, that is nonroutine in nature; that involves extensive practical knowledge, gained through on-job experience and/or specific training less than that represented by college graduation. Work in these occupations may involve substantial elements of the work of the professional or administrative field, but requires less than full competence in the field involved. Occupation series in this category typically follow a one-grade interval pattern.

C: Clerical. White collar occupations that involve structured work in support of office, business, or fiscal operations; performed in accordance with established policies, or techniques; and requiring training, experience, or working knowledge related to the tasks to be performed.

O: Other white collar. White collar occupations that cannot be related to the above professional, administrative, technical, or clerical categories.

B: Blue collar. Occupations comprising the trades, crafts, and manual labor (unskilled, semiskilled, and skilled), including foreman and supervisory positions entailing trade, craft, or laboring experience and knowledge as the paramount requirement.

Example of how your grid will look

Function: Air Platform Research	FY01 Civ Gov (Pers)	FY01 Military (Pers)	FY01 Other (Pers)	FY02 Civ Gov (Pers)	FY02 Military (Pers)	FY02 Other (Pers)	FY03 Civ Gov (Pers)	FY03 Military (Pers)	FY03 Other (Pers)
P (Professional all)									
Biological Science									

Group (all 400)									
Medical Group (all 600s)									
Engineering Group (all 800s)									
Business & Industry (1101)									
Contracting (1102)									
Copyright, Patent & Trademark Group (all 1200s)									
Physical Science Group (all 1300s)									
Mathematics & Statistics Group (all 1500s)									
A (Administrative, all)									
Administration & Program (301)									
Program Management (340)									
Acquisition Logistics (346)									
Financial Management									

(500s)									
Information Technology Group (all 2200)									
T (Technical, all)									
S&E technicians (all 400s, 800s, 1300s, 1500s)									
C (Clerical, all)									
O (Others, all)									
B (Blue Collar, all)									
Total FTE (PATCOB, total)									

Reference #25: Historical maximum work years at the location
Question: Did your location, as currently configured, perform the most full time equivalent (FTE) RDTE&A work years prior to 1994? If so, what was the year and how many RDTE&A FTE were performed in the year?

FTE is based on a 2087 hour work year executed by (a) DoD civilians, (b) military personnel, and (c) other non-government personnel (e.g., all on-site contractors such as SETA, A&AS, A76, all on-site FFRDC personnel, Intergovernmental Personnel Act appointees, etc.) for which the location is obliged to provide space.
Source / Reference: comptroller or payroll records
Amplification: Elsewhere in this data call the maximum RDTE&A work years since FY1994 is sought. If your historical maximum for RDTE&A work years was done prior to FY1994, and you are still configured to provide space for a workforce larger than the maximum reported beginning with 1994, answer this question in addition to the other question.

The maximum RDTE&A FTE work year data is to correspond to the location as currently configured. RDTE&A FTE data to determine the year of the historical maximum should not include technical capacity that no longer exists (e.g., technical capacity which has been removed by prior BRAC transfers from the location; technical capacity which has been dismantled, demolished, abandoned, etc.).

Answer Fields for this question

Field names	Data Type	Source/Reference	Amplification
Year of historical maximum FTE work years, if before 1994 (Yr)	numeric		Answer this question only if the total number of work years that could be performed in the future at your location as currently configured exceeds the maximum number of work years performed in any year between FY1994 and FY2003.
Number of RDTE&A FTE work years executed in the year (Yr)	numeric		The answer to this question is a number not to exceed the total number of work years that could be performed in the future at your location as currently configured.

Reference #143: Maximum work years at the location between FY1994 and FY2003

Question: In what year did your location perform the most RDTE&A full time equivalent (FTE) work years beginning with FY1994 through FY2003? How many RDTE&A FTE were performed in that year?

FTE is based on a 2087 hour work year executed by (a) DoD civilians, (b) military personnel, and (c) other non-government personnel (e.g., all on-site contractors such as SETA, A&AS, A76, all on-site FFRDC personnel, Intergovernmental Personnel Act appointees, etc.) for which the location is obliged to provide space.

Source / Reference: comptroller or payroll records

Amplification: The maximum RDTE&A FTE work year data is to correspond to the location as currently configured. RDTE&A FTE data to determine the year of the maximum in this ten year period should not include capacity that no longer exists (e.g., capacity which has been removed by prior BRAC transfers from the location; capacity which has been dismantled, demolished, abandoned, etc.).

Answer Fields for this question

Field names	Data Type	Source/Reference	Amplification
Year of historical maximum FTE work years, if before 1994 (Yr)	numeric		Answer this question only if the total number of work years that could be performed in the future at your location as currently configured exceeds the maximum number of work years performed in any year between FY1994 and FY2003.
Number of	numeric		The answer to this question is a

RDTE&A FTE work years executed in the year (Yr)			number not to exceed the total number of work years that could be performed in the future at your location as currently configured.

Reference #62: Funding, Air Platforms (includes Air Combat)
Question: For the function identified provide the funding for three years (FY01, FY02, FY03) and the peak funding year (from FY94 through FY03) for RDTE&A funding received at the location. The peak funding year could be FY01 or FY02 or FY03.
Source / Reference: Comptroller Records
Amplification: There is exactly one peak funding year at each location. It is defined to be the year (beginning with FY94) that the location had the most RDTE&A funds (summed over all the functions (R, D&A, T&E) and summed over the thirteen technical capability areas).

The total funds summed over the thirteen technical capability areas and summed over the three functions is not to exceed the total funds received by the location.

The peak year RDTE&A funding data is to correspond to the location as currently configured. RDTE&A funding data to determine the peak year should not include technical capacity that no longer exists (e.g., technical capacity which has been removed by prior BRAC transfers from the location; technical capacity which has been dismantled, demolished, abandoned, etc.).

For purposes of this question, intramural funding includes funding for all activities conducted within your facilities, including on-site contractors (e.g., SETA, A&AS, A76, all on-site FFRDC personnel, Intergovernmental Personnel Act appointees, etc. for which the location is obliged to provide space). Extramural funding includes funding transferred to another DoD activity by your activity to accomplish your mission, as well as transfers to organizations outside of the DoD. Include support functions associated with procurement, including fielding, new equipment training, provisioning, etc.. The “Other” category should include funding received from industry as a result of CRDAs, international agreements, or other arrangements.
Example of how your grid will look

Function: Air Platforms (includes T&E Air	Peak Year Intramural Executi	Peak Year Extramural executi	Peak Year Extramural executi	FY01 Intramural Execution ($K	FY01 Extramural execution with	FY01 Extramural execution outs	FY02 Intramural Execution ($K	FY02 Extramural execution with	FY02 Extramural execution outs	FY03 Intramural Execution ($K	FY03 Extramural execution with	FY03 Extramural execution outs

Combat)	on ($K)	on within DoD ($K)	on outside DoD ($K)	)	in DoD ($K)	ide DoD ($K)	)	in DoD ($K)	ide DoD ($K)	)	in DoD ($K)	ide DoD ($K)
Research: from Army												
Research: from Navy												
Research: from Air Force												
Research: from Other DoD												
Research: from Other Federal												
Research: from Other non-Federal												
Development & acqui												

sition: from Army												
Development & acquisition: from Navy												
Development & acquisition: from Air Force												
Development & acquisition: from Other DoD												
Development & acquisition: from Other Federal												
Developm												

ent & acquisition: from Other non-Federal												
Test & Evaluation: from Army												
Test & Evaluation: from Navy												
Test & Evaluation: from Air Force												
Test & Evaluation: from Other DoD												
Test & Eval												

uation: from Other Federal												
Test & Evaluation: from Other non-Federal												

Reference #26: Historical maximum funding at the location
Question: If the maximum RDTE&A funding year for your location was prior to FY1994, what year was it? How much was received? How much was use for intramural execution? For extramural execution within DoD? For extramural execution outside DoD?
Source / Reference: comptroller records
Amplification: Elsewhere in this data call the maximum RDTE&A funding since FY1994 is sought. If your maximum RDTE&A funding year was prior to FY1994, answer this question as well as the other question.

Do not adjust the figures for inflation.

RDTE&A funding data is to correspond to the location as currently configured. RDTE&A funding data to determine the maximum funding year should not include funding corresponding to technical capacity that no longer exists (e.g., technical capacity which has been removed by prior BRAC transfers from the location; technical capacity which has been dismantled, demolished, abandoned, etc.).

For purposes of this question, intramural funding includes funding for all activities conducted within your facilities, including on-site contractors (e.g., SETA, A&AS, A76, all on-site FFRDC personnel, Intergovernmental Personnel Act appointees, etc. for which the location is obliged to provide space). Extramural funding includes funding transferred to another DoD activity by your activity to accomplish your mission, as well as transfers to organizations outside of the DoD.
Answer Fields for this question

Field names	Data	Source/Reference	Amplification

	Type		
Year of maximum funding (Yr)	date		
Amount of maximum funding ($K)	numeric		
Intramural execution ($K)	numeric		
Extramural execution within DoD ($K)	numeric		
Extramural execution outside DoD ($K)	numeric		

Reference #93: Test Resource Workload
Question: Complete the following table for six categories of test resources
Source / Reference: test & evaluation records
Amplification:
Test resources are digital modeling and simulation, hardware in the loop, integration laboratory, installed system test, measurement facilities, and open air ranges.

The technical capability areas are Project Reliance terms defined in the Defense Technology Area Plan (DTAP). Refer to the DTAP for full definitions. Abbreviated definitions follow.
1. Air Platforms - includes efforts devoted to manned and unmanned air vehicles to provide the warfighter: Fixed-Wing Vehicles, Rotary-Wing Vehicles, Turbine Engine Technology, aircraft power, and High-Speed Propulsion.
2. Battlespace Environments - addresses the natural environment of the battlespace for the purposes of the warfighter and the impact it has on the sensors, systems, and tactics the warfighter employs. Terrestrial Environments, Ocean Battlespace Environments, Lower Atmosphere, Space/Upper Atmosphere Environments.
3. Biomedical technology - support of the DoD mission to provide health support and services to U.S. armed forces. Combat Casualty Care, Infectious Diseases of Military Importance, Military Operational Medicine, Medical Radiological Defense, Medical Biological Defense, Medical Chemical Defense.
4. CB Defense technology - development of technology to counter the threat of CB weapons and to ensure the safety and mission effectiveness of U.S. forces operating within a contaminated environment with minimal impact on logistics. CB Decontamination, CB Modeling & Simulation, CB Detection, CB Protection, Medical Chemical Defense, Medical Biological Defense.
5. Ground Vehicles - addresses platform and system technology sub areas that support ground vehicles (land combat and tactical vehicles and amphibious vehicles with a ground combat role).
6. Sea Vehicles - addresses platform and system technology sub areas that support sea vehicles (surface ship combatants and submarines).
7. Human Systems - develops and provides technologies, techniques and tools to ensure that people are properly selected, placed, trained, equipped, and sustained to perform effectively and safely. System Interfaces and Cognitive Processing,

Personnel, Training and Leader Development, Protection, Sustainment and Physical Performance.
8. Information Systems – Knowledge and Management, Information Security, Communications and Networking, Modeling and Simulation Technology, Computing and Software Technology.
9. Materials/Processes – Environmental Quality, Manufacturing Technology, Civil Engineering, Materials/Processes for Survivability, Life Extension, & Affordability.
10. Nuclear Technology - develop, apply, and improve the technical capabilities needed for accomplishment of DoD's nuclear and nuclear weapons related missions and support of strategic deterrence. Systems Effects & Survivability, Test & Simulation Technology, Warfighter Support, Nuclear Environments and Effects, Nuclear Threat Reduction.
11. Sensors, Electronics, and Electronic Warfare - Radar Sensors, Electro-Optical Sensors, Acoustic Sensors, Automatic Target Recognition, Integrated Platform Electronics, RF Components, Electro-Optical Technology, Microelectronics, Electronic Materials, Electronic Integration Technology, EW Threat Warning, EW Self-Protection, and EW Control.
12. Space Platforms - efforts devoted to space and launch vehicles and space propulsion.
13. Weapons technology - efforts devoted to armament technologies for all new and upgraded nonnuclear weapon systems

Project Reliance also has T&E terms. These appear in the row headings, intended to provide additional clarity, and are defined as follows.

Air Combat: Addresses test capabilities for development and use of
Fixed-wing and/or rotary-wing manned and unmanned aircraft and all related air operations mission and support systems throughout the system life cycle.
Air vehicle types unmanned air vehicles (UAVs), cruise missiles (excluding munitions aspects), technology demonstrations, support programs/projects and all phases of the system life cycle.
Total aircraft weapon system, the air vehicle, aircraft stores compatibility, aerial delivery, subsystems or functions, and software changes/updates.

Land Combat: Addresses test capabilities for land systems for:
Both the mounted and dismounted warriors, as well as urban operations and robotic support systems.
Platform and sub-system technologies such as battlefield digitization, propulsion and power, track and suspension, chassis and turret structures, vehicle subsystems, dynamics, integrated survivability, fuels and lubricants, and integration technologies as related to land vehicles.

Sea Combat: Addresses test capabilities involving the use of ships (surface and subsurface), manned and unmanned sea-mobile vehicles, shipboard systems, and

land and air-based systems that support or function as extensions of shipboard systems. May include:
Hull, mechanical, and electrical systems for surface ships, submarines, and undersea unmanned vehicles
Signature and silencing systems (including acoustic and non-acoustic)
Propulsors
Combat systems (including guns and missile launchers but excluding projectiles and missiles) for anti-submarine warfare (ASW), anti-surface warfare (ASUW), anti-air warfare, discrete self-defense (not integral to other combat systems), strike, and theater air defense
Maritime C4I systems (shipboard and associated land-based radio frequency and satellite communications/switching networks, and tactical data processing and display)
Ship-based space and electronic warfare systems
Undersea surveillance systems (including land-based components thereof)
Ship-based aircraft ASW/ASUW (including unmanned aerial vehicles, but excluding airframes and flight support systems)
Sea-based special warfare/explosive ordnance disposal systems

Space Combat and Ballistic Missiles: Addresses test for development and use of capabilities to:
Gain and maintain control of activities conducted in or through space. These capabilities and activities include but are not limited to space surveillance, counterspace and missile defense.
Conduct of missions carried out by weapons systems operating in or through space for holding terrestrial targets at risk, to include non-nuclear and nuclear strike capabilities.
Enable or support military air, land, sea, and space operations, including navigation, satellite communications, environmental monitoring, surveillance and threat warning, and battle management and control.
Ensure infrastructure to enable launch operations, satellite operations, and recovery operations.

Armaments and Munitions: Addresses test capabilities for development and use of:
Torpedoes, mines (land and sea), bombs, guided bombs, missiles, guns, rockets, grenades, and ammunition, as well as non-lethal methods.
Weapon subsystems such as platform, guidance, warhead, fuse, seeker, and propulsion (chemical, electric, etc), as well as computer technologies, environmental effects (simulation, networked), micro-electronics and opto-electronics, software (network enhancement, modeling and simulation), human-system interfaces (neural networks, data integration), and lethality (endo/exoatmospheric kill vehicles).
Delivery and launch subsystems that originate from space, manned and unmanned aircraft, land and water, and deep and shallow underwater.

Targeting of time critical, highly mobile, urban and civilian-rich surroundings, deeply buried and hardened, shallow-water, and detection-resistant structures.
Technologies to improve target detection, guidance and control, propulsion and velocities, energetics, countermeasures, size and weight, joint and allied compatibility and interoperability, smart skins and data fusion, and weapons separation.
Survivability of U.S. systems to threat armaments and munitions, as well as survivability of threat platforms to U.S. weapons.
Undersea warfare mine and countermine warfare systems (including airborne systems)
Air-launched ASW projectiles, including subsurface targets, countermeasures and torpedoes

Electronic Combat (EC): Addresses test capabilities to:
Deny, degrade, disrupt, and destroy any adversary by electromagnetic means.
Includes the recognized electronic warfare mission areas of Electronic Attack (EA), Electronic Protection (EP) and Electronic Warfare Support (ES); as well as directed energy weapons such as laser and high power microwave.
To enhance the warfighters effectiveness in achieving "full spectrum dominance" (ref: Joint Vision 2020) across the entire electromagnetic spectrum.

Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR): Addresses test capabilities for development and use of:
Information technology for achieving a network-centric warfare capability that enables increased combat power by networking sensors, decision makers, and shooters to achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability, and a degree of self-synchronization.
Information superiority into combat power by effectively linking knowledgeable entities in the battlespace.
The shift to an open-architecture, network-centric focus to allow the joint warfighter to achieve greater agility in responding to changes in threat and exploiting continuing advances in technology."
Information security, information assurance and information warfare.
Frequency spectrum management and control.

Research means basic research (6.1), applied research (6.2) and advanced development (6.3).

Test and Evaluation means Developmental Test and Evaluation (DT&E) and Operational Test and Evaluation (OT&E). Test and Evaluation also includes facilities that provide measurements and analyses for science and technology (S&T) development and acquisition (D&A), developmental test and evaluation, operational test and evaluation, live fire test and evaluation, contractor test and evaluation, joint test and evaluation, in-service engineering testing, safety

certifications, concept refinement, advanced technology demonstrations, shelf-life and lot verification testing, and for experimentation when predominantly used for acquisition or materiel decisions.

Development and Acquisition means system development and demonstration, system modifications, experimentation and concept demonstration, and product/in-service life-cycle support.

Column Headings for this question

Column names	Data Type	Source/Reference	Amplification
Test Resource name or description (include unique identifier) (Text)	string50		
Test Resource Category (List) (List Values: Installed System Test, Measurement, Open Air Ranges, Digital Modeling & Simulation, Hardware in the Loop, Integration Laboratory)	multiple choice		Identify the single most applicable category
Technical Capability Area (List) (List Values: Air Platforms (Air Combat), Chemical & Biological Defense, Information Systems Technology (C4ISR), Ground Vehicles (Land Combat), Sea Vehicles (Sea Combat), Materials & Processes, Biomedical, Sensors, Electronics, and Electronic Warfare, Space Platforms (Space Combat & Ballistic Mis, Human Systems, Weapons (Munitions & Armaments + Direct Energ, Nuclear Technology, Battlespace Environments)	multiple choice		Identify the single most applicable technology capability area supported by the test resource
Year of largest # of test hours in current configuration (Max Yr) (Yr)	numeric		
Test hours done in Max Yr	numeric		

(Hr)			
FY01 Test Hours (Hr)	numeric		
FY02 Test Hours (Hr)	numeric		
FY03 Test Hours (Hr)	numeric		
How many test events were done in the Max Yr? (Count)	numeric		
Labor Hours Expended in the Max Yr (Hr)	numeric		
FY01 Number of Test Events (Count)	numeric		
FY02 Number of Test Events (Count)	numeric		
FY03 Number of Test Events (Count)	numeric		
FY01 Number of Labor Hours Expended (Hr)	numeric		Include total of direct and indirect military, civilian, and contractor labor hours
FY02 Number of Labor Hours Expended (Hr)	numeric		Include total of direct and indirect military, civilian, and contractor labor hours
FY03 Number of Labor Hours Expended (Hr)	numeric		Include total of direct and indirect military, civilian, and contractor labor hours
FY01 % of total labor hours overtime (%)	numeric		Include total of direct and indirect military, civilian, and contractor labor hours
FY02 % of total labor hours overtime (%)	numeric		Include total of direct and indirect military, civilian, and contractor labor hours
FY03 % of total labor hours overtime (%)	numeric		Include total of direct and indirect military, civilian, and contractor labor hours
FY01 Facility hours lost for any reason (Hr)	numeric		external factors such as maintenance, weather, environmental, utility limitations and any

			other reason.
FY02 Facility hours lost for any reason (Hr)	numeric		Include the total number of hours the facility or range was not available to support test events because of external factors such as maintenance, weather, environmental, utility limitations and any other reason
FY03 Facility hours lost for any reason (Hr)	numeric		external factors such as maintenance, weather, environmental, utility limitations and any other reason.
FY03 % Research workload (%)	numeric		
FY03 % D&A workload (%)	numeric		
FY03 % T&E workload (%)	numeric		
FY03 % other workload (%)	numeric		
FY02 % Research workload (%)	numeric		
FY02 % D&A workload (%)	numeric		
FY02 % T&E workload (%)	numeric		
FY02 % other workload (%)	numeric		
FY01 % Research workload (%)	numeric		
FY01 % D&A workload (%)	numeric		
FY01 % T&E workload (%)	numeric		
FY01 % other workload (%)	numeric		
FY01 facility hours lost to maintenance (Hr)	numeric		

FY02 facility hours lost to maintenance (Hr)	numeric		
FY03 facility hours lost to maintenance (Hr)	numeric		
FY01 facility hours lost to weather (Hr)	numeric		
FY02 facility hours lost to weather (Hr)	numeric		
FY03 facility hours lost to weather (Hr)	numeric		
FY01 facility hours lost to utilities (Hr)	numeric		
FY02 facility hours lost to utilities (Hr)	numeric		
FY03 facility hours lost to utilities (Hr)	numeric		