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28 July 2004

## NOTIONAL SCENARIOS

### Issue #07-28-04-01

**Issue:** On 23 July 2004, the Infrastructure Steering Group (ISG) directed the Joint Cross Service Groups to provide notional scenarios for discussion at its next meeting. Fulfilling this request is inadvisable due to the risk of consequential perceptions that the Department created the answers before the data was in. Any doubts among the Commission and communities that “a fair process”<sup>1</sup> was conducted will jeopardize the scenarios of the Technical Joint Cross Service Group (TJCSG) that are eventually derived through its ongoing analytical process.

**Point of Contact:** Don DeYoung, Capabilities Integration Team (Alternate), U.S. Navy

#### Issue Summary:

1. *The TJCSG’s Dilemma.*

The TJCSG is being asked to consider closure scenarios *before the analytical work has been completed on the critical precursor stages*. The stages yet to be completed include: (a) collecting the data; (b) establishing whether there is excess capacity within the DoD in-house system of labs, centers, and test ranges (and if so, to what extent); and (c) determining the military value of each site.

2. *Scenarios Should Not Be Generated Before Excess Capacity Has Been Determined.*

Conventional wisdom after the last closure round in 1995 held that substantial excess capacity remained. However, the circumstances supporting that contention were profoundly altered by a foreign attack on our homeland. As a result, (a) the nation’s defense budget has risen steadily (with an accompanying increase in DoD lab/center workload)<sup>2</sup>, (b) serious Congressional consideration is being given to *increasing* the size of the force structure, and (c) major technical challenges exist that require extensive levels of RDT&E, such as finding reliable means for the remote sensing of everything from conventional explosives, to bio-agents, to nuclear material.

3. *Excess Capacity Estimates in the March 04 Report to Congress Were Very Likely Overstated.*

Some will say that the DoD’s March 2004 report to Congress already established the existing levels of excess RDT&E capacity.<sup>3</sup> That argument is weak.

First, the report’s findings of excess capacity are inexact and merely met a Congressional milestone that allowed the Department to proceed with the more rigorous analytical standards of a base closure round. In fact, the report itself states,

*“Only a comprehensive BRAC analysis can determine the exact nature or location of potential excess. In preparing a list of realignment and closure recommendations in May 2005, the Department will conduct a thorough review of its existing infrastructure in accordance with the*

<sup>1</sup> Public Law 101-510, as amended through the National Defense Authorization Act of Fiscal Year 2003, SEC. 2901. (b)

<sup>2</sup> Navy Laboratory Community Coordinating Group data show a 10% increase in the one year from FY01 to FY02 in reimbursable funding, and direct cites (including non-Navy funding sources).

<sup>3</sup> Department of Defense, “Report Required by Section 2912 of the Defense Base Closure and Realignment Act of 1990, as amended through the National Defense Authorization Act for Fiscal Year 2003,” (March 2004), p.47 and 52.

law and Department of Defense BRAC 2005 guiding procedures, *ensuring that all military installations are treated equally and evaluated on their continuing military value to our nation.*<sup>4</sup>

*Second, solid evidence suggests that the report's estimates are much overstated.* The report estimated that the FY09 excess capacity for Army and Air Force labs/T&E sites would be 62 percent (or 825 square feet per person) and 18 percent (or 750 square feet per person), respectively.<sup>5</sup> Looking more closely one finds that these estimates are ratios where the "acquisition workforce" divides total square footage. But what is that workforce? Is it both contractor and in-house personnel, *or is it a partial picture that uses just government employees?* Evidence suggests the latter.<sup>6</sup> This matters a lot. Since 1996 (a year after the last BRAC round) the Services have been complying with ambitious outsourcing goals levied by the DoD. Many of the positions formerly filled by government workers are now performed on-base by private sector employees. Assuming that 50 percent of the on-site population is comprised of contractors (an underestimate at many sites), then both the Army and Air Force have instead about 400 square feet per person. But what does that really mean? Is that a lot? Is it too much? An historical example might be useful here.

In 1876, Thomas Edison opened what has been called the first R&D laboratory, as well as one of the most productive, at Menlo Park, New Jersey. The lab building was a 100-foot by 25-foot structure with two floors (5,000 square feet).<sup>7</sup> Edison's staff numbered 25, which amounted to 200 square feet per person. When one factors in facility requirements dictated by equipment that is far more powerful and dependent on carefully controlled environments than Edison's 19<sup>th</sup> century equipment, maybe 400-sq ft per "acquisition worker" is to be expected.

*Third, if ever there were a seductive capacity metric for physical infrastructure, it is square footage.* It promises simplicity, clarity, and accuracy, but delivers none. The above discussion reveals some of the challenges posed by DoD's use of this problematic "physical infrastructure metric." Using the example of the Air Force's McKinley Climatic Chamber shows another. The 6-chamber facility is huge, with its main chamber being 65,520 square feet.<sup>8</sup> Assume the site downsized its workforce by 18 percent. I doubt anyone would argue that this unique, state-of-the-art facility would then have a correlating excess capacity of nearly 12,000 sq. ft (i.e., 18% of 65,520). *All 65,000-plus sq. ft. would still be necessary whether 1000 persons, or 1 person, worked there. The key metric for capacity is work-years, not the amount of space available.*

#### 4. *Notional Does Not Mean Acceptable.*

Some will argue that early scenario generation is acceptable because they are only notional, general, and do not specify names. The idea here is that the less they represent reality, the more acceptable they become. This rationale will not reassure a skeptical audience. This situation is also a "Catch-22". *If these scenarios are truly so general as to be safe from prejudicing the*

<sup>4</sup> Ibid., p.3.

<sup>5</sup> Unlike these estimates using square footage, Navy estimates were based on in-house work-years.

<sup>6</sup> Office of the Under Secretary of Defense (Acquisition & Technology), "Right-Sizing the Department of Defense Acquisition Workforce", (28 January 1997). In this report to Congress, the Department's total acquisition workforce (i.e., all Services, plus Defense Agencies) was stated to be 617,000 *employees* in FY89.<sup>6</sup> It happens that the March 2004 report identifies 158,000 in the Army acquisition workforce for that same year — FY89. At the risk of being simplistic, assume an equal share of the acquisition workforce among the Army, Navy, Air Force, and Defense Agencies. An equal share of 158,000 among the four would yield about 632,000, which is very close to the number of *employees* cited in the 1997 report. It appears then that the 158,000-person Army workforce is made up of government employees, and therefore the estimate does not include the on-site contractors who also use base infrastructure.

<sup>7</sup> <http://www.edisonnj.org/menlopark/tacmenlo.asp>

<sup>8</sup> <http://www.eglin.af.mil/TS/climlab/main.html>

*process, then they will also be useless for any of the current tasks at hand. And, anything more than useless compromises the integrity of the process.* It will not be difficult for a clever community consultant to show how the general features of a notional scenario resemble that of a base proposed for closure.

5. *The Private Sector is Not Responsible for Either the Analysis or a Fair Process.*

Some will argue that ideas for “transformational scenario options” were requested and received from the private sector (e.g., Business Executives for National Security) a year ago, so this request is merely gathering additional information. This argument does not recognize the fundamental objectivity and analytical integrity that must be preserved within the TJCSG. It is one thing for the private sector to offer its preferred solutions to the Department’s perceived excess of infrastructure. And, it is another thing to ask the TJCSG for ideas before the data is in, excess capacity is verified and measured, and the sites are fairly evaluated on their military value.

6. *Do Not Deviate From the Established Analytical Process.*

When discussing the objective standards to be used by the Commission for evaluating DoD BRAC recommendations, the law provides that,

“the Commission may make changes in any of the recommendations made by the Secretary if the Commission determines that the Secretary *deviated substantially from the force-structure plan and final criteria* (emphasis added) referred to in subsection (c)(1) in making recommendations.”<sup>9</sup>

*This means that the DoD’s recommendations to close and/or realign laboratories, centers, and test ranges are theoretically the easiest of all BRAC proposals to defend before the Commission because there is (a) no clear relationship between RDT&E infrastructure and the force-structure plan (for 2025), and (b) no mention of RDT&E in the BRAC Final Criteria.*

Why is there no clear relationship between RDT&E and the force-structure plan?

- First, over time, “the threat” shapes the force structure. Sometimes the threat is predictable, and sometimes it is not. For example, the DoD’s concepts for future force structure after September 11 are different than they were before that date.
- Second, S&T’s impact on the force structure 20 years hence is unknowable, especially given that basic research is unpredictable and often produces unexpected benefits. Moreover, many of the most revolutionary technologies born in DoD S&T, like radar and GPS, will take as many as 20 years to reach operational use.
- Third, the impact of current D&A is less speculative than for S&T, but it is guesswork nonetheless. For example, during the first BRAC round in 1988 the Navy’s experts might have said that the DoN’s 1998 force structure (i.e., only 10 years later, *not 20*) would have had more than 850 A-12 Avengers streaming off the Fleet’s carriers.<sup>10</sup> Things happen.

As for the BRAC Final Criteria, they do not address RDT&E (although the criteria speak directly to other facets of national defense, like joint warfighting, training, and readiness). Last year the TJCSG requested that the criteria also address RDT&E, but the BRAC Office chose to “preserve flexibility.”

<sup>9</sup> Public Law 101-510, as amended through the National Defense Authorization Act of Fiscal Year 2003, SEC. 2903. (d)

<sup>10</sup> <http://www.fas.org/man/dod-101/sys/ac/a-12.htm>

*That flexibility may well harden if we deviate from the established analytical process. Notions that we marshaled data to support preexisting, or preferred, solutions will be difficult, if not impossible to dispel if the scenarios precede analysis.*

**Recommendation:** The TJCSG should urge the ISG to reconsider its request to generate notional closure scenarios before our analytical work on capacity and military value is accomplished. While beyond our charter, it may also be advisable to suggest that the other JCSGs also refrain from generating notional scenarios. Many of the above arguments pertain to them as well.

Army Position: \_\_\_\_\_  
AF Position: \_\_\_\_\_  
Navy Position: \_\_\_\_\_  
Marine Corps Position: \_\_\_\_\_  
JCS Position: \_\_\_\_\_

Final Resolution: <i>No Vote / No Action</i>	
POC Signature: _____	Date: <i>11/11/04</i>
CIT Chair: _____	Date: _____

**PROPOSED CONTINGENCY PLAN**  
**Issue #08-06-04-02**

**Issue:** As requested by the CIT, the Sub-Groups spent great time and effort during the week of 19 July developing a timeline to get the TJCSG's BRAC analysis on track for success. Subsequent to that effort, a contingency plan was also requested by the CIT to mitigate risks should the incoming data for calculating excess capacity and military value prove unusable. The proposed contingency plan places a premium on: (1) scenario development *prior* to runs of the Linear Optimization Model (LOM), and (2) military judgment. An undefined "trigger event" for implementing the contingency plan occurs on 10 August. Issues of defensibility argue for rejecting the proposal. On the other hand, the valid need for mitigating risk argues simplifying our approach to calculating excess capacity.

**Point of Contact:** Don DeYoung, Capabilities Integration Team (Alternate), U.S. Navy

**Issue Summary:**

1. *Unanswered Questions*

- Question #1. What happens, or does not happen, by 10 August that requires implementation of the plan?
- Question #2. How do the milestones of the contingency plan map against the approved timeline developed by the Sub-Groups?
- Question #3. Given that the contingency plan is the same analytical model (according to Mr. A. Goldstain, Air Force CIT Principal) used by the Air Force during BRAC-95, how do we avoid the criticism made of that approach by the General Accounting Office which found that, "the Air Force's process made it difficult to easily track resulting recommendations."<sup>1</sup>? GAO's report went on to say,

"...the process was not sufficiently documented to substantiate the extent of deliberations and analyses leading to decisions to close or realign individual bases. This was especially problematic for bases where deliberations occurred and decisions were made that bases could not be closed or realigned."<sup>2</sup>

2. *Scenario Development Cannot be the Front-End of the Analytical Process*

- To preserve the integrity of BRAC-05, scenario development *cannot* be the front-end of the analytical process. Issues of defensibility will almost certainly arise if scenario development is performed prior to the quantitative analyses. *Notions that we marshaled data to support preexisting, or preferred, solutions will be difficult, if not impossible to dispel.*
- Before scenarios are developed, we need to ensure that our analytical process follows the objective sequence of precursor stages: (a) collecting the data; (b) establishing whether there is excess capacity within the DoD in-house system of labs, centers, and test ranges (and if so, to what extent and where); and (c) determining the military value of each site.

<sup>1</sup> GAO, *Report to the Congress and the Chairman, Defense Base Closure and Realignment Commission*, "Military Bases: Analysis of DoD's 1995 Process and Recommendations for Closure and Realignment," (GAO/NSIAD-95-133), April 1995, p.51.

<sup>2</sup> *Ibid.*, p. 53.

4 August 2004

3. *Military Judgment is No Substitute for Capacity and Military Value Data*

- Military judgment is a critical adjunct to our analyses. It is the essential filter through which all proposed BRAC actions must pass. An extreme hypothetical example would be if a scenario generated by the LOM, or transformational option proposed by the private sector, led to closing Pearl Harbor. Military judgment would doubtless reject it on the solid ground of strategic and tactical military interests.
- Military judgment cannot, however, substitute for the objective quantitative data necessary for deriving excess capacity and military value. The uncomfortable reality of our situation is that *the data must be useful*.
- Capacity data must allow us to “*determine the exact nature or location of potential excess,*” and military value data must be accurate, thus “*ensuring that all military installations are treated equally and evaluated on their continuing military value to our nation.*”<sup>3</sup>
- If the data is unusable, then we have failed. If we fail, then there will be no quantitative means by which to make fair, objective, and defensible assessments. Replacing quantitative data with the subjective military judgment of a small number of individuals will not pass the scrutiny of the Commission and the communities.
- The law is clear on the point that “military value is the primary consideration in the making of recommendations for the closure or realignment of military installations”,<sup>4</sup> and on the requirement “to provide a fair process.”<sup>5</sup> When it comes to collecting solid data for informed decision-making that meets those two goals, failure is not an option.

4. *Useful Capacity Data By Simplification*

- The root problem with our capacity data is complexity. We are making the job harder than it needs to be. The following is based on Service-specific experience, but it could help us sort things out. As a former member of the BRAC-95 Navy Base Structure Analysis Team, I can say that the capacity unit for *all* RDT&E — including the acquisition function — was the work-year. The Navy’s report to the BRAC Commission stated that,

“Budgeted work-years were used as a measuring tool for capacity because of its commonality within the functionally diverse Technical Centers whose products range from published scientific papers to the installation of a new piece of shipboard equipment to the live testing of a new warhead or airframe.”<sup>6</sup>

- Although the metric was flawed in that it counted only government personnel (therefore missing the sizeable use of infrastructure by the on-site contractor workforce),<sup>7</sup> this approach was successful. In BRAC-95, the GAO examined the closure process and decisions of each Service, including their capacity and military value analyses. It found that “the Navy’s

<sup>3</sup> Department of Defense, “Report Required by Section 2912 of the Defense Base Closure and Realignment Act of 1990, as amended through the National Defense Authorization Act for Fiscal Year 2003,” (March 2004), p.3.

<sup>4</sup> Public Law 101-510, as amended through the National Defense Authorization Act of Fiscal Year 2003, SEC. 2913. (b)

<sup>5</sup> Public Law 101-510, SEC. 2901. (b)

<sup>6</sup> Report to the Commission: Department of the Navy Analyses and Recommendations, Vol. IV (March 1995), p. X-5, [<http://www.defenselink.mil/brac/navy.htm>].

<sup>7</sup> D.J. DeYoung, “The Silence of the Labs,” *Defense Horizons*, No. 21 (January 2003), p.6.

4 August 2004

4 August 2004

process and recommendations were sound.”<sup>8</sup> The same GAO report stated about the Navy process that, “The configuration analysis for this subcategory (Technical Centers) involved complicated assessments of the existing capabilities and requirements for 29 functional categories, such as undersea and surface ship platforms, *across four phases of work: RDT&E, acquisition, lifetime support, and general.*”<sup>9</sup> This shows that the work-year even satisfied requirements of functions beyond RDT&E and acquisition. In the end, the Navy recommended 21 lab/center closure or realignment actions, and was successful with all but a few. The process for analyzing capacity stood up to the inevitable challenges by being both defensible and equitable. *In short, work-years did the job — for S&T, D&A, and T&E.*

- By deciding to count on-site contractor work-years, the TJCSG has fixed the Navy BRAC-95 problem cited above. There is, of course, the downside of verifying the numbers of on-site contractors, but this metric stands the best chance of producing an accurate estimate of a site’s true capacity.
- We can improve our odds for success by: eliminating two metrics (i.e., ACATs and Extramural Funding); firmly defining Force Structure Adjustment; and deferring square footage to the “feasibility-fit” phase of COBRA (Cost of Base Realignment Actions). For more detail on the square footage metric, see the issue paper, “Notional Scenarios.”
  - ACATs: The use of ACATs (count and funding) is analytically unsound and will be hard to defend. ACAT programs exhibit large ranges in cost and have great variances in complexity. This leads to considerable differences in personnel, funding, and infrastructure requirements between programs — even at the same ACAT level. ACATs have some use in measuring military value, but as a capacity unit they are much too imprecise. Finally, this approach fails to capture *non-ACAT* development programs (e.g., see “Major Navy Non-ACAT Programs”<sup>10</sup>). We will compromise the whole process if we miss counting substantial D&A workload at some sites.
  - Extramural Funding. To be blunt, this unit is absurd. First, dollars provided to external organizations (either to the private sector or to other government (DoD and non-DoD) agencies), is not a measure of on-site capacity. By this rationale DARPA, with nearly \$2.7 billion in FY03, should have a sprawling infrastructure, but it occupies merely an office building.<sup>11</sup> Second, this unit introduces private sector infrastructure into an analysis of the public sector. BRAC is about closing, reducing, and/or realigning government, *not private sector*, infrastructure. Third, by using dollars sent to other DoD organizations, we are ensuring double-counting (or worse) of the same dollar as it passes from sponsor, to program manager, to performer, and to sub-contractor. Lastly, the unit is based the faulty assumption that the level of dollars is directly related to the workload level of a contract manager; i.e., a one-to-one correspondence between number of dollars and number of contract managers.
  - The Force Structure Adjustment (FSA). This metric is supposed to identify any of today’s capacity that may not be necessary in 2025 given what we believe the force structure will have in place 20 years from now. The plan is to use the expert military judgment resident in the TJCSG sub-groups for such determinations, and the idea is to adjust the estimated required capacity, up or down, by what they think will happen. It is unclear how we will be able to defend a quantitative value based on such speculative judgments. We need to firmly define a defensible and valid manner for the use of this metric so that FSA does not instead

<sup>8</sup> GAO, “Military Bases: Analysis of DoD’s 1995 Process and Recommendations for Closure and Realignment”, p.87.

<sup>9</sup> Report to the Commission: Department of the Navy Analyses and Recommendations, p. 96-7.

<sup>10</sup> <http://www.abm.rda.hq.navy.mil/navyaos/content/view/full/2876>

<sup>11</sup> <http://www.darpa.mil/body/pdf/FY03BudEst.pdf>

4 August 2004

become known as a "Favored Scenario Adjustment." Moreover, the judgments leading to each FSA will be subject to the following significant limitations.

- First, over time, "the threat" shapes the force structure. Sometimes the threat is predictable, and sometimes it is not. For example, the DoD's concepts for future force structure after September 11 are different than they were before that date.
- Second, S&T's impact on the force structure 20 years hence is unknowable, especially given that basic research is unpredictable and often produces unexpected benefits. Moreover, the most revolutionary technologies born in DoD S&T, like radar and GPS, can take as many as 20 years to reach operational use.
- Third, the impact of current D&A is less speculative than for S&T, but it is guesswork nonetheless. For example, during the first BRAC round in 1988 the Navy's experts might have said that the DoN's 1998 force structure (i.e., only 10 years later, *not 20*) would have had more than 850 A-12 Avengers streaming off the Fleet's carriers.<sup>12</sup> Things happen.

##### 5. *BRAC Mistakes Cannot be Undone by the Private Sector*

- The DoD laboratories and centers are responsible for performing three roles: *performer* of long-term, high-risk projects; *quick responder* in crises; and *yardstick*,<sup>13</sup> a term referring to the standard that it sets by providing authoritative, objective advice to governmental decisionmakers. This latter role is critical to good government. The Federal Government must be able to choose among competing options offered by industrial producers. The need for profit makes each company an advocate of its own product, so, given those natural tendencies, the Government "requires internal technical capability of sufficient breadth, depth, and continuity to assure that the public interest is served."<sup>14</sup>
- Industry will not take on the full range of necessary work because many areas hold limited opportunities for profit. Specialized defense technologies often have little or no applicability to commercial products. Unlike the situation during World War II, or even the Vietnam era, the DOD market is now often too small to justify a significant investment of scarce capital. In addition, R&D is expensive, the time to achieve success is long, the work is often very risky, and the payoff (especially from research) is usually not immediate.
- A healthy in-house system is a vital partner to a healthy industrial sector, and both are indispensable to our nation's defense. Given the different roles that each play, *major damage done to the in-house system cannot be compensated by a mere increased investment in the private sector.*
- In all BRAC actions, America depends on our ability to cut fat while avoiding muscle. To show the high cost of failure, a short timeline may be useful. Over the years, the in-house system invented:
  - the *first modern U.S. radar*, fielded in time for duty in the great Pacific naval battles of *World War II* where it contributed to crucial victories at Coral Sea, Midway, and Guadalcanal

<sup>12</sup> <http://www.fas.org/man/dod-101/sys/ac/a-12.htm>

<sup>13</sup> H. L. Nieburg, *In the Name of Science* (Chicago: Quadrangle Books, 1966).

<sup>14</sup> William J. Perry, *Required In-House Capabilities for Department of Defense Research, Development, Test and Evaluation* (Washington, DC: Department of Defense, 1980).

4 August 2004

4 August 2004

- o the critical *synthetic lubricants* needed for the new gas-turbine engines of high-performance jet aircraft, warplanes that dominated the skies in the *Korean War*
- o the *world's first intelligence satellite*, launched at the height of the *Cold War*, which reestablished surveillance of the Soviet Union less than two months after an American U-2 spy plane was downed
- o the *anti-corrosion coating* that solved the new M-16's tendency to corrode and jam in the hot, humid conditions of the *Vietnam War*, helping to restore the infantry's faith in its primary weapon
- o the first four satellite prototypes (and the first operational satellite) for what became *NAVSTAR GPS*, the revolutionary navigation system that played a pivotal role in the *Gulf War*
- o the *night-vision technologies* and lethal "*Silver Bullet*" ammunition that made the tank battles of the *Gulf War* a "turkey shoot"
- o the *ALE-50* that protected combat aircraft over *the Balkans*, a decoy so effective it earned the nickname "Little Buddy" from U.S. pilots
- o the *thermobaric warhead* used for defeating the Taliban and terrorists in the mountain caves and tunnels of *Afghanistan*, and
- o the *F/A-18 SHARP reconnaissance system* that provided real-time digital imagery (vice the 3-9 day norm) and was credited with saving lives in *Operation Iraqi Freedom*.

The calculus of BRAC is not difficult. Every dollar spent on unnecessary infrastructure robs our treasury and burdens our armed forces. Our first task is to determine whether that excess exists, and if it does, where it is and how much there is of it. Our second task is to assess the military value of the Services' corporate laboratories and warfare/product centers. Both tasks must be accomplished *objectively* and *accurately*, and they must be done *prior* to the generation of any closure scenarios. Lack of objectivity damages the defensibility of the work, which in turn jeopardizes any potential savings that can be used for our troops. Lack of accuracy damages the DoD's ability to provide new warfighting technologies, which in turn jeopardizes national security and the lives of tomorrows' troops.

Much rides on our decisions and actions, even more so than ten years ago. Our country is engaged in a prolonged struggle with an opportunistic, fanatical enemy who has unlimited apocalyptic goals and is not deterred by traditional means. We need to identify and collect any potential savings — and we need all of the technical options we can get.

**Recommendation:** The TJCSG should (1) reject the proposed contingency plan on the basis of its threat to the defensibility of our analytical process, and (2) simplify our approach to calculating excess capacity.

Army Position: \_\_\_\_\_  
AF Position: \_\_\_\_\_  
Navy Position: \_\_\_\_\_  
Marine Corps Position: \_\_\_\_\_  
JCS Position: \_\_\_\_\_

Final Resolution: <i>No Vote / No Action</i>	
POC Signature: _____	Date: <i>12/11/04</i>
CIT Chair: _____	Date: _____

4 August 2004

## DECISION CRITERIA FOR SCENARIO PROPOSALS

### Issue # 07-30-04-05

**Issue:** Scenario proposals will be developed from: (1) ideas proposed by OSD,<sup>1</sup> the MILDEPs, and the TJCSG, and (2) options generated by the Linear Optimization Model. To become closure / realignment scenarios, all options must be systematically evaluated for effectiveness and feasibility. This paper proposes some criteria to assist in that evaluation process and to help provide an "audit trail" to support each decision. Candidate scenarios that pass through this decision filter are eligible to become, with ISG approval, scenarios for COBRA (Cost of Base Realignment Actions) analysis.

**Point of Contact:** Don DeYoung, Capabilities Integration Team (Alternate), U.S. Navy

#### Issue Summary:

##### (a) *Background*

- Options generated by the Linear Optimization Model (LOM) are filtered by quantitative parameters, such as excess capacity and military value. The LOM has two advantages. The first is that a limited number of options are produced from a large universe of potential options. For example, given 10 sites, there are 175 alternatives that close 1, 2, or 3 sites.<sup>2</sup> The second advantage is that *it provides an objective means by which to defend the selected set of scenarios*. The disadvantage is that it does not provide "answers", but instead serves as a decision aid.
- Transformational options (i.e., those developed by the military judgment of the OSD, MILDEPs, and TJCSG) are limited only by imagination, which is appropriate for an innovative endeavor. *The advantage of deriving options in this manner is the potential for transformational payoff. The disadvantage lies in the difficulty we will have justifying our selected set of candidate recommendations when a much larger universe of potential options was not considered.*
- The above problem is compounded by the ISG's request for notional scenarios (for which some JCSGs have identified "winners" and "losers")<sup>3</sup>, and its requirement that the JCSGs begin to register recommendations in September. Unfortunately, the TJCSG's actions to develop candidate scenarios began well before the military value data was received from the sites, and before the excess capacity and military value of each site was calculated.

##### (b) *The Decision Metrics*

- Keeping in mind the requirement "to provide a fair process"<sup>4</sup>, both the LOM-generated and transformational options must be evaluated by the same decision criteria. Each option, however it is derived, can be evaluated by decision criteria grouped in two sets: those for *effectiveness* and for *feasibility*.

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<sup>1</sup> Along with the closure scenarios that it formulates independent of the TJCSG process, OSD also solicited transformation options from the private sector (e.g., Business Executives for National Security) in August 2003.

<sup>2</sup> DON IAT Briefing, "Proposed Optimization Methodology: Generating Alternatives."

<sup>3</sup> Briefing to the Infrastructure Steering Group, 27 August 2004

<sup>4</sup> Public Law 101-510, as amended through the National Defense Authorization Act of Fiscal Year 2003, SEC. 2901. (b)

- Decision criteria for effectiveness are:
  - Do the components of the option possess the required workforce skill set and expertise?
  - Do the components of the option possess the required physical plant and scientific / engineering equipment?
  - Do the components of the option have an established track record of success? If not, does the gaining site have adequate technical and acquisition talent in a related technical area?
  - Do the components of the option possess an average military value equal to or greater than that of the original configuration? If not, is the decrease justifiable in military and economic terms?
  - Can the components of the option satisfy DoD required capacity (based upon their demonstrated historical peak capacity)?
  - Does the option increase or decrease synergy?
  - Does the option have the potential to increase interoperability or “jointness” of systems delivered to the warfighter?
  - Does the option decrease unwarranted duplication, or does it diminish a needed capability?
  - Does the option degrade or improve Life Cycle Management?
  - Does the option conform or conflict with any finding(s) or proposal(s) of the Defense Science Board, Service Science Board, Tri-Service RDT&E Panel, or any other DoD/Federal board of scientific and engineering experts? (See note<sup>5</sup>)
  - Does the option increase average intellectual capital? (See note<sup>6</sup>)
- Decision criteria for feasibility are:
  - Does the installation proposed for a consolidated mission have sufficient FTEs to perform the work or can sufficient FTEs be obtained from local industry or academic partners?
  - Does the installation proposed for a consolidation mission provide all of the essential physical conditions (e.g., weather, geography) essential to the conduct of the new mission element?
  - Does the installation proposed for a consolidated mission possess sufficient physical space (i.e., available square footage) and/or buildable acres to accommodate the workload? If not, is leased space an option?
- The above decision criteria are not “go/no-go” litmus tests. Instead, they are intended to be an objective and uniform way for us to make informed judgments about which of the potentially many candidate recommendations become COBRA data calls. Further, the criteria will not require exact answers, just some preliminary thought and judgment. Some of the required data will be more accurately derived by the COBRA data calls.

(c) *The Decision Metrics and COBRA*

- Some will argue that many, if not all, of the above criteria are unnecessary because (1) military judgment (unbounded by objective criteria) is sufficient to select the best COBRA data calls, and (2) those data calls will provide much of the above information. There are three problems with this argument.

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<sup>4</sup> The TJCSG does not have a monopoly on expert military judgment. It would therefore be difficult to explain why we chose not to address the findings and proposals of other high-level expert panels — *especially those that, unlike our study, actually examined and evaluated the work of the sites.*

<sup>6</sup> This criterion is particularly critical. Exceptional talent is an indicator of the other important parameters. For example, the best talent does not choose to work with lousy facilities. It does not choose to work for an organization with no record of success and no chance to make a difference. It does not choose to work with mediocre colleagues and poor leadership. And, it does not choose to work on yesterday’s problems. If we can find exceptional talent, we will find state-of-the-art facilities, capable leadership, top colleagues, a record of impact on the nation’s security, a powerful desire for success, and a staff working on tomorrow’s challenges. *Find the best talent, and the rest falls into place.*

8 September 2004

- Problem #1: COBRA calls are expensive. Based on the cost of one real-life BRAC-95 COBRA call, the estimated cost of the average BRAC-05 TJCSG COBRA call might be roughly \$495,000.<sup>7</sup> That estimate is likely conservative. Assuming 20-40 COBRA data calls, which is the range most often mentioned, and the total price tag would range between 10 and 20 million dollars.
- Problem #2: COBRA calls are labor intensive. Based on the real-life BRAC-95 COBRA call, an average BRAC-05 TJCSG data call may well generate 375 pages of data.<sup>8</sup> Again, assuming 20-40 COBRA data calls, the sub-groups may be swamped with between 7,500 and 15,000 pages of data that will need to be *analyzed, addressed, and adjudicated* (see Issue Paper #07-16-04-05 titled "Scenario Conflict Adjudication"). Sorting through this information will take time that is in very short supply.
- Problem #3: Supportable BRAC actions require analytical rigor. A failure to show how we objectively selected the relatively few COBRA data calls, among all the various options possible, will place our efforts at risk during the review by the Commission and communities.

**Conclusion:** We do not have the luxury of abundant time — nor do the labs and centers have the massive level of resources necessary — to entertain an ineffective and inefficient "ready-fire-aim" approach to developing an optimal set of COBRA scenarios. We need to apply analytical rigor to a phase in scenario development that might otherwise become a "black box" without them.

**Recommendation:** Evaluate all options — LOM-generated, transformational, and any others — by the effectiveness and feasibility criteria identified above.

Army Position: \_\_\_\_\_  
AF Position: \_\_\_\_\_  
Navy Position: \_\_\_\_\_  
Marine Corps Position: \_\_\_\_\_  
JCS Position: \_\_\_\_\_

Final Resolution: <i>No Vote / Superseded by Delphi</i>	
Session Held 9 September 2004	
POC Signature: _____	Date: <i>11/11/04</i>
CIT Chair: _____	Date: _____

<sup>7</sup> The BRAC-95 COBRA call expended 1-2 WYs of effort in 48 hours (plus a weekend) at the "losing" site. Assuming the level to be 1.5 WYs, at a fully-burdened compensation rate of a GS-13, and the "losing" site spent approximately \$225K to respond. Then assume the "gaining" site expended 1/5 the effort, which is probably conservative, and the cost for that site was roughly \$45 K, making the total for the real-life COBRA data call approximately \$270 K. And that was a scenario that involved only 2 sites. Currently, our three "training" scenarios would affect 7, 9, and 9 sites respectively. Let us assume that our COBRA calls affect an average of 7 sites, with a conservative ratio of 1 "loser" and 6 "gainers" for each. By applying the response costs of \$225 K for the "loser" and \$45 K for each "gainer", the estimated BRAC-05 cost for each scenario might be \$495 K.

<sup>8</sup> The BRAC-95 COBRA call generated 165 pages of data from the "losing" site. Again, assuming the "gaining" site expended 1/5 of the effort, about 35 pages may have been produced for a total data call response of 200 pages. Again, assuming the TJCSG data calls affect an average of 7 sites, with a ratio of 1 "loser" to 6 "gainers", and the total amount of information might be roughly 375 pages.

8 September 2004

**SCENARIO CONFLICT ADJUDICATION**  
**Issue #07-16-04-05**

**Issue:** Cost of Base Realignment Action (COBRA) data calls will produce inevitable conflicts over what capabilities (in terms of people and physical infrastructure) *must* be moved from a "losing site" to a "gaining site." An effective and objective means to resolve the probable inter-service stalemates is required.

**Point of Contact:** Don DeYoung, Capabilities Integration Team (Alternate), U.S. Navy

**Issue Summary:**

- Losing sites have a strong incentive to argue that more capability (i.e., people and physical infrastructure) than necessary must be moved to the gaining site. In BRAC-speak, this is called "busting COBRA", where excessively long Return-on-Investment (ROI) periods are achieved by feeding the model a large number of unnecessary and expensive-to-move items.
- Gaining sites have an equally strong incentive to argue that they already possess most, if not all, the required capability (i.e., "just send us the money"). By "gaming COBRA", artificially short ROI periods are achieved, thus increasing the odds that the scenario will be accepted by the DoD.
- Identifying those capabilities that *must* be moved is difficult without very strong leverage on the sites, as well as a detailed technical understanding of the scope and nature of the sites' capabilities. Such leverage and understanding is usually present when each Service performs its own internal closure actions. However, where will the leverage come from for inter-service COBRA disputes?
- Failure to adequately resolve the potential stalemates will bear high costs to the DoD and the country. Successfully "busting COBRA" places a potentially beneficial closure action at risk, and "gaming COBRA" potentially jeopardizes national security by giving critical work to a site unable to perform it with resident personnel and / or facilities.

**Recommendation:** CIT propose to the TJCSG principals that a formal arbitration board be established — ahead of time — to resolve any COBRA stalemate(s). The DDR&E and the Service Vice-Chiefs would be the principal voting members, with the TJCSG principals serving as action officers who provide certified technical information on the disputed items.

Army Position: \_\_\_\_\_  
AF Position: \_\_\_\_\_  
Navy Position: \_\_\_\_\_  
Marine Corps Position: \_\_\_\_\_  
JCS Position: \_\_\_\_\_

Final Resolution: <i>No Vote / No Action</i>	
POC Signature: _____	Date: <i>11/11/04</i>
CIT Chair: _____	Date: _____

Date: 4 November 2004

To: Roger Florence, DoD IG

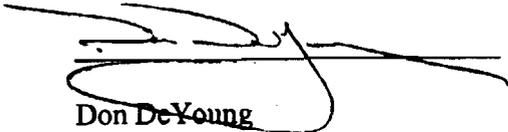
From: Don DeYoung, CIT Alternate

Subj: Decision to Abstain from Scenario Prioritization

Encl. (1) Scenario List and DEPSECDEF Policy Memo

1. On 3 November 2004, the Capabilities Integration Team (CIT) of the Technical Joint Cross-Service Group (TJCSG) met to prioritize 31 proposed scenarios.
2. I abstained from the CIT's voting for the reason noted on enclosure (1).

vr/



Don DeYoung

CIT Alternate, U.S. Navy  
Technical Joint Cross-Service Group



**DEPUTY SECRETARY OF DEFENSE**

**1010 DEFENSE PENTAGON  
WASHINGTON, DC 20301-1010**



SEP 3 2004

**MEMORANDUM FOR INFRASTRUCTURE EXECUTIVE COUNCIL MEMBERS  
INFRASTRUCTURE STEERING GROUP MEMBERS  
GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE**

**SUBJECT: BRAC 2005 Military Value Principles**

The Department has determined that the most appropriate way to ensure that military value is the primary consideration in making closure and realignment recommendations is to determine military value through the exercise of military judgment built upon a quantitative analytical foundation. By applying the BRAC selection criteria to rank the facilities for which they have responsibility, the Joint Cross-Service Groups and the Military Departments build the quantitative analytical foundation. The exercise of military judgment occurs through the application of the attached principles. Limited in number and written broadly, the principles enumerate the essential elements of military judgment to be applied in the BRAC process. The Military Departments and the Joint Cross-Service Groups shall use the principles when applying military judgment in their deliberative processes.

Attachment:  
As Stated

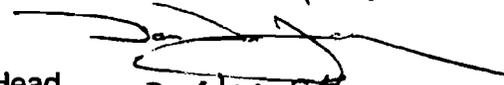
OSD 13369-04

## TJCSG Scenarios

- 001 - Establish Joint Centers for Air Platforms Centers
- 002 - Relocate W&A RDAT&E to 3 Primary & 4 Specialty Sites + Imperative
- 003 - Relocate DoD Directed Energy Research to One Location (Kirtland)
- 004 - Relocate DoD Directed Energy T&E and Selected Weapon T&E to One Location - WSMR
- 005 - Consolidate Rotary Wing RDAT&E into 2 Core Sites
- 006 - Establish Joint Centers for Fixed Wing Platform RDAT&E
- 007 - Relocate Ground Vehicle RDAT&E at Detroit Arsenal to Selfridge ANG Base
- 008 - C4ISR Cross DTAP & Function
- 009 - Defense Research Service Led Laboratories
- 010 - Consolidate Extramural Research Program Managers
- 011 - Joint Training Systems RD&A from AFRL-Mesa, ARI- Ft. Rucker, SPAWAR - San Diego, NAVAIR - PMA 205, WPAFB AFN-ASC/YW, Hill AFB - ASC/YW, PM-Joint National Training Center (JNTC) Suffolk, VA
- 012 - Deleted
- 013 - Consolidate Ground Platform RDAT&E into 2 Core Sites
- 014 - Establish Joint Centers for Space RDAT&E
- 015 - Establish a Joint Center for Space Research into One Core Site
- 016 - Establish a Joint Center(s) for Space D&A into One Core Site
- 017 - Relocate Guns & Ammo RD&A at One Location (Picatinny)
- 018 - Relocate W&A RDAT&E to 3 Primary & 4 Specialty; Retain/Relocate Energetics at Indian Head
- 019 - Relocate RD&A Energetic Capability from Crane, Aberdeen, and Yorktown to Indian Head
- 020 - Co-locate Battlespace Environments R, D&A, T&E to a single military installation (NRL Detachment Stennis Space Center)
- 021 - Co-locate "Medical" Chem-Defense Research and "Non-Medical" Chem and Bio-Defense RD&A to One Military Installation (Aberdeen, Edgewood Area MD)
- 022 - Co-locate Human Systems Training RD&A to a Single Military Installation (Joint Forces Command - Bridgeway, Suffolk VA (co-locate with JFCOM - Joint Training Analysis and Simulation Center)
- 023 - Co-locate All Medical Bio Defense RD&A to One Military Installation (Ft. Detrick, Frederick, MD)
- 024 - Co-locate All Chem-Bio Defense T&E to One Military Installation (Dugway Proving Ground, UT)
- 025 - Co-locate All Biomedical D&A to One Military Installation (Ft. Detrick, MD)
- 026 - Co-locate All Biomedical Research at 7 Military Installations (Ft. Detrick, Ft. Sam Houston, Walter Reed Army Medical Center, Forest Glenn Anex, Naval Health Research Center, San Diego, Soldier Systems Center, Navy Experimental Diving Unit, Panama City, FL)
- 027 - Combine Shipboard Integration at Dahlgren
- 028 - Combine Underwater Weapons Integration at Newport
- 029 - Establish Joint Land Network C4ISR Center
- 030 - Establish Joint Land Warfare Center (Remanded to Army for analysis)
- 031 - Combine Air Force Human Effectiveness R with Air Platforms R (Remanded to Air Force for Analysis)

Per DEPSECDEF memo subj: "BRAC 2005 Military Value Principles" (3 Sept 04), which states:  
"the most appropriate way to ensure that military value is the primary consideration in making closure and realignment recommendations is to determine military value through the exercise of military judgment built upon a quantitative analytic foundation."

And given that all 31 scenarios were generated by judgment alone, without the required foundation of quantitative analysis — (therefore I believe constitutes a material violation of the BRAC process' integrity.

  
3 Nov 04  
CIT Alternate, U.S. Navy

**SCENARIO INCONSISTENCIES**  
**Issue # 12-28-04-01**

**Issue:** In late-November, Military Value (MV) scores became available for assessing the judgment-driven scenarios of the Technical Joint Cross-Service Group (TJCSG). On 24 November, the TJCSG's Chair of the Capabilities Integration Team (CIT) requested identification of any scenario found to be "inconsistent with the Mil value scores," (i.e., where an action realigns workload from a site with a higher score to a lower one).<sup>1</sup> Instances of inconsistencies were subsequently reviewed by the Sub-Groups and declared justified because they were found to be congruent with underpinning strategies. However, while the MV scoring inconsistencies were judged to be justified by strategy, a number of the strategies themselves appear to contradict each other within one of the more important scenarios, TECH-0008.

**Point of Contact:** Don DeYoung, Capabilities Integration Team (Alternate), U.S. Navy

**Issue Summary**

1. *Four Categories of Scenarios*

For each scenario, there are four possible categories of outcomes: (A) *Data-Driven / Judgment-Validated* (no TJCSG scenario qualifies for this category for reasons explained in Issue Paper #11-15-04-01), (B) *Judgment-Driven / Data-Validated*, (C) *Judgment-Driven / Strategy-Validated*, and (D) *Judgment-Driven / Strategy-Rationalized*. The definition for rationalized is a "rational but specious explanation" [Oxford Dictionary], so Category D would not portend viable scenarios.

2. *Very Few Scenarios Are Inconsistent*

The great majority of the TJCSG's scenarios were validated by the MV scores, which means they belong in Category B: Judgment-Driven / Data-Validated. A strong correlation between the selected "gainers" and their higher MV scores is not surprising given that the scenario "gainers" and "losers" were, with few exceptions, chosen by workload, and because MV scores are strongly determined by that workload (i.e., gross numbers of people and dollars).

The few actions that do, in fact, move workload from a site with a higher MV score to one with a lower score will receive close attention by the Commission and communities. Therefore, to be viable, these *must* fall into Category C: Judgment-Driven / Strategy-Validated. The Sub-Groups reviewed the MV inconsistencies and declared the proposed actions to be consistent with strategies formulated by their expert judgment. Unfortunately, strategies within scenario TECH-0008 contradict each other; one is built upon a false premise; and the overarching strategy is applied inconsistently across sites.

3. *Analysis of the Strategies in TECH-0008*

- **Strategy #1: Consolidate Missions at Sites with Higher Military Value:** The C4ISR Sub-Group's overarching strategy for the 40 individual actions within TECH-0008, is "mission consolidation," where improved synergies are gained by greater masses of workload at the gaining sites.<sup>2</sup> Of those 40 actions, three are "inconsistent" by realigning work from higher ranked sites to lower ranked sites. The following discussions analyze each action and its enabling strategy.

<sup>1</sup> Al Shaffer, Subj. "Mil Value Posting", 24 November 2004.

<sup>2</sup> The strategy was explained at the 8 December CIT session when scenarios were filtered and scored by the "decision factors."

- **Strategy #2: Sensors Research Outweighs Info-Systems Research:** Action 19 would realign both Ground *Sensors* and *Information Systems (IS) Research* from the Communications-Electronics Command (CECOM) Ft. Monmouth to the Army Research Laboratory (ARL) Adelphi.

**Data:** Ft. Monmouth (Loser) has a higher score than ARL Adelphi (Gainer) in *IS Research* (0.4582 vs. 0.2563). In addition to its higher MV score, Ft. Monmouth has a substantially greater workload as measured by FTEs and dollars (380 FTE vs. 114 FTE, and \$96,000 K vs. \$36,000 K). ARL, on the other hand, has a higher MV score in *Sensors Research* (0.5018 vs. 0.3397) and a larger workload (446 FTE vs. 238 FTE, \$147,000 K vs. \$65,000 K).

In explaining its enabling strategy, the C4ISR Sub-Group stated that:

“preference was given to the more infrastructure intensive Sensors work...hence the Activity with the highest Military Value in Ground Sensors (Adelphi) was selected to host the consolidated activity.”<sup>3</sup>

By applying a preference to *Sensors*, Ft. Monmouth’s lower score in *Sensors Research* (0.3397 vs. 0.5018) causes it to lose both its *IS* and *Sensors Research*. When asked about the significant disparity in *IS* MV scores (where Ft. Monmouth has the higher score), the Sub-Group pointed out that it used a “cross-binning” technique where ARL’s *Sensors Research* score, not its *IS Research* score, is the decisive metric based on the infrastructure intensive nature of *Sensors* work.<sup>4</sup>

The Sub-Group’s use of a cross-binning technique for MV scoring — across two technical capabilities — is significant. Up to this point in the TJCSG’s deliberations, the very idea of aggregating and / or weighting scores across functions (i.e., Research, D&A, T&E), or across capability areas (i.e., *IS* and *Sensors*), has been a “third-rail” issue. In fact, it was difficult to reach agreement on “rolling-up” the scores by zip code (i.e., where individual respondents, from the *same Service*, at the *same installation*, and within the *same bin*, are combined into one score).<sup>5</sup>

In summary, this proposed action realigns *IS Research* from higher-ranked Ft. Monmouth to lower-ranked ARL Adelphi based upon an underpinning strategy that *Sensors Research* is of higher value due to its more infrastructure intensive. Therefore, both *IS* and *Sensors Research* are realigned from Ft. Monmouth to ARL Adelphi.

It should be noted that the cross-binning technique is used again in Action 40, which realigns both Air *IS* and *Sensors T&E* from NAWC-Pax River to Edwards AFB. The Sub-Group again states that “preference was given to the more infrastructure intensive Sensors work.”<sup>6</sup> But, it also claims Edwards has the higher *Sensors T&E* MV score, which the MV data does not show. In fact, Pax River has a significantly higher MV score in both *IS* and *Sensors T&E*. This apparent discrepancy needs to be resolved, or the strategy statement needs to be better articulated.

- **Strategy #3: Info-Systems Acquisition Outweighs Sensors Research:** Action 29 would realign Rome’s *Sensors Research* to Wright-Patterson AFB (WPAFB). Action 32 would realign Air *IS Research* from Rome Laboratory to Hanscom AFB.

<sup>3</sup> C4ISR Sub-Group, “Scenario Description & Rationale,” 14 December 2004 [DRAFT].

<sup>4</sup> CIT Meeting, 8 December 2004.

<sup>5</sup> MV “roll-up” by zip code, an analytically sound and common-sense approach took until 9 December to be approved.

<sup>6</sup> C4ISR Sub-Group, “Scenario Description & Rationale.”

**Data:** In Action 32, Rome (Loser) has a far higher score than Hanscom AFB (Gainer) in *IS Research* (0.6053 vs. 0.0421). In addition, Rome's workload as measured by both FTEs and dollars shows a huge difference (1,119 FTE vs. 0 FTE, and \$535,000 K vs. \$3,000 K). In Action 29, Rome has a lower score in *Sensors Research* than WPAFB (0.2345 vs. 0.5405).

These two actions are identical to the Ft. Monmouth proposal in the sense that together they remove both *Sensors* and *IS Research* from the "loser", which in this case is Rome Laboratory. Given the Sub-Group's expert judgment in the previous action (i.e., Strategy #2) that the *Sensors* MV score is decisive, one would think that Rome's *IS Research* program would be realigned along with its *Sensors Research* to WPAFB, which has the #2-ranked *Sensors Research* program. But, that is not the Sub-Group's proposal.

Recall that ARL Adelphi received both Ft. Monmouth's *Sensors* and *IS Research* programs. ARL had a higher score in *Sensors* and a lower one in *IS*, just as WPAFB has with regards to Rome. However, in the case of Rome Laboratory, the Sub-Group does not invoke Strategy #2's "cross-binning" technique to realign Rome's higher-ranked *IS Research* work to WPAFB. Instead, the Sub-Group would send it to Hanscom AFB. Essentially, Action 32 sends work from a site that does *Research*, and no *D&A*, to a site that does *D&A*, and almost no *Research*. In explaining its proposal, the Sub-Group states that:

"...preference was given to the significantly larger Development & Acquisition workload; hence the activity with the highest Military Value in Air Information Systems Development & Acquisition (Hanscom AFB) was selected to host the consolidated activity."<sup>7</sup>

Apparently, the synergistic gains that may accrue to Air Force C4ISR by realigning Rome's #2-ranked *IS Research* to the #2-ranked *Sensors Research* site at WPAFB are not judged to be as valuable as those that might accrue from collocation with Hanscom's *D&A* expertise. So, in this action, the expert judgment behind Strategy #3 is that *Info-Systems Acquisition* outweighs *Sensors Research*. But, Strategy #3 contradicts Strategy #2.

If Strategy #3 was used in the previous case, then Ft. Monmouth would have kept its *IS Research* because ARL Adelphi has no *D&A* and Ft. Monmouth has the highest MV score for Army *IS D&A*. But the Sub-Group found it more important to instead break Ft. Monmouth's *IS Research* away from high ranked *IS D&A* work, and consolidate it with ARL Adelphi's *Sensors Research*.

The Rome realignment to Hanscom may be founded on a desire to move the *IS Research* closer to Rt. 128, a center of commercial *IS* expertise. However, in the case of Ft. Monmouth, the Northern New Jersey area is not an *IS* backwater with local firms like Lucent and Honeywell / AlliedSignal. So, despite the similar circumstances, the Sub-Group proposes that Ft. Monmouth's work be moved away from that center of expertise and from the Army's highest ranked site for *IS D&A*.

To highlight the contradiction further, use of Strategy #3 would reverse the outcome in the previous case by sending ARL Adelphi's *IS Research* program to Ft. Monmouth where the Army's *IS D&A* function is located and there is a center of industrial *IS* expertise. This also has the advantage of being consistent with the MV scores for Ft. Monmouth and ARL Adelphi (0.4582 vs. 0.2563).

- Strategy #4: Coastal Sensors Integration Outweighs Inland Sensors Development: Action 1 would realign NRL's Maritime *Sensors D&A* to NSWC Dahlgren.

<sup>7</sup> C4ISR Sub-Group, "Scenario Description & Rationale."

**Data:** NRL (Loser) has a higher score than NSWC Dahlgren (Gainer) in *Sensors D&A* (0.3633 vs. 0.3007). In addition to a higher MV score, NRL has a greater workload measured both by FTEs and dollars (280 vs. 245, and \$79,000 K vs. \$60,000 K).

The C4ISR Sub-Group explains the strategy that underpins Action 1 in the following way:

"...preference was given to where the Maritime Sensors, Electronic Warfare and Electronics were integrated with their host maritime platforms; hence the surface warfare center located near the coast with the Highest Military value (NSWC Dahlgren) was selected..."<sup>8</sup>

Strategy #4 gives preference to coastal proximity and sensors integration over MV scores. The Sub-Group asserts that NRL's mission is Research, therefore its "non-mission" Sensors D&A should be consolidated at a "surface warfare center."<sup>9</sup> This premise, upon which Strategy #4 is built, is false. NRL's mission is, in fact, broader in some technology areas than that of the Air Force and Army corporate laboratories, which focus on 6.1 through 6.3, and 6.1 through 6.2, respectively. This is why NRL has a sizeable workload in Sensors D&A and a substantial MV score — one that ranks higher than the selected warfare center, NSWC Dahlgren. The following evidence is provided to show that the strategic premise is false.

NRL has performed sensors development from its pioneering of the first U.S. radar, more than 80 years ago, to its development of Dragon Eye, a portable, hand-launched sensor system based on expendable countermeasures technology. Dragon Eye was mentioned in a *New York Times* front-page article about the U.S. Marines' fight for Falluja.<sup>10</sup> Another recent example is Specific Emitter Identification technology, which identifies any radar by its unique characteristics with accuracy enough to "fingerprint" it. The National Security Agency selected it as the national standard.<sup>11</sup> With the Coast Guard, naval warships, and aircraft using it to monitor the movement of materials used in weapons of mass destruction, its value to the nation's war on terrorism is obvious.

Finally, expert judgment from ADM Hal Gehman (ret.) also refutes the Sub-Group's premise. ADM Gehman was appointed Chair of the Columbia Accident Investigation Board shortly after he made this comment about NRL's sensors program, which he and other defense experts reviewed in September 2001.

"What we saw was a Category A+ laboratory... its forté is sensors. What they showed us was impressive, relevant, and capable of being turned into fielded products... *nearly everything they develop they build a prototype on site and test it* (emphasis added), sometimes in an operational environment, sometimes not...they see the path to turning basic research into useful products."<sup>12</sup>

The harmful result of the Sub-Group's false premise is a proposed action that would sever the connectivity within an acknowledged center of excellence in sensors R&D. NRL's record of success is the product of the synergy achieved between its sensors systems development and its sensors research, which *ranks #1 in MV*.

<sup>8</sup> C4ISR Sub-Group, "Scenario Description & Rationale," 14 December 2004 [DRAFT].

<sup>9</sup> CIT Meeting, 8 December 2004.

<sup>10</sup> Dexter Filkins, "In Falluja, Young Marines Saw the Savagery of an Urban War", *New York Times*, 21 November 2004, p. 1.

<sup>11</sup> "Accordingly, NSA has selected the Naval Research Laboratory processor (L-MISPE) to be the standard for conducting SEI/UMOP collection operations..." [NSA Message DTG 011440Z, June 1995]

<sup>12</sup> Section 913 Report #1: *Sensors Science and Technology and the Department of Defense Laboratories*, (National Defense University: March 2002), p. 31.

4. *Strategy #1 is Applied Inconsistently*

As mentioned earlier, the C4ISR Sub-Group's overarching approach for the actions within the TECH-0008 scenario is "mission consolidation," where improved synergies are gained by creating greater masses of workload at the gaining sites. For example, while Ft. Monmouth loses Research workload in Action 19 to ARL Adelphi under Strategy #2, it gains D&A workload by virtue of its top-ranked Army D&A score in Actions 21, 22, 23, 24, and 25.

The problem is that Strategy #1 is applied inconsistently. For example, while NRL's *Sensors D&A* is to be realigned to NSWC Dahlgren — Dahlgren's *Sensors Research* is not being sent to NRL, which has the #1-ranked *Sensors Research* program out of all sites evaluated by the TJCSG (66 sites). NRL's MV score in relation to NSWC Dahlgren is 0.8037 vs. 0.3009. Even if one were to accept the false premise that NRL's mission is confined to Research, why is the *Sensors Research* mission not being consolidated at NRL?

Furthermore, in Action 8, NRL's *IS D&A* is being realigned to the SPAWAR Systems Center (SSC), the site selected as the location for Maritime *IS D&A* consolidation. However, SSC's *IS Research* is not being realigned to NRL, whose Research program has a much higher MV score than SSC's (0.6059 vs. 0.3671). Like its *Sensors Research* program, NRL's *IS Research* is also rated #1 out of all sites evaluated by the TJCSG (68 sites).

When asked about this inconsistency, a Sub-Group member responded that TECH-0008 defers Research consolidation to TECH-0009, "Defense Research Service-Led Laboratories." But the explanation does not hold up under scrutiny. As seen earlier, AFRL-Wright-Patterson and ARL Adelphi gain Research workload — and both are part of TECH-0009.

Since NRL is ranked #1 in both *Sensors* and *IS Research*, these inconsistencies can be readily fixed. Actions can be added where NRL gains NSWC Dahlgren's lower-ranked *Sensors* (ranked #10) and *IS* (#10) Research programs (78 FTEs and \$18 M), as well as SSC's lower-ranked *Sensors* (#21) and *IS* (#6) Research programs (436 FTEs, and \$170 M).

**Conclusion:** TECH-0008 contains: several actions whose enabling strategies contradict each other; one action based on a false premise; and an overarching strategy that is applied inconsistently. These problems require resolution. Correcting problems and errors and before going "prime-time" with our proposals will serve us, and the country, well.

**Recommendations:** Ensure that all actions within TECH-0008 qualify for Category (C) *Judgment-Driven / Strategy-Validated* by resolving identified problems, or by canceling the proposed actions if they cannot be validated by sound strategy.

Army Position: \_\_\_\_\_  
AF Position: \_\_\_\_\_  
Navy Position: \_\_\_\_\_  
Marine Corps Position: \_\_\_\_\_  
JCS Position: \_\_\_\_\_

Final Resolution: CIT Chair required that all approved TJCSG proposals be reviewed by an independent team	
POC Signature: _____	Date: 3/1/05
CIT Chair: _____	Date: _____

**Comments on Issue Paper # 12-28-04-01**  
**(Scenario Inconsistencies)**

Contrary to the assertion in the issue paper, scenario TECH-0008 is internally consistent.

The TJCSG directed the C4ISR subgroup to cross-bin activities so as to minimize the number of installations. In order to do that, the C4ISR subgroup adopted a minimum set of cross-bin guidelines, such as giving preference to Sensors work when combining Sensors and Information Systems Research (cross-DTAP, same Function) or giving preference to D&A when combining Information Systems Research and D&A (cross-Function, same DTAP). Military Value (or early on, its surrogate – quantity of professional FTEs) was used to rank the Technical facilities in a “bin” and then the cross-bin guidelines were applied consistently. So in the issue paper, *Strategy #2* (Issue Paper terminology) is an application of the cross-DTAP, same Function guideline. Similarly, *Strategy #3* is an application of the cross-Function, same DTAP guideline. *Strategy #2* and *#3* are not at odds with each other – they simply apply to different cross-bin situations.

Regarding the Issue Paper assertion that a corporate Laboratory should continue to work outside the Research area because of its track record, numerous organizations have and will continue to field great products. The single greatest challenge in the C4ISR world today is delivery of non-interoperable systems to the warfighter. Consolidating maritime C4ISR D&A under one Center provides the opportunity to address that #1 problem, and hence the C4ISR subgroup scenario proposes consolidation to achieve Jointness, economy and efficiency (the BRAC objectives). Status quo just perpetuates the problem of multiple “hobby shops”.

Regarding the Issue Paper assertion that Applied Research activities should go to Corporate Laboratories, that is not what the TJCSG set about to achieve. The Framework is constructed to consolidate Basic Research into a DOD managed activity, but Applied Research is to be linked more closely with its D&A counterpart in Centers to the degree possible. This is especially true in C4ISR where one can go from Applied Research to D&A, T&E and electronic fielding in a matter of days, not years. Recognition of this reality is reflected in the C4ISR scenarios approved by the TJCSG.

As the C4ISR subgroup performs scenario analysis, we will revalidate the underlying assumptions before we offer draft Candidate Recommendations for TJCSG consideration. The TJCSG will have that additional opportunity to review the proposed actions with the insight gained from the analysis of the Scenario Data Call responses.

Date: 3 January 2005

To: Matt Mleziva (Lead, C4ISR Sub-Group),

I have read your comments on Issue Paper #12-28-04-01, "Scenario Inconsistencies," and remain concerned that the strategies in question (i.e., those that drive TECH-0008's realignment of work from sites with higher military value scores to sites with a lower scores) are not analytically sound. Some key questions remain for me regarding the reasons why, and when, different strategies are applied to proposed actions that have very similar circumstances. The success of TECH-0008 relies on the credibility of these strategies, especially when our process is not data-driven and the subject actions at issue here ignore the Military Value (MV) scores that we derived for these sites. There is no rule that prevents lower scoring sites from becoming "gainers" at the expense of higher scoring sites, but at a minimum, I believe the Sub-Group's strategies need a much more thorough justification and greater clarity in their supporting rationale.

In paragraph #2 of your response to the issue paper, you mention that the Sub-Group developed:

"cross-bin guidelines, such as giving preference to Sensors work when combining Sensors and Information Systems Research or giving preference to D&A when combining Information Systems Research & D&A."

As you know, the above guidelines are called Strategy #2 and #3, respectively, by the issue paper. That paper may not have made its point clearly, so in the interests of clarity, its key question stated a different way is: "What is the rationale for the Sub-Group's decision to invoke Strategy #2 in one case, and to invoke #3 in another?" Just saying that the rationale was to optimize Sensors Research for one, and to optimize IS D&A for the other, and that these "guidelines were applied consistently," does not reveal *why* IS Research is realigned by different strategies in two actions with very similar circumstances.

Specifically, the first two actions analyzed in the issue paper involve realigning IS Research; one action realigns Ground IS Research, and the other realigns Air IS Research — and the strategies dictate where the realigned work is sent. In the Ground case, Strategy #2 sends the work from a site that performs both IS Research and D&A, to a site with a higher score in Sensors Research. But, if #3 was invoked to optimize IS D&A, the "loser" would instead become the "gainer" by gaining IS Research — *from the "gainer" under Strategy #2, who becomes the "loser" under Strategy #3*. In other words, the direction of the realigned work actually reverses by virtue of the strategy selected. Similarly, the destination of the Air IS Research is determined by the strategy selected. So, the key issue is *why*, in two cases involving IS Research, the C4ISR Sub-Group gives preference to optimizing D&A in the Air Force case, while in the Army case, it gives preference to optimizing Sensors work? Why was Strategy #2 not used in both cases? Or, why was Strategy #3 not used in both?

In paragraph #3 of your response, you raise the third case analyzed by the issue paper, where Maritime Sensors Research is realigned from a site with a higher MV score to a warfare center closer to the shore in order to optimize systems integration. You mention that the Sub-Group makes this proposal to:

"achieve Jointness, economy and efficiency (the BRAC objectives)."

These are indeed BRAC objectives, but they do not support your case. TECH-0008 has 40 individual actions, of which 16 are Navy-to-Navy, 10 are Army-to-Army, and 9 are Air Force-to-Air Force. It is hard to defend this scenario as one that forges a significant degree of "jointness." Moreover, *none of the actions analyzed by the issue paper involve the few, and rather minor, "joint actions."* And, as far as the objectives of "economy and efficiency" are concerned, it is more likely that the proposed Maritime Sensors action will range anywhere from cost-neutral to very costly. By optimizing D&A (for systems integration purposes) at one site, we are sub-optimizing R&D at the losing site. The case for savings would be stronger if the losing site was being closed by the action.

In the end, the only relevant BRAC objective for this scenario — especially with our nation at war — is *mission effectiveness*, as measured by military value. In fact, the law is clear on the point that “military value is the primary consideration in the making of recommendations for the closure or realignment of military installations” [Public Law 101-510]. The primacy of mission effectiveness is why the track record of the “losing” site was addressed in the issue paper. The expert judgment of ADM Gehman that the site is a “Category A+ laboratory... its forté is sensors” was reported to show compelling, documented evidence for the high military value of the sensors development work at that site. Other experts on the panel with ADM Gehman included a former DDR&E and Secretary of the Air Force, a former CINC for Central Command who was later selected by the President as a diplomatic envoy to the Middle East, and a former NSC advisor to the President. The Sub-Group’s expert judgment is at stark odds with that panel’s assessment when it places the “losing” site, as you do in paragraph #3, in the class of a “hobby shop.”

On the other hand, as a technical expert from Hanscom AFB, you and your Service-lead colleagues from ARL Adelphi and SPAWAR San Diego, possess expert judgment that is significant and valid in its own right. But your expert judgment that the site’s sensors development program is a “hobby shop” must nonetheless be documented and justified in some manner. That justification should also account for the fact that the purported “hobby shop” has a higher MV score and a larger workload than the “gainer.”

Finally, paragraph #4 of your response makes a point of differentiating “Basic Research” and “Applied Research” in order to explain an apparent inconsistency in mission consolidation (i.e., Strategy #1) that the issue paper describes as a “one-way street” with regard to the Navy’s corporate laboratory. Your response is that the TJCSG’s intent has been to realign Applied Research to “its D&A counterpart in Centers” instead of Corporate Laboratories. There are two problems with this explanation.

First, our analytical convention does not distinguish Basic (6.1) from Applied Research (6.2), and there is therefore *no data to make such distinctions*. In fact, both are combined with Advanced Technology Development (6.3) under our Technical Function called “Research.” Second, the corporate laboratories in the Air Force and Army gain Sensors and IS Research (6.1-6.3), *which means they gain Applied Research*. This appears to contradict your assertion regarding the TJCSG’s intent. The point made in the issue paper is that the Navy’s corporate laboratory, despite being ranked by MV as #1 in IS Research *and* #1 in Sensors Research, does not gain any Research — even though it qualifies as a “gainer” under Strategy #1 (Mission Consolidation of IS and Sensors) and Strategy #2 (Optimize Sensors).

I offer these observations and arguments to help ensure that our product is ready for the close scrutiny it will receive in a matter of months. I hope my response to your comments, as well as the clarifications of issue paper #12-28-04-01, are helpful.

vr/

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### Comments on DeYoung 3 Jan 2005 Paper

A facility's Military Value (MV) is a function of the other facilities in the bin the way we developed the MV scoring; hence MV is only a relative goodness within a bin and cannot be used across bins. The C4ISR subgroup used MV within the bins and when asked by the TJCSG to consolidate cross bins, used professional military judgment to determine the receiving facility from amongst the leaders in the bins.

The objective was to develop scenarios that implemented the TJCSG adopted Framework. The Air and Ground domain scenarios do involve more than one MILDEP, hence are Joint. The Maritime domain scenarios only involve the Navy as they were the only MILDEP known to be reporting maritime C4ISR RDAT&E. The strategies were selected to achieve the BRAC objectives of Jointness, Efficiency and Effectiveness.

In the C4ISR world, the potentially short timelines from applied research to operational capability led to the Warfare/Product Center construct. With respect to NRL, its high MV, the DRL concept, and its not being a Warfare center led to no recommended change to its Basic Research activities. Also, no C4ISR Maritime Basic Research activities outside of NRL were identified to realign to NRL. NRL is one of the organizations that has demonstrated the ability to rapidly field combat capability. Feedback from the field is that capability deployed by non-acquisition organizations tends not to interoperate with the rest of their equipment (provided by the traditional acquisition organizations) and tends not to have a supportability tail. The C4ISR subgroup developed scenarios which consolidated the Maritime C4ISR Applied Research and D&A activities in a domain (per the Framework) to address these issues rather than let them persist.

Date: 13 January 2005

To: Matt Mleziva (Lead, C4ISR Sub-Group)

In its 4 January meeting, the TJCSG decided that each candidate recommendation must have a thorough justification and sufficient clarity in its supporting rationale, especially those that realign workload from sites with a higher military value (MV) score to sites with lower scores (i.e., an “inconsistent scenario”). In issue paper #12-28-04-01, “Scenario Inconsistencies,” I identified several inconsistent scenario actions, but missed one that needs to be marked for attention in the event it becomes a candidate recommendation.

Scenario TECH-0008 (Action 7) realigns Maritime (surface and above work only) Sensors RDAT&E from NUWC Newport to NSWC Dahlgren. NUWC Newport has a substantially higher MV score than NSWC Dahlgren *in all three technical functions*. Newport’s across-the-board superiority to the gaining site in MV scores, from Research to T&E, makes this action unique among the other “inconsistent scenarios” identified in the issue paper.

Like Action 1, where NRL loses its higher-ranked Sensors D&A work to NSWC Dahlgren, Newport’s higher-ranked RDAT&E work is also realigned to Dahlgren based on Strategy #4 where:

“...preference was given to where the Maritime (surface and above) Sensors, Electronic Warfare and Electronics were integrated with their host maritime platforms; hence the surface warfare center located near the coast with the Highest Military value (NSWC Dahlgren) was selected...”<sup>1</sup>

Action 7, like Action 1, will almost certainly degrade the synergy of the site with the higher MV score. Parsing out Newport’s “surface and above” sensors work from its undersea sensors work will likely shred innovative connectivity within a Sensors program that is integrated (with indistinct demarcations between “surface and above” work and “undersea” work) and holistic (where the whole is greater than the sum of its parts). Therefore, the rationale we provide must make a convincing statement as to why, and how, the risks are outweighed by the benefits perceived by the Sub-Group.

Also, your last paper (dated 4 January) discusses the DoD’s problem getting interoperable C4ISR capabilities into service quickly, and it states that “NRL is one of the organizations that has demonstrated the ability to rapidly field combat capability.” While this comment resolves an issue raised in my previous response, it also now begs a question. How will the Sub-Group defend two actions affecting NRL (i.e., Action 1 for Sensors, and Action 8 for Information Systems), which would sever innovative R&D connectivity at a site that is not part of the problem your Sub-Group is trying to solve? More to the point, what will be the justification for risking damage to a site that *is* rapidly fielding new C4ISR capabilities for the warfighter?

Almost a year ago, in a paper that Al Shaffer distributed among the TJCSG’s Sub-Groups, I expressed some concern that our 39-bin (or 39-“technical facility”) analytical approach would result in damaged synergies. The paper observed that,

“While past closure rounds are not the focus here, there is an important feature that our process shares with BRAC-95 — pushing highly interconnected work through technical and functional stovepipes... *This will sever the connectivity of critical multidisciplinary projects and vertically integrated programs, as well as decapitate top talent from any realigned work.*”

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<sup>1</sup> C4ISR Sub-Group, “Scenario Description & Rationale,” 14 December 2004 [DRAFT].

And, the paper proposed a solution that called for:

... "assigning Military Value at a higher level, such as at the command / installation level, and not to the Rubik's Cube "facilities." <sup>2</sup>

The proposal that MV be assigned at a meaningful level of aggregation was made again in issue paper #11-15-04-01, "Military Judgment: *Necessary — But Not Sufficient*" (14 November 2004).

Now that the C4ISR Sub-Group is at the point of evaluating the monetary costs for actions that will, in all likelihood, sever innovative connectivity at the "losing sites" (some with higher military value than the "gaining sites"), the development of sound justifications become more than a requirement of the TJCSG. They become critical to the goals of BRAC-05 and an obligation to national security.

vr/

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<sup>2</sup> D.J. DeYoung, "Shadows on the Wall: The Problem with Military Value Metrics," 17 February 2004, p. 12-13 (Version 1).

## **Integrated Weapons & Armaments Specialty Site for Guns and Ammunition**

*Category: Technical Joint Cross Service Group*

*Mission: RDT&E for Weapons & Armaments*

*One Time Cost: \$116.3million*

*Savings: 2006-2011 = \$81.2 million*

*Return on Investment: 13 years*

*Annual Recurring Savings: \$11.3 million*

*Final Action: Remain Open*

### ***Secretary of Defense Recommendation***

Realign Naval Surface Warfare Center Division Dahlgren, VA by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal NJ

### ***Secretary of Defense Justification***

This recommendation realigns and consolidates those gun and ammunition facilities working in Weapons and Armaments (W&A) Research , Development & Acquisition (D&A). This realignment would result in a more robust joint center for gun and ammunition Research, Development & Acquisition at Picatinny Arsenal, NJ. This location is already the great concentration of military value in gun and ammunition W&A RD&A. Movement of all the Services' guns and ammunition work to Picatinny Arsenal will create a joint center of excellence and provide synergy in armament development for the near future and beyond, featuring a Joint Packaging, Handling, Shipping and Transportation (PHS&T) Center, particularly important in this current time of high demand for guns and ammunition by all the services. This recommendation promotes jointness, enables technical synergy, and positions the Department of Defense to exploit center-of-mass scientific, technical, and acquisition expertise within the weapons and armament Research, Development & Acquisition community that currently resides at this DoD specialty location.

### ***Community Concerns***

The recommendation is in conflict with the recommendation to establish Dahlgren as a specialty site for Naval Surface Warfare. This is unique to the services and centroid for Navy Surface Ship developments to preserve the synergies between large highly integrated control systems developments and the weapon system development themselves. Full consolidation at Picatinny will result in the reduction of the Navy's ability to engineer and integrate its shipboard combat systems. System integration is best done, for both engineering and cost purposes, when those elements being integrated are co-located. Single siting gunnery fails to retain two sites, which was one of the guiding principals of the TJCSG. The Department of Defense recommendation will result in a reduction in military value and potentially negatively impact the warfighting

capability of the Navy. Additionally, based on BRAC 95 experience approximately less than 20% of the educated, trained, and experienced engineering and technical workforce will move from the region.

***Commission Findings***

The Commission agrees with the Community that moving the gun and ammunition Research and Development & Acquisition to Picatinny Arsenal does not improve nor enhance military value and that it is in conflict with the recommendation to establish Dahlgren as a specialty site for Naval Surface Warfare. The Commission found that the Department of Defense over-valued the integration of guns and ammunition in W&A RD&A and this realignment, if left as proposed by the Secretary, would actually diminish military value, readiness, and operational capabilities of the Navy.

***Commission Recommendation***

The Commission finds the Secretary of Defense deviated substantially from final criteria 1,3, and 4. Therefore, the Commission recommends the following: Create two specialty sites for guns and ammunition within the Department of Defense - a RDAT&E for small arms and non-maritime guns and ammo at Picatinny Arsenal, NJ and a RDAT&E for maritime guns and ammo at Naval District Washington, West Area, Dahlgren.

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