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WHITE PAPER

Velocity-Volume Distribution Retrograde (V2DR) Approach

SDDC
United States Army
February 2013



PURPOSE:

SDDC is the Army Service Component Command of USTRANSCOM, responsible for global transportation capabilities in support of our Nation's priorities.

VISION: To be DOD's leader in best-value deployment and distribution solutions; focused on providing responsive mode neutral end-to-end support to the Warfighter, globally aligned to meet the Nation's objectives while maintaining the quality of life for SDDC employees and families.

MISSION: Provide global deployment and distribution capabilities to meet the Nation's objectives.

February 2013

FROM THE COMMANDING GENERAL

MAJ. GEN. THOMAS J. RICHARDSON

The thoughts and ideas discussed in this White Paper provide a starting point for dialogue and socialization of what is possible during the movement of retrograde cargo in support of the drawdown in Afghanistan.

SDDC is committed to ensuring success of the Afghanistan Return, Reset, Redeployment, Redistribution and Disposal (R4D) mission. The R4D movement mission will require innovation and creativity to solve the movement challenges in order to meet national objectives. Key to our focus is increasing the velocity and flow of retrograde out of Afghanistan while balancing the efficiency of the transportation network.

As we move forward, we welcome partnering with other organizations on new ways to attain mission accomplishment of the coming monumental task – Afghanistan retrograde.

A handwritten signature in black ink, appearing to read "TJR", with a long horizontal flourish extending to the right.

Thomas J. Richardson
MAJOR GENERAL, U.S. Army
Commanding

Executive Summary

The Retrograde, Reset, Redeployment, Redistribution and Disposal (R4D) mission in AFG will require innovation and creativity in order to meet the national objectives. Given the physical, environmental, political, enemy threats, operational constraints, and now cost factors, U.S. forces must overcome large impediments to attain success. The Velocity Volume Distribution Retrograde (V2DR) approach will achieve the desired balance of the distribution network necessary to meet movement requirements. Exploiting Best Value Routing requires sound equipping forecasts, free flow of carrier Multi-Modal (MM) sites, adjusted retrograde Required Delivery Dates (RDDs), and ship/rail cargo consolidation to optimize transportation efficiencies.

The key activities of V2DR include: 1) Mode Neutral – Best Value Routing using USC-7 and MM contracts that fit within USCENTCOM geographical constraints; 2) Identify requirements earlier and re-align the transportation requisition process for retrograde equipment while allowing realistic RDDs; 3) Build movement requirements to synchronize the line haul capacity; 4) Identify and designate strategic retrograde CONUS SPODs; 5) Trans-ship retrograde equipment from CONUS port to final destination via the most cost efficient manner and in concert with industrial base reception capabilities; and 6) Modify carrier performance measures.

Synchronizing the MM contract with how JOPES records are built and executed will achieve the required velocity and reduce the transportation requisition process by up to seven days. Consolidating the cargo at a CONUS location for no more than two weeks

The Return, Reset, Redeployment, Redistribution and Disposal (R4D) movement mission in AFG will require innovation and creativity to solve the movement challenge in order to meet national objectives.

will allow SDDC to achieve over 40% (est \$2.5M per 100K TEUs) in cost savings when moving via rail vice line haul. We welcome partnering with other organizations on new ways to attain mission accomplishment of the coming monumental task – Afghanistan retrograde.

Background

- Since 7 Oct 01, substantial buildup of coalition troops, bases, and equipment in the Afghanistan (AFG) campaign.
- **The DOD estimates more than 750,000 major end items, worth in excess of \$36B, currently in AFG will cost an estimated \$5.7B to transfer or return.**
- Return, Reset, Redeployment, Redistribution and Disposal (R4D) will be a herculean effort to complete.
- 1,200/1,000 rolling stock/non-rolling stock pieces per month is USFOR-A current drawdown move-

ment goals. This planning baseline assumes the Pakistan Ground Lines of Communication (PAKGLOC) and the Northern Distribution Network (NDN) open.

- Political-Military (POL-MIL) country access challenges and stated capacity goals on PAKGLOC and NDN greatly impact cargo flow.
- Joint Operational Planning and Execution System (JOPES) assigned Required Delivery Dates (RDDs) are universal for R4D shipments. U.S. Central Command (USCENTCOM) requires the use of JOPES for all retrograde coordination and validations.
- Current retrograde effort is supporting the drawdown of hostilities in AFG and minimal deployments are projected.
- RESET constraints are not present as most of this cargo is not going into ARFORGEN cycle.
- Factors that influence movement of retrograde cargo include; force management levels, base closure, disposition instructions, and on-hand materiel inventory levels.
- Universal Services Contract -7 (USC-7) and Multi-Modal (MM) contracts are available to meet operational requirements.
- **JCS Tank, GAO, and DA Memorandums stress cost focused retrograde planning and execution.**

Major Stakeholders

Office of the Secretary of Defense, Military Services, U.S. Transportation Command (USTRANSCOM), USCENTCOM, U.S. Army Materiel Command, Defense Logistics Agency, and Commercial Transportation Service Providers (TSPs).

Challenge

The R4D movement mission in AFG will require innovation and creativity to solve the movement challenge in order to meet national objectives. Given the physical, environmental, political, enemy threats, operational constraints, and now cost factors, U.S. forces must overcome large impediments to attain success. Commanders inside the Combined Joint Operations Area - Afghanistan (CJOA-A) want velocity (move faster) and Military Services want volume (lower cost). Balancing speed and cost in a Defense Transportation System is challenging when given multiple operational constraints such as; universal JOPES RDDs, military shipping documentation errors, inconsistent disposition instructions, and Combatants

Commands (COCOMs) mandated distribution routing that impact cost on the MM contract. These factors sub-optimize the use of commercially available distribution networks, and drive costly transportation actions from CONUS ports to final destination locations. (Figure 1)

Discussion

Afghanistan, unlike Iraq, does not have a theater specific location that allows surface movement and reception of outbound cargo. In order to meet the end of CY14 goal, velocity

Afghanistan, unlike Iraq, does not have a theater specific location that allows surface movement and reception of outbound cargo. In order to meet the end of CY14 goal, velocity and volume are essential to success.

and volume are essential to success. SDDC created a Velocity-Volume Distribution Retrograde (V2DR) approach to outline our concept to support R4D operations. The V2DR is based on the following three core premises: 1) necessity to move large amount of cargo in a very short time, 2) overcoming multiple impediments, i.e., POL-MIL, weather, route saturation, 3) cost conscience transportation operations. This approach synchronizes JOPES planning with contract acquisition tools to meet operational requirements. Focuses on cultural changes to the traditional RLD/RDD JOPES records building model in order to optimize commercial best business practices.

V2DR leverages point-to-point movement flow to maximize efficiencies gained through volume and effectiveness thru velocity. At the same time the acquisition MM contract reflects the emphasis on velocity to remove cargo from AFG but does not sub-optimize carriers established transportation network to allow for volume movement to CONUS.

SDDC's concept in applying enterprise distribution model – Velocity-Volume Distribution (V2DR).

- Adjust TPFDD Letter of Intent (LOI) guidance for retrograde to allow expanded movement times outside of CJOA-A in order to allow better rail/ship consolidation of rolling stock/non-rolling stock.
- Long range Strategic Materiel movements forecasting plan.
- Inserting transportation planning earlier in the equipment retrograde process.
- Create strategic shipment destinations of key rolling stock and non-rolling stock items – shipping grid.
- Meter CONUS flow times.
- Ensure accurate and timely shipping documentation (i.e. Transportation Control and Movement Document (TCMD), HAZDECs, etc).
- Fully exploit best value routing methods utilizing the acquisition con-

FIGURE 1. Initial CONUS Rail Options

Port Terminal Origins	Destination Depot Sites
Port of Charleston	Anniston- Alabama, Albany-Georgia, Letterkenny-Pa
Port of Beaumont	Red River, TX and Herlong, CA

* After review and feasibility of the rail portion is analyzed, other sites and depots will be added. Adding rail rates to the USC could eliminate “double billing” scenarios.

tracting tool (i.e. MM) as designed.

Enterprise R4D Strategic Planning. Executing V2DR means long range, level four planning must occur to develop feasible Best Value Routing determinations. Moving the COCOM validation requirement 60 days to the left will create a volume of work in progress to maximize the pipeline in order to incentivize carriers to better position assets along their transportation assets in order to achieve velocity. This allows SDDC to retrograde 87% of MM movement out of AFG, book 100% of the Seaport of Embarkation to Seaport of Debarkation (SPOD), and manage 100% of traffic from SPOD to final destination.

Mitigation of Operational Constraints. The mitigation of operational constraints focuses on the employment of JOPES in retrograde planning and execution.

As a planning tool, JOPES provides a framework for movement data and requirements that facilitates deployment/ redeployment. In V2DR, however, the role of JOPES planning dates such as Ready to Load (RLD), available to load, and RDD, serve to build speed and volume. Key is the extension of JOPES RDDs to allow more time on the tail end of movement so better cost options are generated using rail during the CONUS lift.



Best Value Routing Decisions. Best Value Routing focuses on aligning the COCOM operational requirements to redeployment and retrograde contracting performance at the best cost. SDDC employs both USC-7 and MM contract to fulfill theater generated movement requirements for Military Service Departments and others via the PAK-GLOC, NDN, or MM routing.

At present, MM represents over 87% of the movements out of AFG which

validates the need for MM capacity. Although capacity exists within the distribution network to meet USFOR-A's retrograde goals of 1,200 rolling stock and 1,000 non-rolling stock or higher, greater opportunities to reduce cost are possible with the right TPFDD rules and JOPES application. (Figure 2)

Afghanistan Retrograde to CONUS - Lines of Communication Network Assessment

FIGURE 2. LINE HAUL to RAIL Comparison

Mode	Line haul truck rate for 3 Strykers	Rail haul rate for 3 Strykers	Line haul truck rate for 4-20' containers using 2 trucks	Rail haul rate for 4 containers
Route	Charleston, SC to Herlong, CA	Charleston, SC to Herlong, CA	Charleston, SC to Herlong, CA	Charleston, SC to Herlong, CA
Est. Cost	\$20,337.00	\$11,700.00	\$11,164.00	\$7,595.00
Delta		\$8637 - savings		\$3569 -savings

* 89' rail car used for comparison; other rate comparisons being reviewed.

Joint Staff Route Mix Cost Analysis Scenarios*

- **Scenario 1:** 50% Multi Modal/ 100% PAKGLOC/ COST:\$4.1B
- **Scenario 2:** 100% Multi Modal/ 0% PAKGLOC/ COST: \$5.3B
- **Scenario 3:** 75% Multi Modal/ 75% PAKGLOC/ COST: \$4.8B
- **Scenario 4:** 100% Multi Modal/ 75% PAKGLOC/ COST: \$4.6B
- **Scenario 5:** 100% Multi Modal/ 100% PAKGLOC/ COST: \$4.4B

* Data based on percentage of route usage goals and shrinking time line.

Lines of Communication (LOC) Assessment.

Northern Distribution Network:

- NDN grew to become fully operational for the inbound resupply of U.S. forces.
- Pure surface NDN is two to four times more expensive than using the PAKGLOC but still significantly cheaper than MM.
- The amount of cargo that has successfully transited this route was minimal and has an unproven capacity.

Pakistan Ground Lines of Communication:

- The PAKGLOC was established in 2002 and moved 30% of all inbound OEF cargo taking an average of 54 days to move CONUS origin cargo to the AFG-PAK border.
- The pure surface movement along the PAKGLOC is by far the Best Value Routing for retrograde cargo.

The Velocity Volume Distribution Retrograde (V2RD) approach will achieve the desired balance of the distribution network necessary to meet movement requirements.

- Prior to the 2011 closure, the PAKGLOC was the only surface route that allowed consistent two-way flow of cargo.
- Until Pakistani political issues are fully resolved, this important GLOC will be unable to be leveraged in the full drawdown of AFG forces. As a result of these limiting operational capabilities, DOD relied on MM (air and sea) transport, a more costly transportation option.

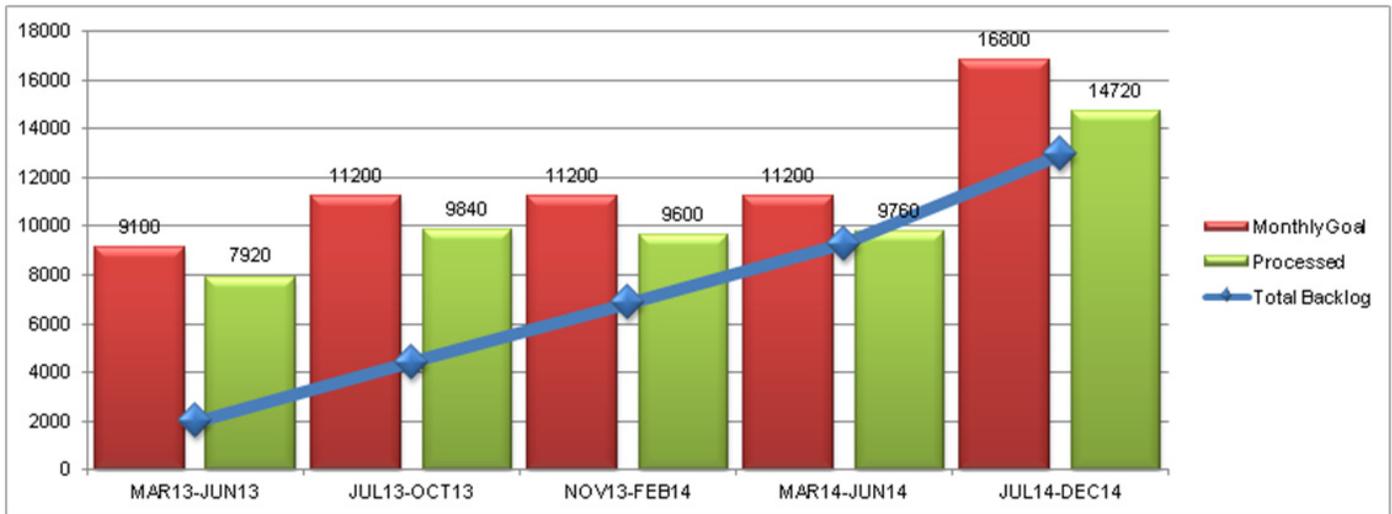
Door To Door CONUS Retrograde Cost Analysis:

- With current "Port" booking scenarios, the shipper actually realizes a cost increase regardless of RDD. The billing rate in USC includes delivery to final destination. However, when shipments are stopped at the port, they must be re-booked via a Global Freight Management (GFM) contract. This cost is passed through to the shipper, resulting in two payments for the same port-to-door move. Costs associated with the second move can be reduced by extending the RDD to allow for aggregation of cargo and utilization of rail vs. truck movement.
- DOD owns a fleet of 68' and 89' flatbed rail cars used to transport heavy equipment such as Abrams,

Bradley's, DOD rolling stock and 20'/40' containers.

- Commercial rail carriers operate in every major CONUS water port. The big five U.S. rail carriers (BNSF, UP, Kansas City Southern, Norfolk Southern, and CSX) all run intermodal operations, cargo exchange agreements, and have business operations with the 400 plus short line rail carriers in the U.S. All major DOD depots are connected to the CONUS rail interchange (figure 1).
- Rate comparison for USC-7 door-to-door truckline haul rate versus rail tendered GFM CONUS port-to-door rail rate from Port of Charleston.
- SDDC G9/TCAQ is currently reviewing the USC-7 contract to incorporate a rail rate option for returning CONUS retrograde equipment. Current USC rate is based on per conveyance truckline CONUS haul rate. Rates review will be based on truckline haul rates vs. rail.
- Consolidation at CONUS DOD sites need to be reviewed for a temporary aggregation solution of retrograde equipment to avoid port storage fees, carrier storage fees, depots/installations congestion. The use of Military Ocean Terminal, Sunny Point, Military Ocean Terminal Concord, other large DOD facilities such as Bliss, Bragg, Hood, Benning, and Stewart, all have rail access that could be used as intermediate cargo stops. Historically rail carriers have not charged DOD extra fees for use of their rail cars that are used to hold cargo. Also, we do not pay for storage at Charleston.
- Army depots and commercial receiving facilities will play a key role in the scheduling and receiving of equipment for retrograde, and must effectively manage fleet availability.

FIGURE 3. Requirements Package Execution



This is an example of how the backlog would accumulate by only meeting 80% of the monthly goal. By December 2014, there would be a backlog of nearly 13,000 pieces.

Recommendations

The V2DR approach will achieve the desired balance of the distribution network necessary to meet movement requirements. Using methods of retrograde best value routing from MM sites, the PAKGLOC, and NDN routes create flexibility of flow.

Exploiting Best Value Routing requires sound equipping forecasts, free flow of carrier MM sites, adjusted retrograde RDDs, and ship/rail cargo aggregation/consolidation to exploit transportation efficiencies from the commercial carriers at the SPOD. Key activities of V2DR consist of the following:

- Mode Neutral – Best Value Routing using USC-7 and MM contracts that fit within USCENTCOM geographical constraints.
- Synchronize an FY13-14 retrograde/reset plan with strategic shipment partners (Army, USMC, etc.) in order to develop a sound transporta-

tion plan for returning retrograde equipment.

- Extend JOPES timeline for retrograde equipment while allowing realistic RDDs setting for equipment and cargo.
- Build requirement packages incrementally (i.e., 50 per day for one month, then 75 per day for the next month and finally to 100 a day) to synchronize the line haul capacity (see figure 3)
- Integration of TSPs MM sites with USCENTCOM mandated MM locations.
- Strategic equipment forecasting will allow better batching disposition instructions.
- Identify and designate strategic retrograde CONUS SPODs. Trans-ship retrograde equipment from CONUS port to final destination via the most cost efficient manner and in concert with industrial base reception capabilities.

- Synchronizing JOPES and the MM contract.

- Make cargo available 60 days before RLD.

- Incentivize the carrier to pick up and move cargo out of AFG by RLD +21 to the ILOC.

- Carrier performance measures that include making RLD (i.e., first date cargo is available for pickup), getting cargo out of AFG to the ILOC, meeting RDD, and providing the requisite ITV.

- Designating CONUS strategic ports as transship locations.

- Utilizing TWCF to cover port to door costs.

- Evaluate feasibility of “single ship” solution for retrograde operations.

- Address/create a contract for equipment consolidation requiring local transfer from carrier specific ports of call to designated staging areas.

V2RD Integrated Planning Team:

Colonel David Gaffney, Deputy Commander
Colonel Glenn Baca, Deputy Chief of Staff, G-3
Mr. William Patterson, Chief, Accounting & Systems Division
Ms. Marisa Bealor, Deputy Chief, Command Operations Center
Mr. Scott Wadyko, Chief, NORTHCOM Branch
Mr. Bobby Lyons, Chief, CENTCOM Branch
Mr. Brian Rivera, Chief, Global Business Development Division

Point of Contact for V2DR White Paper:

Ms. Marisa Bealor, Deputy Chief, Command Operations Center
Commercial: 618-220-5890
DSN: 770-5890
Email: usarmy.scott.sddc.mbx.hqcoc@mail.mil



Military Surface Deployment and Distribution Command

1 Soldier Way (Bldg. 1900W)
Scott Air Force Base IL 62225



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