

Reverse Logistics

Inventory optimization of USMC uniforms

by Capt Gregory Williams

Even though uniforms are expensive, they are a necessary cost because uniforms shape both the image and the mentality of Marines worldwide. As a result, the Marine Corps currently spends approximately \$45 million dollars annually issuing uniforms to enlisted Marines as they enter initial training. The current system employed by the Marine Corps, however, is inefficient and wasteful because it uses a common practice model to determine how many uniforms should be procured annually and has no model for reutilizing discarded uniform material. This mindset is often referred to as “purposeful obsolescence,”¹ the discarding of material prematurely before it is truly no longer functional. If the Marine Corps had a system in place in which previously owned uniforms were repurposed or reused, the move could potentially save millions of dollars each year.

I believe that the Marine Corps can recycle and repurpose these reclaimed

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uniforms, some of which are prematurely discarded, to determine if the proposed inventory optimization can be of benefit. This article will show that by

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consolidating resources from across the Operating Forces there can be substantial savings for the entire USMC. All

of this can be done with very minimal cost to the Marine Corps while at the same time giving substantial savings to the USMC's bottom line. The ultimate goal is to take these disposed uniforms and refurbish them to be re-issued to recruits at each of the three entry-level training commands located at MCRD Parris Island, MCRD San Diego, and MCB Quantico. The USMC needs to move to a more optimized inventory system of its uniforms simply because an electronic system would be more efficient with both money and inventory.

Although the Army's Office of Business Transformation, the Navy's Office of Naval Research, and the Air Force's Office of Scientific Research have not conducted any formal research, Capt Nathan Loomis conducted research by examining the optimization of uniforms within the USMC. His research found that the USMC can save \$1.3 million annually just at Marine Corps Recruit Depot (MCRD) Parris Island alone.² Even though his research was concerned with only the camouflage uniform and limited in scope to MCRD Parris Island, I believe that his findings could also be applied to the entire Marine Corps. Currently, these returned uniforms are either sold as scrap to a local textile disposal agency, or they are incinerated per the Secretary of Defense's published guidance.³

In addition, there are a few limitations regarding these findings. While MCCS tracks its annual sales of items within Quarter Sales, the same cannot be said for items disposed as textile



Some of these uniforms will be refurbished for re-issue. (Photo by Cpl Angelica Annastas.)

scrap. Marine Corps Community Services (MCCS) sales data electronically tracks only the number of items that are Condition Code A and Condition Code B because these items are serviceable without issue and thus require very little work in order for them to be resold.

disposed of as scrap is an extremely incomplete picture because of the lack of accurate digital records.

It should be noted that this article focuses on the number of uniforms as opposed to the size of the uniforms. This was done on purpose, and the reasons

is given back with the intent to use it elsewhere. (See Figure 3, page WE4.)

In order to obtain the necessary information, data was collected from multiple avenues in order to determine if the proposed method is viable. Through a series of information requests, phone calls, and emails, store managers and officers-in-charge (OIC) were contacted in order to obtain both their opinion and any data that their office had collected concerning USMC uniforms.

The first form of collected data was a spreadsheet that was provided by the OIC of Military Clothing, MCRD Parris Island. The spreadsheet data goes into detail and documents the quantity and cost of each uniform that is issued to a recruit. This data is further divided by gender as male uniforms are different from female uniforms. The data provided from this spreadsheet shows that a male recruit will be issued \$2,005.34 of uniform items upon entering recruit training. If the male Marine is separated, then of these items, only \$1,521.27 is required to be returned, regardless of the condition of the material. If any of the \$484 dollar difference is still within its original packing, then it must be returned as well. For females, the numbers are very similar. Females are issued \$1,937.74 of uniforms upon entering recruit training. If the female Marine is separated, then of these total issued items only \$1,469.48 is required to be returned, regardless of the condition. Also, like the male Marines, if any of the \$469 difference is still in its original packaging, then it must be returned as well.

After the uniform cost data was collected, a manpower information request (MIR) was sent to MMSB (Marine Manpower Separations Branch). This data provided the total number of separations from fiscal year 2011 to fiscal year 2015 (FY11–15); these numbers were then further broken down by gender, both male and female. Full results can be seen in Figure 1.

The third set of data needed for the article was that from Quarter Sales; it was the most easily acquired. (See Figure 1.) This sales data was tracked by every Quarter Sales section, but most of the data was not tracked prior to FY15.

Through a series of information requests, phone calls, and emails, store managers and officers-in-charge (OIC) were contacted in order to obtain both their opinion and any data that their office had collected concerning USMC uniforms.

However, the items disposed of as textile scrap are only tracked by total weight, a very inaccurate way to determine the number of uniforms that have been disposed. In fact, after speaking with individuals who work at the Personal Effects and Baggage Centers (PEBCs) and MCRDs, I discovered that the uniform items are only tracked through a hard copy DD-1348 form (transfer of custody receipt form) rather than by an electronic system. Thus, the data to determine the number of uniforms

are twofold. The first, and lesser, reason is that, because of the large quantities of uniforms that are ordered annually and then subsequently issued each year to approximately 30,000 recruits and candidates, the probability of all of these uniforms being issued is exceptionally high. The second, and more important, reason is that this article is primarily concerned with efficiency. Repurposing uniforms means greater efficiencies, and the only way to gain these efficiencies is to reutilize any uniform clothing that

Fiscal Year	Male Discharges	Male Dollars	Female Discharges	Female Dollars	Total Discharges	Total Dollar Amount
FY11	5,520	\$ 8,397,410.40	544	\$ 799,397.12	6064	\$ 9,196,807.52
FY12	4,969	\$ 7,559,190.63	490	\$ 720,045.20	5459	\$ 8,279,235.83
FY13	4,821	\$ 7,334,042.67	581	\$ 853,767.88	5402	\$ 8,187,810.55
FY14	4,317	\$ 6,567,322.59	611	\$ 897,852.28	4928	\$ 7,465,174.87
FY15	3,959	\$ 6,022,707.93	551	\$ 809,683.48	4510	\$ 6,832,391.41
		USMC Provides (MCRD PI): Facilities, Utilities		USMC Provides (MCRD SD): Material		
		Vendor Provides: Labor, Equipment, Material		Vendor Provides: Facilities, Utilities, Labor, Equipment		
Alteration Contract Amount		\$ 8,840,602.00		\$ 6,000,000.00		
Period of Performance (months)		54		42		
Alteration Contract Annually		\$ 1,964,578.22		\$ 1,714,285.71		
Projected Marines Annually		18,000		16,000		
Alteration Cost Per Marine		\$ 109.14		\$ 107.14		
Altered Uniforms per Marine		9		9		
Cost Per Uniform		\$ 12.13		\$ 11.90		
Discharges	FY15	4,510				
% Recoverable	50%	2,255				
Cost to Repurpose		\$ 246,117.99		\$ 241,607.14		
Total Savings Annually		\$ 3,170,077.71		\$ 3,174,588.56		
Returnable Uniform Items Total Cost - Men		\$ 1,521.27				
Returnable Uniform Items Total Cost - Women		\$ 1,469.48				

Figure 1.

		Quarter Sales	Textile Scrap Given
FY11	MCRD PI	No Data	No Data
	MCRD San Diego	No Data	No Data
	MCB Quantico	\$ 29,468.79	No Data
	PEBC Lejeune	\$ 197,168.00	No Data
	PEBC Pendleton	N/A*	No Data
FY12	MCRD PI	No Data	No Data
	MCRD San Diego	No Data	No Data
	MCB Quantico	\$ 25,634.20	No Data
	PEBC Lejeune	\$ 160,605.00	No Data
	PEBC Pendleton	N/A*	No Data
FY13	MCRD PI	\$ 74,540.64	
	MCRD San Diego	No Data	No Data
	MCB Quantico	\$ 31,573.77	No Data
	PEBC Lejeune	\$ 146,476.00	No Data
	PEBC Pendleton	N/A*	No Data
FY14	MCRD PI	\$ 88,481.08	
	MCRD San Diego	\$ 436,447.62	No Data
	MCB Quantico	\$ -	No Data
	PEBC Lejeune	\$ 97,229.00	No Data
	PEBC Pendleton	N/A*	No Data
FY15	MCRD PI	\$ 101,490.13	No Data
	MCRD San Diego	\$ 534,975.80	\$ 2,964,603.00
	MCB Quantico	\$ 55,383.63	\$ 111,047.23
	PEBC Lejeune	\$ 102,175.00	No Data
	PEBC Pendleton	N/A*	\$ 1,365,313.96
*All Condition Code A & B items go to MCRD San Diego			

Figure 2.

Specific sales figures can be seen in Figure 2.

The fourth area of data focused on uniforms disposed as textile scrap. This data was the most difficult to acquire because these numbers are tracked by weight rather than by individual item. Also, these items are tracked only by a hard copy DD-1348 form rather than electronically.

Nonetheless, MCRD San Diego, MCB Pendleton, and MCB Quantico were able to provide relatively accurate data on the number of items that are disposed as textile scrap. Again, it should be noted that this data is likely to be inaccurate because of the items not being tracked electronically or by quantity. These numbers can also be seen in Figure 2.

The final set of data came primarily from the DLA (Defense Logistics Agency) representative who provided the most detail concerning the current workflow of the Marine Corps uniform procurement process. In his responses, he stated that, when the USMC wishes to procure a new uniform item, DLA has the Service (in this case the USMC) initiate the gathering of sales data on this new item for 18 to 24 months. During this time, the Service will collect the data that DLA needs in order to source the material for that Service. Thus, this Service will begin collecting up to two years of order history data from at least three vendors that can source the item. It will also include the average monthly order rate and the projected safety stock level (usually 10 percent) for the new uniform item. Once this data is collected it will become an officially sourced item through DLA and be supported as such. Once it becomes an official item, it can be ordered through the USMC enterprise resource planning (ERP) system, GCSS-MC (Ground Combat Supply System-Marine Corps), or the DLA ordering system, Soldier-Master. The DLA representative further stated in his response that DLA is open to a more efficient inventory system, but since the uniform items are vendor managed inventory (e.g., managed by the USMC), then it must be a "USMC led initiative, not DLA."

The previously identified quantitative data shown for the repurposing of uniforms substantiates that as recently as FY15, a total of 4,510 Marines were discharged for reasons that were other than honorable. This demonstrates that as much as \$6,832,391.41 in uniforms were returned to the Marine Corps through the PEBCs or MCRDs. Previous fiscal years' data further supports this theory. In FY14, around 4,928 Marines were separated for conditions other than honorable—this led to approximately \$7,465,174.87 in uniforms being returned to the Marine Corps, either through the PEBCs and MCRDs. Similar data can be seen for FY11, FY12, and FY13. If this trend were to continue, then the projected total number of discharges that are not honorable (i.e., dishonorable discharge

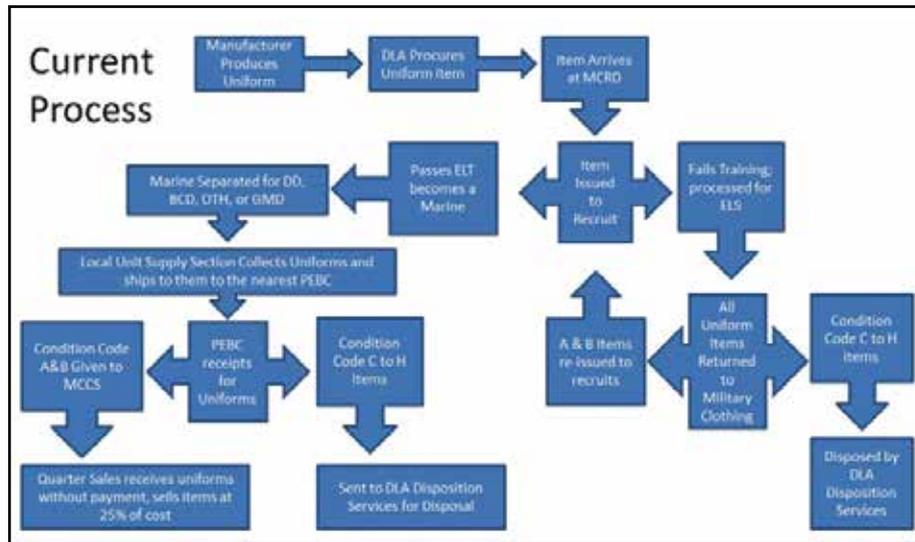


Figure 3. Current uniform inventory process.

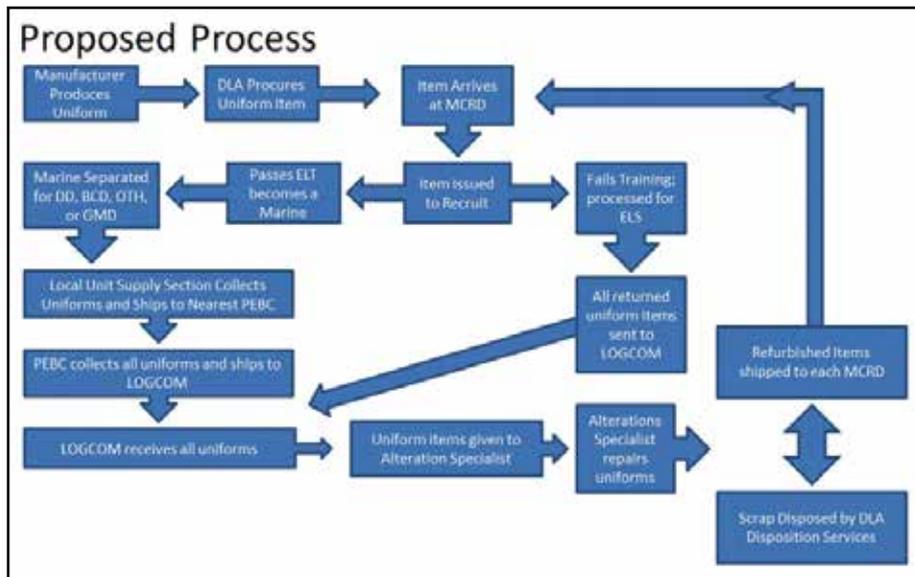


Figure 4. Proposed uniform inventory process.

[DD], bad conduct discharge [BCD], other than honorable [OTH], general with misconduct discharge [GMD], and entry-level separation [ELS]) would be approximately 4,100 Marines during FY16, or about \$6,000,000 of uniforms.

Concerning the results from Quarter Sales, this data gives a true representation of the amount of uniforms that the USMC can save with little effort. While this data is largely incomplete due to the data not being tracked reliably, it does indicate that the Marine Corps could save a large sum of money at an absolute

minimum. From this data, it suggests that at a minimum the USMC could have saved \$1,128,297.18 from uniform items that were Condition Code A or B—uniforms that are immediately serviceable upon return. It should also be noted that this dollar amount would not require an alteration specialists to repurpose these uniforms.

Concerning the results from the textile scrap, as noted in the qualitative section, these uniform items are largely disposed through DLA disposition services. These uniforms disposed as textile scrap are not tracked very accurately

by the USMC. The only current requirement is to track these items via a hardcopy DD-1348 (custody of change of receipt). As a result, these documents are not tracked by their quantities in any digital form where the data can be compiled and researched easily. It should be noted that this data is tracked solely by total weight. This lack of accurate, complete data is evident as there is no data beyond FY15 in this category from any MCB or MCRD. The tracking of this material should be considered in the future in order to implement a method that would more accurately follow this data electronically so that research can be further conducted on how many uniforms are disposed by quantity rather than by weight.

In summary, it is evident that the Marine Corp can reutilize its abundance of uniforms that are returned each fiscal year. Additionally, it should also be noted that store managers from MCCS in both MCB Pendleton and MCB Lejeune stated that in addition to the uniforms they receive from discharged Marines, they have also had many retiring Marines donate their uniforms.⁴ The cost to repurpose these uniforms, regardless of how they are obtained, would be minimal as an alteration specialist could repurpose these uniforms for a relatively low cost.

These findings suggest that the process for reutilizing or refurbishing uniforms can be vastly improved by slightly adjusting the current procedure slightly. A MARADMIN (Marine administrative message) could be published that would direct the following adjustments to the current process:

- 1) Logistics Command establishes a contract at MCB Albany that has the alteration specialists provide a building in order to repurpose the clothing off-site.
- 2) All personnel (Active, Active Reserve, and Reserve) Marines, recruits, or candidates that are separated from the Marine Corps under the characterization of BCD, DD, OTH, or GMD will be required to return their issued uniforms per *MCO P10120.28G, Individual Clothing Regulations*, (Washington, DC: HQMC, June 2005). This includes those who were given special



While this Marine may find needed uniform items in quarter sales or base thrift stores, the Marine Corps needs to do a better job of repurposing uniforms to save costs. (Photo by Cpl Jacqueline Rivera.)

uniform allowances for special duty assignments. If a Marine wishes to dispose or donate his uniforms, he can give the uniforms to his local battalion supply section who, in turn, will send the items to the nearest PEBC. Each box or crate will have an inventory list detailing the quantities inside.

3) Each PEBC or MCRD will not dispose of any uniforms, regardless of condition, but will instead send them via DMO (Distribution Management Office) to the contracted alteration specialist.

4) The alteration specialist will then sort through the clothing and will attempt to repurpose as many uniforms as possible. The alteration specialist will be allowed to wash, clean, and “cannibalize” uniforms in order to repair other uniforms for repurposing. Once a uniform item is repaired, it will be placed into one of two containers where an inventory of what is in each container will be kept. One container will go to MCRD Parris Island and the other to MCRD San Diego.

5) These repaired uniform items will be loaded into GCSS-MC and transferred to each respective MCRD within GCSS-MC. Once the container is full, it will be shipped to each respective location.

6) Each MCRD will sign the DD-1149 (shipping receipt form) for the container and load it into their perpetual inventory within GCSS-MC and treat the uniform items as a pre-expended bin. When the items are issued to a recruit, they will be removed from the pre-expended bin in accordance with *MCO 4400.150, Consumer-level Supply Policy*, (Washington, DC: HQMC, January 2014). (See Figure 4, page WE4.)

This proposed process change could benefit the Marine Corps greatly in three distinct areas. First, the newly implemented process would have saved the Marine Corps approximately \$6,832,391 if all uniforms from FY15 had been repurposed. Additionally, even if only 50 percent of the uniforms from FY15 had been repurposed, \$3,170,077 per year could still have been saved—a substantial dollar savings in either case. It should be noted that these dollar amounts, based upon FY15 data, account for the potential cost of \$246,117 for an alteration specialist to repurpose the returned uniforms. Second, this proposed process also increases quality control fivefold because it centralizes all inventories in one location. It also implements one standard for determining the uniform’s potential serviceabil-

ity after refurbishment instead of the five different standards based on each base’s local SOP. Finally, it optimizes the USMC’s current uniform needs from DLA by potentially reducing the number of procured uniforms, which, according to these findings can range, between 7 to 15 percent annually. Thus, by inputting uniform items into GCSS-MC, this process will allow the uniform items to be tracked individually and then disposed of properly with the correct national stock number, a current problem with the documents currently being submitted to DLA disposition services.

Based on the evidence provided, I believe that this process should be implemented within the Marine Corps. While \$3.5 million is not a large amount considering the USMC’s annual budget, what could be done with that saved money and reduced inventory can greatly benefit other areas of the Marine Corps. Every day, Marines are required “to do more with less” in the performance of their daily duties. It’s time we did this with military clothing so that that money can be better spent elsewhere.

>Author’s Note: This article a condensed version of a master’s thesis in industrial distribution submitted by the author at Texas A&M University.

Notes

1. P.M. Gregory, “A Theory of Purposeful Obsolescence,” *Southern Economic Journal*, (Chapel Hill, NC: University of North Carolina, 1947).
2. Nathan J. Loomis, “Threads to Shreds,” (thesis, Whitman School of Management, Syracuse University, 2015).
3. Jack Bell, “Disposition of US Military Combat Uniforms,” letter to Secretary of the Army, Secretary of the Navy, Secretary of the Air Force, Director, DLA, (Washington, DC: DOD, 1 October 2008).
4. Results from a questionnaire conducted to PGBC, MCSS, and military clothing.

