

# Buyers Could Unneeded Procurement



National Security and  
International Affairs Division

B-256632

June 2, 1994

General L. E. Salomon  
Commander, Army Materiel Command

Dear General Salomon:

We have completed our review of the termination of planned procurements at the Tank-Automotive Command (TACOM), one of the Army's national inventory control points. Our objective was to determine whether planned procurements were terminated as early as possible in the procurement process.

The Army's automated requirements determination system is the focal point for evaluating the status of an item's requirements and inventory position and making recommendations to the item manager. If requirements for an item exceed its inventory, the system will recommend that more items be procured or repaired. If inventory exceeds requirements, the system will recommend that items due in from contracts or from planned procurements be reduced or terminated.

In cases where the system recommends a termination or reduction to planned procurements, the recommendation is referred to as recommended commitment cutback.<sup>1</sup> When the requirements system recommends a termination or reduction in the commitment quantity, the item manager—who is responsible for ensuring that sufficient but not excessive inventory is maintained—is supposed to review and validate the item's requirements and determine whether other factors would affect the need for the planned procurement.

If the item manager agrees with the requirements system's recommended cutback, the manager is supposed to notify the procurement specialist, who is responsible for awarding the contract, and advise the specialist that the proposed procurement quantity should be terminated or reduced. However, if the item manager does not agree with the system's recommendation, no action is required. Likewise, before awarding contracts, procurement specialists are not required to check with the item manager to determine if factors have occurred that would affect the proposed procurement.

DTIC QUALITY INSPECTED 2

Accession For		
NTIS CRA&I	<input checked="" type="checkbox"/>	
DTIC TAB	<input type="checkbox"/>	
Unannounced	<input type="checkbox"/>	
Justification		
By _____		
Distribution / _____		
Availability Codes		
Dist	Avail and/or	Special
A-1		

<sup>1</sup>When the system recommends a reduction to items due in on a contract that has already been awarded, the recommended reduction is referred to as an obligation cutback.

The savings from terminating or reducing unneeded procurements are greatest when the procurement is in the commitment stage. At that stage, the major investment is the time invested in getting the contract ready to be awarded—administrative lead time. After the contract is awarded, other factors enter the picture, the most costly of which is the contractor termination costs. Depending on the elapsed time from contract award to the decision to terminate, contractor termination costs can approach the total cost of the contract. For that reason, it is imperative that unneeded procurements be terminated as early as possible in the procurement process.

---

## Results in Brief

Our review showed the following reasons why TACOM was missing opportunities to terminate or reduce planned procurements:

- Items managers and procurement specialists did not always confer before contracts were awarded. Without communication, procurement personnel may not be aware of new considerations that could affect the need for the procurement.
- Item managers, in deciding whether to implement the requirements system's recommended commitment termination or reduction, often changed the requirements data to bring the requirements and inventory into balance. In other instances, item managers relied on invalid, out of date, or unverified data for determining whether to implement the system's recommendation.

Our analysis of 31 sample items randomly selected from the universe of 136 items that were in long supply<sup>2</sup> and had items due in as of September 1993—the latest information available at the time we initiated our review—showed that procurements in the amount of \$781,796 could have been terminated, as shown in table 1.

---

<sup>2</sup>Items where the on hand and due-in asset position exceeds the operating and war reserve requirements.

**Table 1: Sample Items Reviewed and Procurements That Could Have Been Terminated**

	Items with commitment cutback recommendations	Items with obligation cutback recommendations <sup>a</sup>	Total
Sample items reviewed	16	15	31
Procurements that could have been terminated	6	4	10
Value of procurements that could have been terminated	\$511,535	\$270,261	\$781,796

<sup>a</sup>These items were included in the sample because there was a prior commitment cutback recommendation.

Procurements could be reduced as much as \$21.5 million, on an annual basis, if September 1993 was a representative month and if the recommended commitment cutbacks were made when they first appeared. This estimate was based only on those items with commitment cutback recommendations in September 1993. It does not include those cases where an obligation cutback recommendation in September 1993 was preceded by a commitment cutback in an earlier month. Appendix I shows more details about our estimate of annual savings.

## Item Managers and Procurement Personnel Need to Confer Before Awarding Procurement Contracts

Our review showed that if item managers and procurement personnel had conferred before procurement contracts were awarded, four procurements could have been reduced about \$232,300. The following briefly discusses each of these cases.

### Synopsis of Item—Gearshaft Spur (NSN 3040-01-076-4391)

Between the time the procurement work directive (PWD) was issued and the contract was awarded, requirements for this item decreased and the item was in long supply. However, the item manager did not inform the procurement specialist of this and the contract was awarded.

### Results of Analysis

The gearshaft spur is used in rebuilding M1 tank engines and modules. In March 1992, a PWD was issued for 167 items and a contract was awarded in

---

September 1992, with deliveries to begin in late 1994. Shortly after the contract award, an emergency buy for 171 additional items was approved in September 1992 and the contract was awarded on December 10, 1992, to a contractor who could begin deliveries in March or April 1993.

The reason for the emergency buy was that the first contract was awarded to a contractor who had not previously produced the item and therefore had to pass first article testing. Because they were almost out of stock and deliveries under the first contract would not begin until late 1994, the requirements determination system indicated there would be insufficient items to support the engine and module rebuild program. As a result, an emergency buy contract was awarded.

In March 1993, the requirements system recommended an obligation cutback due to a reduction in the rebuild programs for M1 engines and modules primarily because of force structure reductions and an excess of M1 engines and modules in the inventory system. Information about the reduced need first became available in November 1992 as a result of the requirement study on M1 tank engines and modules.

In view of the fact that information was available in November 1992—about 2 weeks before the emergency contract was awarded—that rebuild requirements had decreased and that there was about 5 years of stock due in, not counting the recommended cutback quantity, the emergency buy quantity could have been reduced. We estimate that the Army would need about 62 of the 171 items in the emergency buy contract to carry them through the end of fiscal year 1994. The emergency buy quantity could have been reduced by the remaining 109 items valued at \$28,932.

---

**Synopsis of Item—Axle Assembly  
(NSN 2530-01-258-7383)**

Communication between the item manager and the procurement specialist before the purchase order contract was awarded would have disclosed that there was about 2-1/2 years of stock on hand and due in and that awarding the contract would put the item in long supply.

**Results of Analysis**

On September 28, 1993, the requirements system recommended a commitment cutback of three items. However, the item manager neither reviewed the recommendation nor took action prior to the contract award. A purchase order was awarded on October 8, 1993, for eight items. This put the item into long supply by three items.

Had the procurement specialist and item manager conferred before the purchase order was awarded, they would have known that about 30 months of stock was on hand and the purchase order quantity could have been reduced by three items valued at \$3,339.

---

**Synopsis of  
Item—Pneumatic Tire  
(NSN 2610-00-204-4026)**

The lack of communication between the item manager and the procurement specialist resulted in a contract award that put the item in long supply. At the time of award, there was already 10 months of stock on hand and due in.

**Results of Analysis**

In May 1993, the requirements system recommended a commitment cutback for 1,612 items valued at \$179,577. However, no action was taken and a contract was awarded for 3,225 items on June 22, 1993. According to the current item manager, the reason no action was taken was that the item was in the process of being transferred from another item manager.

If the procurement specialist had conferred with the item manager before contract award, the item manager could have advised the specialist that procuring the total quantity would put the item into long supply.

---

**Synopsis of Item—Filter  
Separator  
(NSN 4930-01-154-9932)**

Communication between the item manager and procurement specialist before the contract was awarded would have disclosed that demands for the item had decreased to the point that a contract award would put the item into long supply.

**Results of Analysis**

In December 1992 and January and February 1993, the requirements system recommended commitment cutbacks for the item. The February cutback was for five items valued at \$20,441. No action was taken on the recommendations and a contract was awarded on February 25, 1993, for seven items. At the time of the contract award, the average monthly demand had decreased from 0.27 in September 1992 to 0.16 in February 1993. As a result, requirements for the item had also decreased.

Coordination between the item manager and procurement specialist prior to the February contract award would have shown that there was about 2 years of stock on hand and due in, excluding the recommended cutback quantity, and that the contract quantity could have been reduced by five items valued at \$20,441.

---

## **Requirements Data That Is Not Current or Correct or Has Been Arbitrarily Adjusted Is Used to Make Decisions Concerning Planned Procurements**

Our analysis of sample items identified six instances where the decision not to terminate or reduce planned procurements was based on incorrect data or the data had been arbitrarily adjusted. The planned procurements that could have been reduced or terminated totaled about \$549,500, as discussed below.

---

### **Synopsis of Item—Rotary Pump (NSN 4320-01-201-8032)**

The item manager increased the requirements data (overhaul requirements) for this item based on invalid information. That action brought the requirements and inventory data into balance and negated the need to reduce planned procurements.

### **Results of Analysis**

The requirements system recommended a commitment cutback of 68 items, valued at \$41,311, in March 1993. The item manager did not approve the cutback and a contract for 153 items was awarded on May 6, 1993. Instead, the item manager increased the overhaul requirements (programmed demands) to bring the requirements and inventory into balance. According to the item manager, the increased programmed demands were based on an alternative report<sup>3</sup> that showed higher projected usage than the requirements system.

In June 1993, about 2 months after the contract was awarded, the requirements system recommended an obligation cutback of items due in on contract. The item manager questioned the accuracy of the programmed demands data contained in the alternative report. The item manager recalculated the programmed demands based on information shown in the requirements system. This increased the recommended cutback to 83 items.

If the item manager had reconciled the disparity between the program demand information in the requirements system and the alternate report in March 1993, the contract quantity could have been reduced by the recommended commitment cutback quantity.

---

<sup>3</sup>Item managers normally use programmed demand information contained in the requirements determination and execution system.

---

**Synopsis of Item—Digital  
Control Unit  
(NSN 5999-01-331-1526)**

The item manager issued a PWD for this item based on a foreign military sale (FMS) even though there were sufficient assets in the supply system to meet the FMS requirement. The item manager believed that because of item warranty requirements, the FMS requirements could not be filled from inventory not specifically procured for that purpose. After we questioned this practice, TACOM took action to cancel the PWD valued at \$312,061.

**Results of Analysis**

A contract was awarded for 78 items in June 1993. In September 1993, a PWD was issued for an additional 19 items to satisfy an FMS requirement for Saudi Arabia. The PWD resulted in the requirements system recommending a commitment cutback for 11 items. According to material management officials, they are required to place a separate buy for an FMS in order to maintain a valid item warranty with the engine contractor. They said that because of this, they could not issue the FMS items from stock on hand or due in on other contracts. However, we found that the engine contract warranty clause did not apply to this particular case and that there was no limitation on filling FMS orders from inventory on hand or due in from other contracts. In February 1994, TACOM canceled the total PWD for 19 items, valued at \$312,061. The officials agreed that the warranty provisions did not apply and that the FMS contract could be supplied from on-hand and due-in inventory.

---

**Synopsis of Item—Control  
Modulator  
(NSN 5895-01-317-7620)**

Item management personnel made changes to the demand data for this item by disregarding the return of serviceable assets to the supply system. Doing so had the effect of causing the demand data to be inflated, and this, in turn, caused the requirements to be inflated but brought the requirements and inventory into balance and negated the need to reduce planned procurements.

**Results of Analysis**

In September 1993, the requirements system recommended a commitment cutback for 76 of the 84 items on PWD. The item manager said that a decision was made not to reduce the commitment because, if they did, the solicitation package would have to be redone based on the reduced quantity and that this would require additional time and resources. A procurement official told us, however, that a cutback could have been effected without disrupting the contract award and that the contractor would probably have accepted a reduction in the contract without increasing the unit cost.

The item manager's supervisor manually adjusted the requirements for the item in order to bring the requirements and inventory into balance. The



manual adjustment consisted of increasing item demands by eliminating serviceable returns from the requirements computation. Army regulations provide that serviceable returns should be offset against demands except where the returns are the result of a nonrepresentative situation. By not offsetting serviceable returns against demands, the demands are increased and the item requirements are likewise increased. This, in turn, justifies the need for additional inventory.

The rationale used by the item manager's supervisor for not considering serviceable returns was that it was assumed that the returns were items remaining from Operation Desert Storm and, therefore, were nonrepresentative returns. The supervisor did not validate the assumption and our review showed that the number of serviceable returns were consistent with the number of returns in prior years—15 serviceable returns during the most recent 12-month period versus 13 serviceable returns during the prior 12-month period. Another interesting fact is that in prior studies, serviceable returns were offset against demands.

The September commitment cutback recommendation, valued at \$115,815, could have been effected without disrupting supply availability because there was already 4 years of inventory on hand or due in, not counting the September 1993 recommended cutback quantity.

---

**Synopsis of  
Item—Cylinder Assembly  
(NSN 3040-00-076-8670)**

The item manager, in order to bring the requirements and inventory data into balance, increased the administrative lead time and other requirements. If the production lead-time requirements had been adjusted using the same approach as was used for the administrative lead-time requirements, the item manager would have found that the item was in long supply and that a planned procurement could have been reduced.

**Results of Analysis**

In September 1993, the requirements system recommended a commitment cutback of 302 items valued at \$20,004. The item manager did not approve the recommendation and instead manually adjusted requirements to bring the requirements into balance with the item's asset position. The item manager increased the administrative lead time from 3.8 months to 7.7 months based on data coded as representative in the requirements system. The item manager also excluded serviceable returns in the requirements computation and increased the procurement cycle requirements. The effect of these adjustments was that the requirements were increased by 247 items and the recommended cutback was no longer necessary.

Our review showed that the item manager applied inconsistent methodology when determining lead-time requirements. For example, while representative procurements were properly used in determining the administrative lead-time requirements, representative procurements were not used to adjust the production lead-time requirements. If representative procurements had been considered, the production lead time would have been reduced from 11.7 months to 4.4 months. The use of a consistent approach for determining production lead time would have put item in a cutback position by at least the amount recommended by the requirements system in September 1993. The item manager said that he had not evaluated production lead times in adjusting item requirements because he stopped after reaching the point where the requirements and inventory were in balance.

**Synopsis of  
Item—Windshield  
Assembly  
(NSN 2510-01-108-9122)**

The item manager increased the production lead-time requirements but did not follow the same approach for the administrative lead-time requirements because by only adjusting the production lead time, the item's requirements and inventory data were balanced and no reduction to the planned procurement was necessary.

**Results of Analysis**

In August 1993, the requirements system recommended a commitment cutback of 69 items. In September 1993, the recommended cutback was for 61 items out of a planned procurement of 383.

In both instances the item manager manually adjusted the requirements data to bring the item's requirements into balance with the asset position. For example, the item manager increased the production lead time by 1.5 months based on representative procurements. If the item manager had adjusted the administrative lead time based on representative procurements, the lead time would have been reduced by 0.6 months. The net effect of these adjustments would have meant that the item was still in a cutback position. Therefore, in our opinion, the September recommended commitment cutback should have been implemented and the proposed procurement reduced by 61 items—a total \$27,085.

**Synopsis of Item—Fitted  
Cover  
(NSN 2540-01-314-2786)**

The item manager concurred with the requirements system's recommendation that the planned procurement be reduced. However, the item manager's supervisor disapproved the recommendation because he said it was too much trouble to cutback the procurement. As a result, the item is in long supply.

---

## Results of Analysis

In September 1993, the requirements system recommended a commitment cutback of 409 items valued at \$33,231. The item manager approved the cutback, but the Acting Division Chief disapproved it on the basis that it was not worth the trouble to reduce the planned procurement because the item would be in long supply by only 1 month.

Army policy provides that only the quantity of items needed to meet the requirements objective should be procured unless a larger buy is economically beneficial to the government. In this particular case, buying more than the requirements objective would not be economically beneficial to the government because of the additional carrying costs for storing unneeded inventory. Additionally, because the proposed buy was in the early stages of the procurement process, the investment in administrative lead time was minimal.

In our opinion, the September 1993 commitment cutback recommendation for 409 items should have been executed and the proposed procurement reduced by \$33,231.

---

## Recommendations

To help TACOM ensure that commitments are being reduced appropriately, we recommend that you issue policy guidance and instructions that require the following:

- Before awarding a contract, procurement personnel check with item management personnel to ensure that the current requirements and inventory data are correct and that factors have not changed that would obviate the need for the contract.
- Inventory management officials ensure that their item managers do not arbitrarily change the requirements data to bring the requirements and inventory positions into balance and thereby avoid having to terminate or reduce a proposed procurement.

---

## Agency Comments

The Department of Defense (DOD) generally concurred with the report findings and recommendations. The DOD said that its Materiel Management Regulation 4140.1-R issued in January 1993 requires that the requirements review process identify items for which requirements have been reduced prior to submission of a purchase request as well as during all phases of the solicitation and award process. Particular emphasis is to be placed on reducing or canceling purchase requests prior to contract award. Full

implementation of these requirements into Army guidance will occur by October 1994.

DOD also advised that the Commander, Army Materiel Command, will issue guidance to Army Inventory Control Points by June 30, 1994, that arbitrary adjustment of requirements in order to avoid termination or reduction of a proposed procurement is prohibited. DOD's comments are shown in appendix II.

---

## Scope and Methodology

Our review focused on only those items with commitment cutbacks because the DOD Inspector General issued a report in 1993 on efforts to terminate or reduce procurement quantities when there was a recommended obligation cutback. Furthermore, the model that the Army uses in determining the economic feasibility of terminating or reducing procurement quantities is under study by the DOD Joint Logistics Study group.

Using TACOM's list of items recommended commitment or obligation cutbacks as of September 1993, we selected a statistical random sample of items to determine whether the recommended cutbacks were implemented and, if not, why not. The total universe was comprised of 136 items with recommended cutbacks valued at \$86.4 million. From this universe, we selected 31 items with recommended cutbacks of \$7.6 million. Of the 31 items, 16 had commitment cutback recommendations and 15 had obligation cutback recommendations in September 1993. The 15 items also had prior commitment cutback recommendation.

Our detailed review of the sample items included review of the requirements data, review of the item manager files for the selected items, and discussions with item management personnel to determine the reasons for the actions taken or not taken.

Based on the results of our detailed item review, we projected the results to the universe of items. For those items with a recommended commitment cutback in September 1993, we estimated the annual savings that could be achieved if actions had been taken to terminate or reduce the proposed procurements as represented by the commitment cutback recommendations (see app. I).

---

We performed our review between July 1993 and February 1994 in accordance with generally accepted government auditing standards.

---

We are sending copies of this report to the Chairmen, House and Senate Committees on Armed Services and on Appropriations, House Committee on Government Operations, and Senate Committee on Governmental Affairs; the Secretaries of Defense and the Army; and the Director of the Office of Management and Budget. We will also make copies available to others upon request.

Please contact me at (202) 512-5140 if you or your staff have any questions concerning this report. Major contributors to this report are listed in appendix III.

Sincerely yours,



Mark E. Gebicke  
Director  
Military Operations and Capabilities Issues



---

# Contents

---

Letter	1
Appendix I Projected Procurement Savings Resulting From More Effective Review of Planned Procurements	16
Appendix II Comments From the Department of Defense	17
Appendix III Major Contributors to This Report	20
Table	3

---

Table 1: Sample Items Reviewed and Procurements That Could Have Been Terminated

---

## Abbreviations

DOD	Department of Defense
FMS	foreign military sales
PWD	procurement work directive
TACOM	Tank-Automotive Command





# Projected Procurement Savings Resulting From More Effective Review of Planned Procurements

Sample Item	Our recommended cutback	Our recommendation for items with commitment cutback recommendation in September 1993
Digital control unit	\$312,061	\$312,061
Control modulator	115,815	115,815
Pump rotary <sup>a</sup>	41,311	0
Gearshaft spur <sup>a</sup>	28,932	0
Axle assembly	3,339	3,339
Pneumatic tire <sup>a</sup>	179,577	0
Cylinder assembly	20,004	20,004
Windshield assembly	27,085	27,085
Fitted cover	33,231	33,231
Filter separator <sup>a</sup>	20,441	0
<b>Total</b>	<b>\$781,796</b>	<b>\$511,535</b>

<sup>a</sup>Item had an obligation cutback recommendation in September 1993. An earlier cutback should have been made based on a previous commitment cutback recommendation.

## Universe of items

Total items with obligation/commitment cutback recommendations as of September 1993	136
Items with obligation cutback recommendations	80
Items with commitment cutback recommendations	56

## Sample Items

Sample items with commitment cutback recommendations	16
Sample items where we believe commitment cutbacks should have been effected	6
Commitment cutbacks that should have been made based on our review	\$511,535
Number of items in universe where commitment cutbacks should have been effected (6 divided by 16 times 56)	21
Value of items in universe where commitment cutback should have been effected for September 1993	\$1,800,000
Annual value of commitment cutbacks that should be effected (\$1,790,372 times 12)	\$21,500,000

# Comments From the Department of Defense



ACQUISITION AND  
TECHNOLOGY

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON  
WASHINGTON DC 20301-3000

13 MAY 1994



(L/MRM)

Mr. Frank C. Conahan  
Assistant Comptroller General  
National Security and International  
Affairs Division  
U.S. General Accounting Office  
Washington, D.C. 20548

Dear Mr. Conahan:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, "ARMY INVENTORY: More Effective Review of Proposed Inventory Buys Could Reduce Unneeded Procurements," dated March 24, 1994 (GAO Code 703024), OSD Case 9632. The Department concurs with the draft report.

The Army and the Army Tank-Automotive Command have made significant progress in reducing procurements of unneeded items over the last several years. Specifically, the Army Materiel Command has established mandatory review levels for cases where recommended reductions are not accepted. In addition, automated cutbacks of commitments will be implemented beginning in September 1994. The Army Tank-Automotive Command reduced the portion of due-ins above the required levels from 12 percent at the end of FY 1992 to 5 percent at the end of FY 1993. The DoD will continue to emphasize reductions in purchase requests prior to contract award as the most effective method of ensuring that unneeded items are not purchased.


To further improve overall procedural compliance, by October 1994, the Army will fully incorporate into Army guidance the provisions contained in DoD Materiel Management Regulation 4140.1-R. That regulation requires that items for which requirements have been reduced be identified prior to the submission of purchase requests as well as during all phases of the solicitation and award process. Particular emphasis is to be placed on reducing or cancelling purchase requests prior to contract award in order to avoid potential liability for termination costs. In addition, the Army will issue a reminder to inventory offices that arbitrary adjustment of requirements to avoid termination or reduction of a proposed procurement is prohibited.



**Appendix II**  
**Comments From the Department of Defense**

The detailed DoD comments on the report recommendations are provided in the enclosure. The DoD appreciates the opportunity to comment on the draft report.

Sincerely,

  
James R. Klugh  
Deputy Under Secretary  
of Defense (Logistics)

**Enclosure**

Page 2

GAO DRAFT REPORT--DATED MARCH 24, 1994  
(GAO CODE 703024) OSD CASE 9632

"ARMY INVENTORY: MORE EFFECTIVE REVIEW OF PROPOSED  
INVENTORY BUYS COULD REDUCE UNNEEDED PROCUREMENTS"

DEPARTMENT OF DEFENSE COMMENTS ON  
THE GAO RECOMMENDATIONS

\* \* \* \* \*

- **RECOMMENDATION 1:** The GAO recommended the Commander, Army Materiel Command, issue policy guidance and instructions requiring procurement personnel to check with item management personnel before awarding a contract--to ensure current requirements and inventory data are correct and factors have not changed that would obviate the need for the contract. (p. 14/GAO Draft Report)

Now on p. 10.

**DOD RESPONSE:** Concur. The DoD Materiel Management Regulation (DoD 4140.1-R), issued in January 1993, requires that the requirements review process identify items for which requirements have been reduced prior to the submission of a purchase request, as well as during all phases of the solicitation and award process. Particular emphasis is to be placed on reducing or cancelling purchase requests prior to contract award in order to avoid potential liability for termination costs. Full implementation of those requirements into applicable Army guidance will occur by October 1994.

- **RECOMMENDATION 2:** The GAO recommended that the Commander, Army Materiel Command, issue policy guidance and instructions requiring inventory management officials to ensure item managers do not arbitrarily change the requirements data to bring the requirements and inventory position into balance--thereby avoiding having to terminate or reduce a proposed procurement. (p. 14/GAO Draft Report)

Now on p. 10.

**DOD RESPONSE:** Concur. The Commander, Army Materiel Command, will issue a reminder to Army Inventory Control Points by June 30, 1994, that arbitrary adjustment of requirements in order to avoid termination or reduction of a proposed procurement is prohibited.

Enclosure

---

# Major Contributors to This Report

---

**National Security and  
International Affairs  
Division, Washington,  
D.C.**

**Robert J. Lane**

---

**Detroit Regional  
Office**

**Gilbert W. Kruper  
Michael J. Jones**