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INTEROFFICE MEMORANDUM

MEMORANDUM INTERIEUR

OFFICE OF INTERNAL OVERSIGHT SERVICES · BUREAU DES SERVICES DE CONTRÔLE INTERNE  
INTERNAL AUDIT DIVISION · DIVISION DE L'AUDIT INTERNE

TO: Mr. Nicolas Von Ruben,  
A: Director of Mission Support,  
United Nations Mission in Sudan (Sudan)

DATE: 25 August 2011

REFERENCE: IAD: 11- 00 534

FROM: Fatoumata Ndiaye, Director  
DE: Internal Audit Division, OIOS

*Fatoumata*

SUBJECT: **Assignment No. AP 2011/632/01 – Audit of fuel management in UNMIS**

OBJET:

**Overall results relating to regulatory framework were satisfactory**

1. Attached please find the report and audit results on the above-mentioned audit.
2. We wish to express our appreciation to the Management and staff of UNMIS for the assistance and cooperation extended to the auditors during this assignment.

cc: Ms. AnneMarie van den Berg, Chief Integrated Support Services, UNMIS  
Mr. Stephen Farrell, Chief Supply Officer, UNMIS  
Mr. Theodore Akueson-Gannyi, Chief Fuel Unit, UNMIS  
Mr. Ebenezer Aryee, Chief Contract Management Unit, UNMIS  
Ms. Amy Wong, Programme Officer, Internal Audit Division, OIOS

# AUDIT REPORT

## Audit of fuel management in UNMIS

### BACKGROUND

The United Nations Mission in Sudan (UNMIS) operates in North and South Sudan mainly in remote and challenging locations providing logistical support including fuel (i.e. Jet A-1, aviation turbine fuel, diesel fuel, oils and lubricants) to its operations which are undertaken by 9,855 peacekeeping troops, 708 civilian police/military observers and 4,090 civilian staff. The Mission fuel consuming equipment included 41 aircraft, 4,244 vehicles, 1,002 generators, and 9 naval patrol boats. UNMIS' monthly fuel requirement averages 2.48 million litres of diesel and 2.76 million litres of Jet A-1 aviation turbine fuel. The Mission also maintains local and strategic reserves.

Fuel supplied to UNMIS is provided through a turnkey contract. The contract, which has been extended until February 2012, has a Not-to-Exceed amount of \$362.75 million. The Contractor is required to source fuel from non-domestic suppliers and manage the complete fuel supply chain including importation of duty-free, as well as its distribution to UNMIS operations throughout Sudan. They are also responsible for establishing, operating and maintaining fuel storage facilities, local and strategic fuel reserves, dispensing fuel to end-users, and accounting for fuel transactions. The Contractor maintains ownership of operating stock of fuel up to and until the fuel is dispensed into United Nations-authorized equipment or authorized container. The UNMIS Fuel Unit is responsible for monitoring the services of the Contractor, ensuring there is an uninterrupted supply of fuel and monitoring end-users consumption. The Fuel Unit is headed by an officer at P-4 level, has 35 staff and is supported by the 36 Bangladesh Petroleum Platoon.

### OBJECTIVE AND SCOPE

The audit was conducted to assess the adequacy and effectiveness of UNMIS' risk management, control and governance processes in providing reasonable assurance regarding UNMIS' management of the performance of its fuel contractor and in distributing and accounting for fuel. The key control tested for the audit included that related to regulatory framework. The audit covered UNMIS' activities related to the key control for the period 1 July 2009 to 31 March 2011.

### AUDIT RESULTS

In OIOS' opinion, UNMIS' risk management, control and governance processes examined were **satisfactory** to provide reasonable assurance regarding the performance of the fuel Contractor and in distributing and accounting of fuel. Opportunities for improvement existed in the following areas.

#### Monitoring the performance of the Contractor

UNMIS regularly assessed the services of the Contractor, and communicated the results through monthly meetings and quarterly performance evaluations. The monthly meetings were attended by staff of the Fuel Unit and the Contractor. Issues raised by UNMIS were generally addressed by the Contractor to the satisfaction of the Fuel Unit. OIOS' physical inspection of fuel facilities in El Obeid, Juba, Kadugli, Malakal and Wau between February and March 2011 and a review of fuel inventory levels of local and strategic fuel reserves for the six sectors showed that the Contractor was providing an uninterrupted supply of fuel to the Mission for its operations.

### **Efficiency fuel monitoring tool**

The Fuel Unit developed a tool to monitor and control fuel consumed by its 1,002 generators. However, without seeking guidance from the Engineering Section, the Fuel Unit set the load capacity of all generators in the tool at 70 per cent, even though the capacities and performance standards of each generator differ. A more realistic average load capacity is 50 per cent. Therefore the use of the higher 70 per cent load factor meant that the expected fuel consumed per hour was about 77 litres against the actual average of about 60 litres for 50 per cent load capacity. Consequently, the tool was ineffective in identifying any misuse or theft of fuel. *The Fuel Unit has corrected this and is using location and/or generator specific load factors as a basis for fuel consumption monitoring instead of the generic 70 per cent load factor.*

### **Data provided by the Contractor**

The Contractor provided UNMIS with data on fuel consumption. OIOS test checks identified incorrect entries, for example: (a) for generators, a review of the Contractor's database showed 118 incorrect data entries recording generators running for 30 hour per days, and a number of other unrealistic consumption rates; and (b) for vehicles, from a sample of 2,684 records, 170 entries showed 500 to 11,334 kilometers per vehicle before refueling, which was unrealistically high while 437 entries reported consumption per vehicle well below the expected level per 100 kilometers per vehicle. As the Contractor reports were not independently verified for accuracy by the Fuel Unit, there had been no follow-up on the anomalies noted by OIOS. *Management stated that fuel officers will check the accuracy of the Contractor data but due to its volume this is laborious, and prone to error. Nonetheless, the development and implementation of a new Electronic Fuel Management System, which is due to be released by DFS by the end of December 2011, should improve fuel monitoring.*

### **Accounting for fuel provided in bulk**

Three team sites, Julud, Taludi and Yei, received fuel in bulk from the Contractor. UNMIS was responsible for issuing fuel and managing the inventory. While the fuel officers at these locations accounted for the fuel received and consumed, they did not adequately record the issuance of fuel. As a result, there was an unmitigated risk that theft or abuse of fuel would not be detected and/or prevented. *Management stated that the Fuel Unit will extend individual equipment fuel consumption monitoring to these locations. Also, this will be better managed once the Electronic Fuel Management System is introduced.*

### **ACKNOWLEDGEMENT**

OIOS wishes to express its appreciation to the Management and staff of UNMIS for the assistance and cooperation extended to the auditors during this assignment.

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## AUDIT RESULTS

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### I. INTRODUCTION

1. The Office of Internal Oversight Services (OIOS) conducted an audit of fuel management in United Nations Mission in Sudan (UNMIS).
2. UNMIS' comments are incorporated in the audit results in *italics*.

### II. AUDIT OBJECTIVE

3. This audit was conducted to determine the adequacy and effectiveness of UNMIS' risk management, control and governance processes in providing reasonable assurance regarding UNMIS' management of the performance of its fuel contractor and in distributing and accounting for fuel. The key control tested for the audit included that related to regulatory framework. For the purpose of the audit, OIOS defined the control of regulatory framework as those policies and procedures that are in place to manage the activities of the fuel contractor and the Mission's distribution and accounting for fuel.

### III. AUDIT SCOPE AND METHODOLOGY

4. OIOS conducted this audit from January 2011 to March 2011 in accordance with the International Standards for the Professional Practice of Internal Auditing promulgated by The Institute of Internal Auditors. The audit covered the period from 1 July 2009 to 31 March 2011. The audit did not cover oils and lubricants as they comprised only one per cent of the total budget for petrol, oil and lubricants.
5. To gain a general understanding of fuel management processes at UNMIS, OIOS reviewed the Department of Peacekeeping/Department of Field Services (DPKO/DFS) Fuel Operational Manual, UNMIS' standard operating procedures (SOPs), and other relevant documents and records. OIOS interviewed key personnel of the Fuel Unit responsible fuel management and the Contractor's performance, staff of the Engineering Section and Transport Section responsible for fuel consumption by generators and vehicles respectively, as well as fuel officers located at El Obeid, Juba, Kadugli, Khartoum, Malakal and Wau. The audit team conducted an activity-level risk assessment to identify and evaluate specific risk exposures, and to confirm the relevance of the selected key control in mitigating the associated risks.
6. Through interviews, analytical reviews and tests of controls, OIOS assessed the existence and adequacy of written policies and procedures, and also whether they were implemented consistently.

### IV. OVERALL ASSESSMENT

7. In OIOS' opinion, UNMIS' risk management, control and governance processes examined were **satisfactory** to provide reasonable assurance regarding the performance of the fuel contractors and the distribution and accounting of fuel. UNMIS had not properly re-calibrated its fuel efficiency monitoring tool to ensure reliable results and mitigate the risk of loss of fuel through misuse or theft. Also, UNMIS did not independently verify data provided by the Contractor on fuel consumption.

## V. AUDIT RESULTS

### A. Regulatory framework

There were adequate procedures for monitoring the performance of the Contractor

8. UNMIS regularly assessed the services of the Contractor, and communicated the results through monthly meetings and quarterly performance evaluations. The performance reports from 1 January 2010 to 31 December 2010 showed that Management met with the Contractor regularly to address operational issues such as environmental protection, security arrangements, equipment maintenance and staffing at fuel farms to ensure uninterrupted supply of fuel. The meetings were attended by staff of the Fuel Unit and the Contractor. It was also documented that the Contractor remedied issues highlighted in the monthly/quarterly performance reports to the satisfaction of the Fuel Unit. Moreover, OIOS' physical inspection of fuel facilities managed by the Contractor in El Obeid, Juba, Kadugli, Malakal and Wau between February and March 2011 and the fuel inventory analysis of the minimum quantities of fuel held of local and strategic fuel reserves for all the six sectors for the period of the audit showed that the Contractor provided uninterrupted fuel supply to the Mission.

The tool for monitoring efficiency of fuel usage was ineffective

9. UNMIS had 1,002 generators operating at various locations in the Mission. The Fuel Unit developed a tool for monitoring the efficiency of fuel consumed by these generators with a view to detecting theft and misuse of fuel. However, without seeking advice and input from the Engineering Section, the tool was calibrated at a load capacity limit of 70 per cent for all generators, even though the capacities and performance standards of each generator differed. The 70 per cent load capacity limit was unreasonable and too high as:

- The Engineering Section informed OIOS that the required maximum load for most generators used in the Mission should be set and operated within a load capacity of 50 per cent.
- OIOS' analyses of the data for actual consumption for the month of December 2010 showed that the generators in the Mission performed at an average of 48 per cent load capacity.

10. Setting a high load capacity meant that misuse or theft of fuel could go undetected, making the tool ineffective in monitoring the efficiency of fuel consumed. For example, set at a maximum load of 50 per cent per hour, a 500kva generator is expected to consume 60 litres of diesel per hour against 76.8 litres when the load capacity limit is established at 70 per cent.

11. **OIOS suggested to UNMIS to set appropriate generator-specific standard load limits, based on the Engineering Sections assessment, to allow reliable monitoring of fuel efficiency and to better identify loss of fuel through misuse or theft.** *UNMIS agreed and stated that the Fuel Unit has corrected the load capacity and is using location and/or generator specific load factors as a basis for fuel consumption monitoring instead of the generic 70 per cent load factor.*

Inadequate data for analyzing fuel consumption

12. Section 12.4 of the contract provides for the Contractor to prepare and present to UNMIS, on a daily basis, electronic reports containing the data collected from all distribution points in the course of its daily operations. Based on the data provided by the Contractor, UNMIS is expected to analyze it to

## AUDIT RESULTS

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identify cases of over-consumption for proper follow-up. This is a useful tool to assist the Mission to ensure the efficient and proper use of fuel. UNMIS was required to verify the reliability and the accuracy of the Contractor's data before using it.

13. The Fuel Unit relied on the Contractor's data without verifying their accuracy and reliability. OIOS check of the Contractor's December 2010 database showed that there were 118 incorrect data entries that showed generators running for more than 30 hours per day, although there are only 24 hours in a day. The lack of data integrity was carried over into the December 2010 consumption report where OIOS identified 547 instances of unrealistic consumption of fuel for the various classes of generators.

14. In the case of vehicles, from a sample of 2,684 cases registered in the fuel consumption monitoring reports generated from the Contractor's database, there were 607 discrepancies, representing 23 per cent of the sample selected, as follows:

- There were 170 instances reported that vehicles covered 500 to 11,334 kilometers before refueling. This is not realistic.
- There were 437 instances reported where the consumption per vehicle was below the expected level per 100 kilometers. For example, for a Nissan Patrol and a Toyota Prado, the expected fuel consumption per 100 kilometers are 15.7 litres and 12.7 litres respectively whereas the actual fuel consumption per 100 kilometers in the report were 1.28 litres and 1.11 litres respectively.

15. The exceptions occurred due to incorrect recording of data such as the hours/kilometer readings for generators/vehicles in the UNMIS monitoring tool and the lack of internal checks of the Contractor's data by the regional fuel officers.

16. **OIOS suggested that UNMIS ensure that the Fuel Unit conducts quality checks of data received from the Contractor to facilitate follow-up and investigation of unusual or unrealistic consumption rates, if necessary.** *UNMIS agreed and stated that fuel officers will check the accuracy of the Contractor data but due to the volume this is laborious, and prone to error. Nonetheless, the development and implementation of a new Electronic Fuel Management System (ERMS), which is due to be released by DFS by the end of December 2011, should enable improved monitoring.*

### Follow-up on exception reports could be improved

17. In addition to the fuel efficiency tool, the Fuel Unit had developed fuel consumption criteria for each type and capacity of vehicle, generator and other fuel consuming equipment. The SOPs on the monitoring of fuel consumed by vehicles and generators requires that sector fuel officers evaluate the reasonableness of any consumption exceptions and obtain justification. If justification is not provided, the fuel officers have a responsibility to report to the Chief Integrated Support Services through the Chief Fuel Unit (CFU), to ensure the relevant units explain the exceptions.

18. OIOS reviewed 347 over-consumption incidence reports and noted that 262 representing 75 per cent were explained. Of the remaining 85 cases representing 25 per cent, there was no evidence of follow-up. This was mainly attributed to inadequate guidance and supervision of regional fuel officers by the CFU to prompt them and to ensure that all exceptions were satisfactorily documented. The CFU stated that idling vehicles was one of the major causes of excessive fuel consumption and the CFU intended to enhance his monitoring and supervision over regional fuel officers to ensure that all exceptions are promptly and adequately resolved. Moreover, OIOS noted that the Office of Mission Support issued Administrative Instruction on 19 April 2011 stating that any driver found to have left a vehicle idling for

over thirty minutes or driver found sleeping in the vehicle with the engine running and air-conditioner on, will be referred to the Conduct and Discipline Unit for review.

### Aircraft fuel consumption monitoring could be improved

19. UNMIS did not have a monitoring module for Jet A-1 fuel and aircraft consumption or other mechanism to monitor and reconcile fuel received and issued. The United Nations Board of Auditors in its Management Letter on UNMIS' operations for 2009/10 had commented on this control weakness. However, a system had not yet been put in place.

20. Since the Mission had not implemented the fuel consumption monitoring module in respect of Jet A-1 fuel, OIOS examined and reconciled the available manual records. The amount of Jet A-1 fuel issued to the Aviation Unit between 1 July 2010 and 28 February 2011 did not agree with the records obtained from the Fuel Unit. For example, the Fuel Unit records showed that it dispensed 16,033,741 litres of Jet A-1 into UNMIS aircraft. The Aviation Unit recorded receipt of 16,380,810 litres; a difference of 347,069 litres. However, on follow-up, OIOS was informed that the difference related to fuel received from the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO) in Entebbe for UNMIS aircraft. Records of the additional fuel received from MONUSCO were not maintained.

**21. OIOS suggested that UNMIS ensure that the Aviation Unit maintain separate records of fuel obtained from other sources and provide the related information to the Fuel Unit for monitoring purposes.** *UNMIS stated that the Aviation Section-Technical Compliance Unit will keep a separate record of fuel collected off-shore and, analyze and report to the Fuel Unit the monthly average of hourly fuel consumption of each aircraft for review, evaluation and follow-up on over-consumption cases, if necessary.*

### Accounting for fuel provided in bulk could be enhanced

22. Three team sites, namely, Julud, Taludi and Yei, received fuel in bulk from the Contractor. UNMIS staff at these locations was responsible for issuing fuel and managing the inventory. While the fuel officers at these locations accounted for bulk fuel received and consumed of 43,000 litres diesel per month (for 73 vehicles and 20 generators) and 86,000 litres of Jet A-1 per month, they did not record the issuance of the fuel in the consumption module. As a result, there is an unmitigated risk that any theft or abuse of fuel is not detected and/or prevented.

**23. OIOS advised UNMIS to improve its monitoring over bulk fuel issued to authorized equipment at locations managed by the Mission.** *UNMIS stated that the Fuel Unit will extend individual equipment fuel consumption monitoring to all its locations where fuel is supplied in fuel. This will have to be done manually, pending implementation of EFMS.*

### There were differences in the quantities declared as imported against quantities received by UNMIS

24. Section 32.3 (Import documentation) provides that within seven days prior to any shipment at Port Sudan or at the Sudan-Kenya border, the Contractor shall provide UNMIS with an original and two copies of the bill of lading covering the maximum potential volume of the shipment and a proforma invoice for the shipment. Upon arrival of any shipment at Port Sudan or the border, the Contractor shall deliver to UNMIS an original of the master or other final bill of lading covering the shipment, an original

## AUDIT RESULTS

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quality certification for the shipment, and such other documents as may be necessary for the shipment to clear customs or reasonably required by UNMIS.

25. From a sample of documents, OIOS verified the accuracy of quantities declared in import documents and checked them against tax exemption documents (F1) and noted that the quantities declared by the Contractor were less than the quantities actually imported into the country. Eight batches out of the batches reviewed, representing 17 per cent of imports through Port Sudan and Kenya, showed excesses in quantities received into the Country. For instance, of the 5,822,274 litres of diesel and 6,924,215 litres of Jet A-1 declared at Port Sudan, the Mission was invoiced for 6,224,600 litres of diesel and 7,348,263 litres of Jet A-1; a discrepancy valued at \$1.12 million. The Contractor and the Fuel Unit did not provide any evidence of supplementary duty exemption for the excess imports. While OIOS was satisfied through its test checks that the Contractor correctly invoiced UNMIS for the fuel supplied, there was an insufficient system to track fuel imported by the Contractor for UNMIS. This allowed the Contractor to declare less fuel than it actually imported. The Mission should have established procedures to track and monitor the excess duty-free fuel imported by the Contractor. However, as the Mission is going into liquidation, no recommendation is made.

### Invoices were properly verified prior to payment

25. The contract provides that within 10 days of the end of a calendar month, the Contractor shall provide UNMIS with a summary of invoices for fuel delivered during the previous month. The summary should show the quantity of fuel delivered, the shipment to which the delivered fuel relates, and the price applicable to each batch of the delivered fuel. The Finance Section used these documents when processing payments for fuel delivered by the Contractor. In particular, the Mission was expected to verify that each batch of fuel invoiced is matched with the relevant import batches and supporting documents including fuel issue vouchers for accuracy, review the invoices to establish that they reflect the batches of fuel delivered by the Contractor, and verify that the price for each batch invoiced matches the platt index.

26. OIOS examined a sample of 20 out of 324 invoice summaries and did not identify any anomalies. The invoices paid by the Mission related to the actual batches of fuel delivered by the Contractor, the prices paid were consistent with the prices in the relevant platt indices, and the Mission paid all invoices within the period specified in the contract and took advantage of the early payment discount.

## AUDIT RESULTS

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