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**FOLLOW UP REPORT ON THE VALUE FOR MONEY AUDIT ON REGULATION AND MONITORING
OF DRILLING WASTE IN THE ALBERTINE GRABEN BY
THE NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)**

A REPORT BY THE AUDITOR GENERAL

DECEMBER, 2018

T H E R E P U B L I C O F U G A N D A



Follow up Report on the Value For Money Audit on Regulation
and Monitoring of Drilling Waste in the Albertine Graben by the
National Environment Management Authority (NEMA)

A Report by the Auditor General

December, 2018

AUDITOR GENERAL'S MESSAGE

24th December 2018

The Rt. Hon. Speaker of Parliament
Parliament of Uganda
Kampala.

FOLLOW UP REPORT ON THE VALUE FOR MONEY AUDIT ON REGULATION AND MONITORING OF DRILLING WASTE IN THE ALBERTINE GRABEN BY NATIONAL ENVIRONMENTAL MANAGEMENT AUTHORITY (NEMA)

In accordance with Article 163(3) of the Constitution, I hereby submit my Follow up Report on the Value for Money Audit on Regulation and Monitoring of Drilling Waste in the Albertine Graben by the National Environmental Management Authority (NEMA).

My office intends to carry out a follow-up at an appropriate time regarding actions taken in relation to the recommendations in this report.

I would like to thank my staff who undertook this audit as well as the staff of the National Environmental Management Authority (NEMA) and the Petroleum Authority of Uganda (PAU) for the assistance offered to my staff during the period of the audit.



John F.S. Muwanga
AUDITOR GENERAL

TABLE OF CONTENTS

LIST OF TABLES.....	5
LIST OF FIGURES.....	5
ABBREVIATIONS.....	6
1. CHAPTER ONE: INTRODUCTION	7
2. CHAPTER TWO: METHODOLOGY OF THE FOLLOW UP	8
3. CHAPTER THREE: SUMMARY OF AUDITOR GENERAL'S FINDINGS AND RECOMMENDATIONS OF PREVIOUS AUDIT REPORT AND ACTIONS TAKEN BY NEMA	9
3.1 Adequacy of Waste Management Regulations and Guidelines.....	9
3.2 Monitoring and Compliance Enforcement.....	12
3.3 Environmental and Economic Effects of the Current Waste Management Practices.....	14
4. CHAPTER ONE: FOLLOW-UP RECOMMENDATIONS	18
APPENDIX I: DOCUMENTS REVIEWED.....	19
APPENDIX II: PERSONS INTERVIEWED.....	20
APPENDIX III: STATUS OF IMPLEMENTATION OF OAG RECOMMENDATIONS.....	21

LIST OF TABLES

Table 1: Sections relevant to drilling waste management under the draft legislation.....11

Table 2: Action taken by NEMA on recommendatons relating to Monitoring and Compliance Enforcement.....12

Table 3: Action taken on drilling waste and status of restoration of WCAs.....15

Table 4: Quantities of solid and liquid waste at the time of the 2014 audit vs. amounts disposed of at the time of follow up.....17

LIST OF FIGURES

Figure 1: Summarised status of implementation of audit recommendations.....9

Figure 2: Field observations at different (former) WCAs.....15

ABBREVIATIONS

CNOOC	China National Offshore Oil Corporation
DEO	District Environment Officer
E&P	Exploration and Production
MEMD	Ministry of Energy and Mineral Development
NEMA	National Environment Management Authority
PAU	Petroleum Authority of Uganda
TEP	Total E&P Uganda
TUOP	Tullow Uganda Operations Pty Limited
WCA	Waste Consolidation Area

CHAPTER ONE

INTRODUCTION

Since the discovery of commercially viable quantities of oil in the Albertine Graben by the Government of Uganda in 2006, several companies have been licensed to undertake exploration activities in the area. Recognising the acute eco-sensitivity of the Graben, and the effects of the exploration activities, the government through the National Environment Management Authority (NEMA) undertook to ensure that the environmental impacts of the oil and gas activities were minimised.

In 2014, the Office of the Auditor General (OAG) undertook an Environment Audit on Regulation and Monitoring of Drilling Waste Management in the Albertine Graben by NEMA and a report was submitted to Parliament. The audit sought to ascertain how drilling waste was handled in the exploration phase between 2006 and 2014, since the volumes produced would only shoot up as activity entered the development and production phases.

The audit identified gaps in the regulation and monitoring of drilling waste in the Albertine Graben by NEMA. For instance, there were inadequate Waste Management Regulations and Guidelines and as a result NEMA had directed all IOCs to hold the waste in waste consolidation areas (WCAs), creating a double environmental impact in handling of waste, and costing the nation UGX 26.623 billion in recoverable expenditure. Site visits to some WCAs also revealed that the waste was accessible to animals and exposed to erosion or run-off.

The 2014 audit also found that IOCs did not prepare and submit self-monitoring reports to NEMA within the required time frame. Furthermore, while NEMA and Lead Agencies made efforts to monitor and enforce compliance to proper waste management practices in the Albertine Graben, performance gaps were identified in this area. Finally, NEMA did not independently verify laboratory results submitted by the IOCs.

The 2014 audit report attracted coverage in major national and regional news outlets including Daily Monitor, The Observer, The East African and Nation television at the time of its publication.

Since then, however, there has been more activity within the Graben: Tullow, Total and CNOOC are expected to make their final investment decision in 2019, after which development and production will commence; exploration blocks have been issued to new licensees and construction of the refinery is set to begin. These developments present the prospect that much more waste will be generated in the near future.

The Auditor General deemed it necessary to carry out a follow up despite the fact that the 2014 report had not yet been discussed by Parliament such that when this report is discussed, a more up to date status of drilling waste management is presented bearing in mind the developments in the oil and gas sector as mentioned above. In addition, this follow up sought to:

- a) establish the extent to which NEMA had implemented the recommendations in the 2014 VFM report mentioned above;
- b) assess whether or not there had been improvements in management of drilling waste in the Albertine Graben; and
- c) assess whether any new recommendations are needed to ensure adequate management of drilling waste in light of the recent developments mentioned above.

CHAPTER TWO

METHODOLOGY OF THE FOLLOW UP

The audit was conducted in accordance with the International Organization of Supreme Audit Institutions (INTOSAI) Performance Auditing Standards and the Value for Money Auditing guidelines prescribed in the Office of the Auditor General (OAG) VFM audit manual. The standards require that the audit be planned in a manner which ensures that an audit of high quality is carried out in an economic, efficient and effective way and in a timely manner.

NEMA was requested by the Auditor General to provide the audit team with a written update on the actions taken by NEMA in response to the findings and recommendations of the 2014 VFM audit report on Regulation and Monitoring of Drilling Waste in the Albertine Graben, accompanied by supporting evidence. In order to verify the responses, the audit team used the following data collection methods:

Document review

All documents availed as evidence to support the actions taken by management on the audit findings and recommendations were reviewed. A list of documents reviewed is attached in Appendix I.

Inspections

These were carried out in order to corroborate the reported actions in NEMA's responses and reports- specifically to ascertain whether the waste had been moved from the waste consolidation areas (WCAs), whether the reported approved waste treatment and disposal sites were in place, as well as to observe the status of restoration. The sites visited included former WCAs at Kisinja, Ngara, Bugungu, Tangi and Kanara, located in the districts of Hoima, Buliisa, Ntoroko, and Nwoya. Visits were also made to the sites where the drilling waste was disposed of, namely EnviroServ, White Nile Consults Limited (WNCL) and Luwero Industries Limited (LIL).

Interviews

The team conducted interviews with various officials involved in management of drilling waste to understand better the adequacy of current practices/ interventions in management of this waste, as well as to obtain clarifications and explanations for the observed status from field inspections and document review.

A list of persons interviewed is attached in Appendix II.

CHAPTER THREE

SUMMARY OF AUDITOR GENERAL'S FINDINGS AND RECOMMENDATIONS OF PREVIOUS AUDIT REPORT AND ACTIONS TAKEN BY NEMA

The audit team noted that the 2014 audit had had an impact on management of drilling waste in the Albertine Graben with both NEMA and the oil companies making significant efforts to address the major audit issues. Out of the 10 recommendations made in the Auditor General's report of 2014, 6 were fully implemented and 4 were partially implemented as illustrated in Figure 1 below. For details, refer to Appendix III.

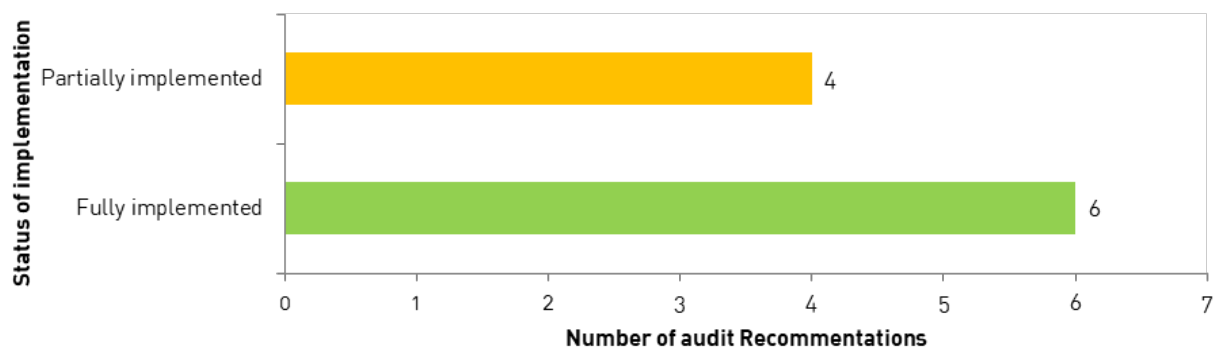


Figure 1: Summarised status of implementation of audit recommendations

Source: OAG analysis of NEMA responses

The above status notwithstanding, it is important to note that the key recommendations of the 2014 audit, namely putting in place adequate legislation for management of drilling waste, and ensuring the waste held in Waste Consolidation Areas (WCAs) is treated and disposed of were fully implemented.

The progress of implementation for each recommendation is further discussed in Sections 3.1-3.3 below:

3.1 Adequacy of Waste Management Regulations and Guidelines

The Auditor General had established that the existing legislation was inadequate to cater for the regulation and monitoring of oil and gas/ drilling waste. The legislative review process that NEMA had begun five years earlier (in FY 2008/09) was yet to deliver any tangible output by the time of audit (March 2014). The guidelines that NEMA had issued to guide oil companies on the most appropriate waste disposal methods for drilling waste were silent about the transportation, storage and/or treatment of this waste. The guidelines also did not address management of liquid waste and slop oil from generation to disposal. The weaknesses in the guidelines were attributed to inadequate consultation by NEMA with stakeholders during their formulation.

It was recommended that:

- a) NEMA should prioritize and expedite completion of the review of Uganda's legislation to incorporate oil and gas issues to promote better management of drilling waste.
- b) NEMA should consider adding review of the Operational Waste Management Guidelines for oil and gas operations to the on-going legislative review.
- c) In future, NEMA should involve stakeholders in formulation of any policies, legislation or guidelines, and seek their input.

Remedial action reported by NEMA Management

The legislative review by NEMA has been undertaken and is in final stages, including review of the National Environment Act (NEA) by supporting the drafting of the National Environment Bill 2017, as well as the concurrent review of attendant regulations under the NEA. The drafting process was comprehensively consultative and it engaged technical experts from Ministries, Departments and Agencies (MDAs) and regional multi-stakeholder consultative workshops in Mbale, Masaka, Hoima and Gulu.

The National Environment Bill secured approval by Cabinet and a certificate of financial implications, after which it was presented for first reading in Parliament in December 2017, and is currently under review by the Natural Resources Committee of Parliament before consideration by the House of Parliament for the second reading. Similarly, gazettelement and implementation of the revised regulations awaits the enactment of the bill into law. However, administrative measures are already under implementation in line with some of the revised regulations such as Environmental Audit regulations and petroleum waste regulations.

Audit comment on Follow up

a) Adequacy of Waste Management Regulations and Guidelines

The follow up established that NEMA had indeed made progress in updating existing legislation to incorporate oil and gas issues, and had addressed the gaps in the Operational Waste Management Guidelines for oil and gas operations identified by the previous audit.

Table 1 indicates the sections relevant to drilling waste management under the draft legislation at the time of the follow-up:

Table 1: Sections relevant to drilling waste management under the draft legislation

S/N	NAME OF LEGISLATION	RELEVANT SECTION (S)
1	The National Environment Bill, 2017:	Section 53(1), 88(4), 92, 104(1) and 149.
2	Draft National Environment (Standards for Discharge of Effluent into Water or on Land) Regulations	Schedule 3 and 4
3	Draft National Environment (Waste Management) Regulations	Regulation 48 and Schedule 5
4	Draft National Environment (Oil Spill Prevention, Control and Management) Regulations, 2014	Entire document. These regulations are subsidiary legislation to the Petroleum (EDP) Act, 2013, and were approved by the NEMA Board as required by law. They are specific to management of petroleum waste. They indicate the types of petroleum waste (the different waste streams), their sources and environmentally significant constituents (Schedule 1); guide on how to handle, store, transport, treat and dispose of petroleum waste, both liquid and solid; and specify permissible waste disposal methods.
5	Two Draft National Environment regulations on ESIA and Audit respectively.	Entire document. These regulations guide on required actions for oil spill prevention, preparedness and response in various contexts.
6	Draft National Environment (Air Quality) Regulations	These have been updated and are considered by the audit team to be adequate for evaluation of oil and gas sector impacts.
7	National Petroleum Waste Regulations	The updated regulations do not adequately incorporate oil and gas issues. Section 23 speaks generally on the burning of oils. Also, emphasis is placed on nitrogen oxides and little on other greenhouse gases such as carbon monoxide and methane which are key air pollutants from the sector.
8	Draft National Environment (Noise and Vibrations) (Standards and Control) Regulations	Sub-regulation (h) indicates oil and gas operations, but there is no procedure or legislation developed in this section.

Source: OAG Review of draft legislation from NEMA.

The audit team noted that the National Environment Bill was passed by Parliament on 14th November, 2018, and was awaiting the President's assent at the time of audit.

b) Consultation with stakeholders

The audit team noted that during the review of the legislation, NEMA consulted extensively with various stakeholders in updating the legislation. Stakeholders from over 35 entities including Government Agencies, Oil Companies, Professional Environment Bodies, Civil Society Organisations (CSOs), Non-Governmental Organisation (NGOs), donors and other consultants were engaged during 4 technical review workshops for the legislation.

3.2 Monitoring and Compliance Enforcement

Table 2 shows the Audit Findings and Recommendations in the 2014 Auditor General's report, remedial action taken by NEMA, and audit comments on follow up:

Table 2: Action taken by NEMA on recommendations relating to Monitoring and Compliance Enforcement

S/N	Audit Report of 2014		NEMA Response on action taken to address Recommendation	Audit Comment on Follow-Up
	Audit Finding	Audit Recommendation		
1	Oil exploration and production companies did not prepare and submit self-monitoring reports against set parameters as per requirement.	NEMA should ensure that the Oil E&P companies carry out Self-Monitoring and submit reports to it as required and, where necessary, use available sanctions in the Law to compel their compliance.	Self-monitoring reports are submitted regularly to NEMA by the oil companies and reviewed. NEMA staff also conducts field inspection visits to assess compliance by the waste generators and transporters with the requirement to record quantities and quality of waste on the waste manifests.	From the time of the audit to the follow-up (Q2 2014 – Q2 2018), 17 reports were expected from each of the IOCs. The following were submitted: <ul style="list-style-type: none">• CNOOC- 17 (100%)• TUOP - 17 (100%)• TEP- 17 (100%)

2	Only 18.75% of the expected multi-stakeholder inspections required in the Albertine Graben were conducted.	NEMA should prioritize the multi-sectoral inspections in order to ensure that the knowledge from the various experts in specialized fields of ecosystem management is harnessed.	<p>These have been undertaken regularly involving the relevant agencies. The inspections are coordinated by NEMA and dependent on availability of funding.</p> <p>Currently, with the waste cleared from the waste consolidation areas, the level of risk from contamination is low and therefore the monitoring requirement is low.</p> <p>An Environmental Compliance Checklist was also developed by a multi-stakeholder team between July 2015 and January 2016.</p>	<p>The audit team agrees with NEMA that currently, the monitoring requirement is low at the former WCAs since there is no waste there.</p> <p>It was noted that the inspections were conducted periodically, and reports were available for July 2014, March 2015, June 2015, September 2016, April 2017, October 2017, and July 2018.</p> <p>However, periodic monitoring of environmental aspects and leachate samples from the final waste disposal sites is necessary.</p>
3	NEMA's two Environmental Monitoring Officers for oil and gas could not adequately monitor activities on the ground to the expectation of NEMA.	NEMA should expedite its proposal of permanently having its Environment Monitoring staff stationed in the Albertine Graben in order to keep pace with activities of oil and gas.	There has been an increased number of monitoring reports and NEMA has posted staff to the regional office in Masindi. They conduct routine monitoring in the Albertine Graben.	The audit team confirmed that 4 staff were posted to the Masindi office. In addition, 4 staff were located at headquarters specifically dedicated to oil and gas.
4	District Environment Officers (DEOs) were not conducting inspections in the Graben due to inadequate funding.	Government should consider introducing conditional grants for the District Environment Officers to facilitate environmental monitoring. In addition, MoFPED should consider approving/ financing the recommendation by NEMA's Institutional Review Report to employ more environmental monitoring officers (oil and gas) and establish regional offices for better environmental monitoring, especially in the oil and gas sector.	NEMA has and will continue to work with Local Governments to ensure that budgetary provisions for environmental management are scaled up. However, the best options would be to introduce conditional grants for the District Environment Offices, or NEMA to establish regional offices.	<p>Government is yet to address the issue of low funding for environmental monitoring by districts.</p> <p>Regarding support to NEMA to employ more staff dedicated to oil and gas, this has been done as reported above</p>

5	NEMA was not carrying out independent tests or verification of laboratory results reported in the self-monitoring reports submitted by the oil companies.	NEMA should consider carrying out routine verification of test results from the self-monitoring reports submitted by the licensed entities operating in the Graben.	Carrying out laboratory tests requires huge investment in a specialized laboratory and currently NEMA's financial resources cannot permit it. However, with support from USAID, NEMA received some equipment for monitoring basic parameters for air and water quality. NEMA is currently working on designation of reference environmental laboratories and analysts in the country to conduct reliable independent analysis, and submit reports to NEMA.	Evidence of equipment received from USAID was seen, but no evidence was provided to show progress in designation of laboratories. Once the designated laboratories are in place, NEMA should, at random intervals, collect samples from the IOC's work areas and test them at the designated reference laboratories to verify self-monitoring test results submitted by the IOCs.
6	NEMA did not report and share inspection results with the IOCs.	NEMA should routinely report key findings to companies after inspections. This will improve NEMA's capability to track compliance to set standards by oil companies.	Compliance assistance/information is given to the IOCs as part of de-brief meetings undertaken after inspections of specific facilities, and letters to the companies.	The IOCs attested that NEMA gave them feedback through post-inspection de-brief meetings. However, neither NEMA nor the IOCs provided evidence of this (either in form of de-brief meeting minutes or letters).

3.3 Environmental and Economic Effects of the Current Waste Management Practices

As a result of absence of adequate legislation and infrastructure to enable proper treatment of drilling waste, a decision was taken by government to hold it in Waste Consolidation Areas. Between 2010 and 2013, about UGX 26 billion had been spent on waste management by Tullow and Total E&P (CNOOC did not avail its figures).

Holding waste in Waste Consolidation Areas (WCAs) resulted in greater exposure of the Graben to potential environmental risks, as was observed where a bird was drinking water from a liquid waste pit in Ngara, and solid waste in Bugungu was over-heaped and poorly covered in the pits, increasing likelihood of erosion. It also led to a double environmental impact on the ecosystems in the Albertine Graben, and double cost in terms of time, labour and money since the waste would have to be moved again when treatment options were agreed upon.

At the time of audit, NEMA stated that it had so far licensed four waste treatment firms (namely EnviroServ Uganda Ltd, SLL Uganda Ltd, Mc Allister and White Nile) to treat and dispose of the drilling waste, but none of the companies had set up a treatment plant at the time. The Oil companies expressed concern that in the absence of specific guidelines from NEMA or adequate waste treatment plants in the country, disposal would remain a challenge.

It was recommended that

- NEMA should expedite the review of environmental legislation to incorporate management of waste from drilling activities.
- NEMA should as far as possible engage the Oil companies to address their concerns and enable treatment and disposal of waste by the licensed companies.

Remedial action reported by NEMA Management

New environmental laws on waste management have been drafted and all legacy waste has been treated and disposed of by licensed waste handlers authorized by NEMA. IOCs were instructed to contract licensed companies to treat/dispose of the waste and licenses to IOCs for waste storage were not renewed.

Audit comment on Follow-Up

Through document review, interviews and site inspections, the Audit team confirmed that all drilling waste had been moved by NEMA-approved waste transportation firms from the Waste Consolidation Areas to NEMA approved hazardous waste treatment and disposal sites, as summarised in Table 3 below:

Table 3: Action taken on drilling waste and status of restoration of WCAs

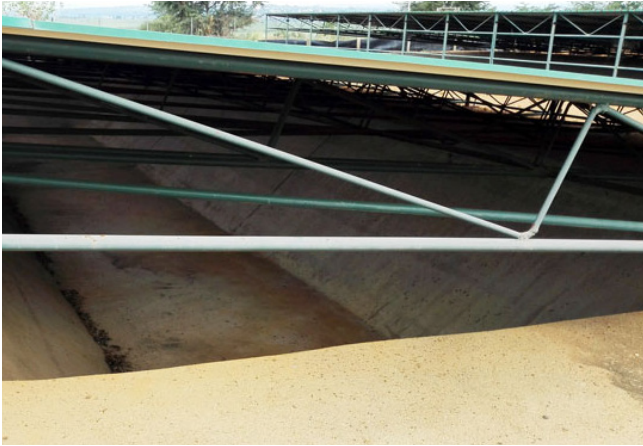
WCA	Operator	Waste removed and treated	Waste Transportation Firm	Destination (Landfill)	Site status
Tangi	TEP	Yes	Epsilon (U) Ltd.	Enviroserv	Not restored. Pits still in place.
Bugungu	TEP	Yes	Epsilon (U) Ltd.	Enviroserv	Partial restoration- Pits removed and levelled; now a materials yard. The area was not re-planted with indigenous plant species as required.
Ngara	TUOP	Yes	Bemuga Forwarders Ltd.	Luwero Industries Ltd.	Restored
Kisinja	TUOP	Yes	Global Networks Limited	White Nile Consults Ltd.	Restored
Kanara	CNOOC	Yes	Epsilon (U) Ltd.	Enviroserv	Restored

Source: OAG analysis of documents reviewed, interview responses and field observations.

The table above shows that whereas the sites operated by TUOP and CNOOC had been restored after removal of waste, those operated by TEP had not been fully restored. PAU had granted TEP permission to convert Bugungu and Tangi into temporary lay-down areas, but no evidence was provided for permission to retain the pits in Tangi as was observed during field visits.

Also, while re-colonisation of Kisinja and Ngara by native species was quite advanced, colonisation of Kanara by what appeared to be invasive species was observed. However, NEMA explained that these were primary colonisers which would be phased out by the more dominant species with time. Details of physical observation of the different sites are captured in the pictorial below (Figure 2):

Figure 2: Field observations at different (former) WCAs



Tangi: Waste pit still in place.
(OAG Photo taken on 18th June, 2018)



Bugungu WCA converted to materials yard.
(OAG Photo taken on 18th June, 2018)



Ngara: Waste pits removed, area levelled, restoration and re-colonisation on-going.
(OAG Photo taken on 18th June, 2018)



Kisinja: Waste pits removed, area levelled, restoration and re-colonisation on-going.
(OAG Photo taken on 20th June, 2018)



Kanara: Waste pits removed, area levelled, colonisation by primary colonisers observed.
(OAG Photos taken on 21st June, 2018)



Analysis of quantities of solid and liquid waste

Table 4 below compares the quantities of solid and liquid waste reported by the 2014 audit on drilling waste, as well as the quantities reported as treated and disposed of by the waste disposal firms at the time of follow-up.

Table 4: Quantities of solid and liquid waste at the time of the 2014 audit vs. amounts disposed of at the time of follow up

Company	Solid Drilling Waste (Tonnes)			Destination (Landfill)		
	Generated as at 2014	Disposed of at the time of follow-up	Difference**	Generated as at 2014	Disposed of at the time of follow-up	Difference
TUOP	29,565	44,480	14,915	7,579	4,231	(3,348)
TEP	10,060	23,351.72	13,292	648	2,800	2,152
CNOOC	Not availed	5,546.44	*Not computed	Not availed	2,075	*Not computed

Source: Records from waste treatment and disposal firms

* Not computed since data of waste generated was not availed at the time of the audit in 2014.

From the table above, it can be noticed that the amount of solid drilling waste disposed of by TUOP and TEP was higher than the quantities reported at the time of the 2014 audit on drilling waste. This is because: 1) more activity was undertaken after the audit, and 2) the final waste totals include rubble/decommissioning waste accumulated from removal of waste pits.

Worth noting is the quantity of liquid drilling waste generated by TUOP at the time of audit (2014: 7,579 m³) compared to only 4,231 m³ that was reportedly disposed of. This leaves a deficit of 3,348 m³ unaccounted for. It would be expected that the liquid waste at the time of disposal would be higher than in 2014 based on the fact that the quantity of solid drilling waste increased significantly in the intervening period, indicating that drilling took place, an activity that would necessarily have resulted in production of liquid waste.

Neither NEMA nor the Petroleum Authority of Uganda (PAU) detected or satisfactorily explained the reduction in liquid waste because they did not independently collect or analyse records of quantities of waste held by the IOCs in the WCAs before or after 2014. Possible reasons for the anomaly include inaccurate record-keeping by TUOP, evaporation, leakage of the waste pits or dumping of some liquid waste. Leakage and dumping would have potentially serious impacts on the environment.

PAU and NEMA ruled out leakage and dumping, and insisted that evaporation could explain the decline. However, no reasons were given to explain the absence of a similar reduction in TEP's liquid waste given that it was stored in similar weather conditions.

CHAPTER FOUR

FOLLOW-UP RECOMMENDATIONS

- a) NEMA should update and complete the Air Quality and the Noise and Vibrations Regulations to make them more comprehensive and binding on the oil companies.
- b) The Minister of Environment should ensure that the subsidiary environmental legislation is approved as soon as possible once H.E. the President assents to the revised National Environment Act, in order to empower NEMA and the relevant Lead Agencies to adequately regulate waste management in the oil and gas sector.
- c) NEMA and PAU should investigate the cause of the discrepancy between the amount of liquid waste stored by Tullow Uganda Operations Pty at the time of the 2014 audit, and the actual amount disposed of.
- d) In future, in cases where untreated liquid waste may be held, NEMA and PAU should periodically obtain accurate records of the quantities and analyse them to spot any anomalies and address them expeditiously.
- e) NEMA should ensure that the waste disposed of is monitored at stipulated intervals by the regulated community (IOCs/ Waste disposal firms) and NEMA staff.

APPENDICES

APPENDIX I: DOCUMENTS REVIEWED

S/N	Documents Reviewed	Reason for Review
1	<p>Draft NEMA Legislation, viz:</p> <ul style="list-style-type: none"> • The National Environment Bill, 2017: • Draft National Environment (Standards for Discharge of Effluent into Water or on Land) Regulations • Draft National Environment (Waste Management) Regulations • Draft National Petroleum Waste Regulations • Draft National Environment (Oil Spill Prevention, Control and Management) Regulations, 2014 • Two Draft National Environment regulations on ESIA and Audit respectively. • Draft National Environment (Air Quality) Regulations • Draft National Environment (Noise and Vibrations)(Standards and Control) Regulations 	To assess the adequacy of revised legislation for management of drilling waste.
2	18 Stakeholder consultation reports / written comments regarding legislative review	To establish the extent to which NEMA consulted with and captured stakeholders' views while updating drilling waste legislation.
3	Bi-annual self-monitoring reports from White Nile Consults Ltd. and Enviroserv (U) Ltd. pertaining to the period when the drilling waste was handled	To establish amount of waste disposed of and any issues/incidents noted during monitoring.
4	Files containing waste transfer notes relating drilling waste transported.	To establish the chain of custody for the waste transported.
5	Quarterly self-monitoring reports from CNOOC, TUOP and TEP.	To establish amount of waste disposed of and any issues/incidents noted during monitoring.
6	Final contract completion reports for waste transportation, treatment and disposal contracts signed by IOCs with the waste-handling firms.	To establish the quantities and types of waste transported, treated and disposed of.
7	Well-monitoring reports for the different waste consolidation areas from 2014 to June, 2018.	To establish whether any pollution or leakage of waste was noted at the WCAs during the said period.
8	Multi-stakeholder inspection reports	To confirm whether these inspections were conducted as required.

APPENDIX II: PERSONS INTERVIEWED

S/N	Interviewee(s)	Purpose of the Interviews
1	Tullow Uganda Operations Pty: - Stanley Kiganda, Field Operations Supervisor, TUOP	<ul style="list-style-type: none"> - To understand actions taken to ensure drilling waste was properly transported, treated and disposed of, and sites restored as required. - Obtain information on quantity of waste disposed of.
2	CNOOC - Andrew Otuba, Senior Field Environment Officer	
3	Total E&P (U) Ltd: - Ghad Mugiri, HSE Lead; - Kenneth Tumwebaze, EBFO; - Ivan Kijjoga, RSES; - OnziruZakia, HSE.	
4	WNCL: - Mukisa Henry, Executive Director; - Malimu Yosia, Procurement Lead; - Baale Isma, Senior Technical Officer; - Gimei Martin, Administrator.	<ul style="list-style-type: none"> - Obtain information on quantity of waste disposed of and methods of transportation, treatment and disposal.
5	Enviroserv: - Joel Ogarubo, Landfill Manager; - Albert Kyaligonza, Safety, Health Environment and Quality (SHEQ) Officer.	
6	Luwero Industries Limited: - Capt. George Musisi - Tumanyane Joseph Mary - Mariam Kantinti - Atuhwera Enock Howell - Buluma John - George Ogwang	

APPENDIX III: STATUS OF IMPLEMENTATION OF OAG RECOMMENDATIONS

S/N	Audit Report of 2014		NEMA Response on action taken to address Recommendation	Audit Comment on Follow-Up	Status of Implementation
	Audit Finding	Audit Recommendation			
Adequacy of Waste Management Regulations and Guidelines					
1	NEMA is three (3) years late in coming up with revised legislation that would encompass the oil and gas issues considering that a review that had started in 2008/09 and was supposed to end by 2010/11 had not delivered any tangible outputs by the time of audit (March 2014).	NEMA should prioritize and expedite completion of the review of Uganda’s legislation to incorporate oil and gas issues to promote better management of drilling waste.	The legislative review by NEMA has been undertaken and is in final stages, including review of the National Environment Act (NEA) by supporting the drafting of the National Environment Bill 2017, as well as the concurrent review of attendant regulations under the NEA. The drafting process was comprehensively consultative and it engaged technical experts from Ministries, Departments and Agencies (MDAs), and regional multi-stakeholder consultative workshops in Mbale, Masaka, Hoima and Gulu.	NEMA had made progress in updating existing legislation to incorporate oil and gas issues. The National Environment Bill was passed by Parliament and awaits the President’s assent. After that, the subsidiary legislation will be approved by the Minister for Environment.	Fully implemented to the extent within NEMA’s control/ mandate
2	The current operational waste management guidelines for oil and gas operations issued by NEMA do not spell out how drilling waste currently generated in the Albertine Graben should be transported, stored, treated and disposed.	NEMA should consider adding review of the Operational Waste Management Guidelines for oil and gas operations to the on-going legislative review.	The National Environment Bill secured approval by Cabinet and a certificate of financial implications, after which it was presented for first reading in Parliament in December 2017, and is currently under review by the Natural Resources Committee of Parliament before consideration by the House of Parliament for the second reading. Similarly, gazettment and implementation of the revised regulations awaits the enactment of the bill into law. However, administrative measures are already under implementation in line with some of the revised regulations such as Environmental Audit regulations and petroleum waste regulations.	The review had addressed the gaps in the Operational Waste Management Guidelines for oil and gas operations identified by the previous audit.	Fully implemented
3	The relevant stakeholders were not consulted while formulating the Operational Guidelines on Waste Management for oil and gas in the Albertine Graben issued in 2012	In future, NEMA should involve stakeholders in formulation of any policies, legislation or guidelines, and seek their input.		NEMA consulted extensively with various stakeholders in updating the legislation. Stakeholders from over 35 entities.	Fully implemented

S/N	Audit Report of 2014		NEMA Response on action taken to address Recommendation	Audit Comment on Follow-Up	Status of Implementation
	Audit Finding	Audit Recommendation			
Monitoring and Compliance Enforcement					
4	The Oil companies did not prepare and submit self-monitoring reports against set parameters as per the requirement. Even for the submitted reports, NEMA had not issued standardized formats against which the Oil Exploration and production (E&P) companies would report and as a result, there was no uniformity on issues reported on quarterly by the E&P companies.	NEMA should ensure that the Oil E&P companies carry out Self-Monitoring and submit reports to it as required and, where necessary, use available sanctions in the Law to compel their compliance.	Self-monitoring reports are submitted regularly to NEMA by the oil companies and reviewed. NEMA Field Inspection Report following visits to assess compliance by the waste generators and transporters with the requirement to record quantities and quality of waste on the waste manifests.	From the time of the audit to the follow-up (Q2 2014 – Q2 2018), 17 reports were expected from each of the IOCs. The following were submitted: <ul style="list-style-type: none">• CNOOC- 17 (100%)• TUOP- 17 (100%)• TEP- 17 (100%)	Fully implemented.
5	The multi-stakeholder inspection team did not carry out inspections as regularly as required. The multi-stakeholder team included experts in specialized fields of ecosystem management such as Uganda Wildlife Authority for wildlife, Wetlands Division of the Ministry of Water and Environment for wetland management, Directorate of Water Resources Management for water quality and the Fisheries Department for aquatic ecosystems.	NEMA should prioritize the multi-sectoral inspections in order to ensure that the knowledge from the various experts in specialized fields of ecosystem management is harnessed.	These have been undertaken regularly involving the relevant agencies. The inspections are coordinated by NEMA and dependent on availability of funding. Currently, with the waste cleared from the waste consolidation areas, the level of risk from contamination is low and therefore the monitoring requirement is low. An Environmental Compliance Checklist was also developed by a multi-stakeholder team between July 2015 and January 2016.	These are conducted periodically, as attested to by IOC officials interviewed in the field. Multi-sectoral monitoring reports were availed for July 2014, March 2015, June 2015, September 2016, April 2017, October 2017, and July 2018. The audit team agrees with NEMA that currently, the monitoring requirement is low at the former WCAs since there is no waste there. However, periodic monitoring of environmental aspects and leachate samples from the waste disposal sites is necessary.	Fully implemented.

6	NEMA's two Environmental Monitoring Officers for oil and gas could not adequately monitor activities on the ground to the expectation of NEMA.	NEMA should expedite its proposal of permanently having its Environmental Monitoring staff stationed in the Albertine Graben in order to keep pace with activities of oil and gas.	There has been an increased number of monitoring reports and NEMA has posted staff to the regional office in Masindi. They conduct routine monitoring in the Albertine Graben.	The audit team confirmed that 4 staff were posted to the Masindi office. In addition, 4 staff were located at headquarters specifically dedicated to oil and gas.	Fully implemented.
7	The District Environmental Officers of Buliisa and Hoima, did not inspect the waste consolidation areas within their areas of jurisdiction (within their districts). Also, due to inadequate funding and limited equipment, inspections were only carried out when NEMA or the oil companies involved and/or facilitated them.	Government should consider introducing conditional grants for the District Environment Officers to facilitate environmental monitoring. In addition, MoFPED should consider approving/ financing the recommendation by NEMA's Institutional Review Report to employ more environmental monitoring officers (oil and gas) and establish regional offices for better environmental monitoring, especially in the oil and gas sector.	NEMA has and will continue to work with Local Governments to ensure that budgetary provisions for environmental management are scaled up. However, the best options would be to introduce conditional grants for the District Environment Offices, or NEMA to establish regional offices.	Government is yet to address the issue of low funding for environmental monitoring by districts. Regarding support to NEMA to employ more staff dedicated to oil and gas, this has been done as reported above.	Partially implemented.
8	NEMA was not carrying out independent tests or verification of laboratory results reported in the self-monitoring reports submitted by the oil companies.	NEMA should consider carrying out routine verification of test results from the self-monitoring reports submitted by the licensed entities operating in the Graben.	Carrying out laboratory tests requires huge investment in a specialized laboratory and currently NEMA's financial resources cannot permit it. However, with support from USAID, NEMA received some equipment for monitoring basic parameters for air and water quality. NEMA is currently working on designation of reference environmental laboratories and analysts in the country to conduct reliable independent analysis, and submit reports to NEMA.	Evidence of equipment received from USAID was seen, but no evidence was provided to show progress in designation of laboratories. Once the designated laboratories are in place, NEMA should, at random intervals, collect samples from the IOC's work areas and test them at the designated reference laboratories to verify self-monitoring test results submitted by the IOCs.	Partially implemented.

9	NEMA was not regularly communicating its inspection findings to the oil companies after field inspection activities.	NEMA should routinely report key findings to companies after inspections. This will improve NEMA's capability to track compliance to set standards by oil companies.	Compliance assistance/ information is given to the IOCs as part of de-brief meetings undertaken after inspections of specific facilities, and letters to the companies.	The IOCs attested that NEMA gave them feedback through post-inspection de-brief meetings. However, neither NEMA nor the IOCs provided evidence of this (either in form of de-brief meeting minutes or letters).	Partially implemented
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Environmental and Economic Effects of the Current Waste Management Practices

10	As a result of NEMA's failure to agree with IOCs on waste treatment options for the drilling waste, a decision was made to hold it in Waste Consolidation Areas. This resulted in greater exposure of the Graben to potential environmental risks.	NEMA should as far as possible engage the Oil companies to address their concerns and enable treatment and disposal of waste by the licensed companies.	New environmental laws on waste management have been drafted and all legacy waste has been treated and disposed of by licensed waste handlers authorized by NEMA. IOCs were instructed to contract licensed companies to treat/dispose of the waste and licenses to IOCs for waste storage were not renewed.	No waste was still held in WCAs. However, the audit team did not obtain satisfactory explanations for the significant reduction in the amount of liquid drilling waste disposed of by TUOP compared to the amount generated as at 2014.	Partially implemented.
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Audit House,
Plot 2C, Apollo Kaggwa Road
Kampala, Uganda.

P.O. Box 7083, Kampala.

+256417336000
info@oag.go.ug
www.oag.go.ug

