



REPUBLIC OF ZAMBIA

GOVERNMENT GAZETTE

Published by Authority

Price: K35.00 net
Annual Subscription: K650.00

No. 7698]

Lusaka, Friday, 3rd January, 2025

[Vol. LXI, No. 2

GAZETTE NOTICE No. 6 OF 2024

[1134621

The Energy Regulation Act
(No. 12 of 2019)

Quality Control and Monitoring Guidelines for the Zambian Petroleum Fuel Industry

MEMBERS of the General Public are hereby informed that the Energy Regulation Board (ERB)) intends to Gazette the Quality Control and Monitoring Guidelines for the Zambian Petroleum Fuel Industry, fourteen (14) days from the date of this notice in accordance with the provision of section 46 (2) of the Energy Regulation Act No. 12 of 2019.

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LUSAKA

ACRONYMS

CoQ	Certificate of Quality
ERB	Energy Regulation Board
ISO	International Organisation for Standardisation
LPG	Liquefied Petroleum Gas
NFT	Ndola Fuel Terminal
OMC	Oil Marketing Company
TPL	TAZAMA Pipelines Limited
TPPL	TAZAMA Petroleum Products Limited
ZCSA	Zambia Compulsory Standards Agency
ZMA	Zambia Metrology Agency
ZS	Zambian Standard

DEFINITIONS

For the purpose of these guidelines, the following definitions shall apply:

<i>Accredited Laboratory:</i>	A laboratory accredited to ISO 17025: General Requirements for the Competence of Testing and Calibration Laboratories.
<i>Consumer facility:</i>	An installation in which the storage facility is for own use.
<i>Depot:</i>	Premises also known as marketing installations, on which the capacity for above ground storage of petroleum fuels is above 200 cubic meters and on which supplies are normally received from a refinery or from other bulk depots by road, rail, sea or pipeline (or by a combination of these) and from which such petroleum fuels are delivered directly to consumers. Such installation shall be equipped with loading and offloading facilities.
<i>Fuel Marking Program:</i>	The petroleum marking program established under SI No. 69 of 2017.
<i>Importer:</i>	Government or any undertaking licensed by the ERB to procure petroleum fuels from outside Zambia.
<i>Licensee:</i>	The meaning assigned to the word in the Energy Regulation Board Act No. 12 of 2019.
<i>Marker:</i>	A biochemical substance capable of being introduced into a petroleum product in small quantities for the purpose of identification and maintenance of the quality of the petroleum fuel without compromising the quality of the petroleum product.
<i>Marking:</i>	The introduction of a marker into a petroleum fuel.
<i>Marking Company:</i>	A company contracted by the ERB to mark a petroleum fuel.
<i>Off-specification petroleum fuel:</i>	Petroleum fuel that does not conform with the requirements of the applicable Zambian quality standards.
<i>Petroleum Fuels:</i>	Unleaded Petrol, Low Sulphur Gasoil (diesel), Kerosene, Propane, Butane, Jet A1, Aviation Gasoline (AvGas), Fuel oil (FO), Liquefied Petroleum Gas (LPG) and blends of unleaded petrol and diesel.
<i>Pipeline:</i>	A system/line of pipes equipped with storage(s), pump(s), and other control devices for moving petroleum fuel.
<i>Receiving tank:</i>	A tank at a petroleum fuels facility/depot used for receiving finished petroleum fuels via Sea, Pipeline, Rail and/or Road.
<i>Retail site:</i>	An installation licensed to retail petroleum fuels.
<i>Retail Site Operator:</i>	A Licensee or the duly appointed agent of the Licensee authorised to conduct the Licensed activity at the Licensed site.
<i>Road Tank Vehicle:</i>	A tank truck, tank trailer, or truck-tractor and tank -semi-trailer combination.
<i>Rail Tank Wagon:</i>	A trailer specially constructed for the bulk transport of petroleum fuels by rail, with a tank fixed to the chassis.
<i>Transporter:</i>	Road tank vehicle, pipeline or rail tank wagon operator for the conveyance of petroleum fuels.
<i>Driver:</i>	A person driving a road tank vehicle.

1.0 Introduction

The second revision of the Quality Control and Monitoring Guidelines for the Zambian Petroleum Fuel Industry was necessitated by the need to address the following:

- i. Government policy to convert INDENI Petroleum Refinery to an OMC and TAZAMA Pipeline from transportation of crude oil to diesel;
- ii. Weaknesses of the existing guidelines as identified by the various stakeholders in the supply chain;
- iii. Challenges associated with quality assurance in the wake of emerging issues;
- iv. Introduction of biofuel blends and additised petroleum fuels;
- v. Introduction of the Fuel Marking Program; and
- vi. Handling of contaminated and/ or off specification petroleum fuels.

These guidelines shall be reviewed every five years or as and when need arises to address emerging issues in the Zambian Petroleum Fuel Industry.

2.0 Composition of the Technical Committee

The guidelines were revised by the Quality Control and Monitoring Technical Committee comprising the following members:

- i. Biofuels Association of Zambia- Chairperson;
- ii. Puma Energy Zambia PLC - Vice Chairperson;
- iii. Indeni Energy Company Limited;
- iv. TAZAMA Petroleum Products Limited;
- v. TAZAMA Pipelines Limited;
- vi. Ministry of Energy – Department of Petroleum;
- vii. Spectra Oil Corporation Limited;
- viii. Alfred H Knight (Zambia) Limited;
- ix. Zambia Compulsory Standards Agency (ZCSA);
- x. Zambia Bureau of Standards;
- xi. Petroleum Transporters Association of Zambia (PTAZ); and
- xii. Energy Regulation Board – Secretariat.

3.0 The Zambian Petroleum Fuel Supply Chain

All petroleum fuels in Zambia are imported either by road, pipeline or rail as finished products and supplied to the Zambian market through a supply chain as illustrated in Appendix 1.

3.1 Imported Petroleum Fuels

Imported petroleum fuels shall be accompanied by Certificate of Quality (CoQ) from the source issued by an accredited Laboratory, the petroleum fuels shall then be certified on receipt from cargo ships. Systems and procedures for different modes of transportation are as outlined below:

3.1.1 Pipeline

Tazama Pipelines Limited (TPL) transports the bulk of the diesel consumed in Zambia. The diesel received via cargo ship at the Kigamboni tank farm in Tanzania shall be certified for compliance with respective Zambian petroleum fuel quality standard and thereafter transported to Zambia via pipeline. The product is received in Zambia at Ndola Fuel Terminal and/or TAZAMA Mpika depot where the fuel in the receiving tank shall be certified for quality compliance.

3.1.2 Road

Road tank vehicles load and transport petroleum fuels from receiving depots in various countries. The petroleum fuels in the bulk distribution depots shall be certified for compliance with respective Zambian petroleum fuel quality standards in the receiving tanks before transportation to Zambia. The petroleum fuels shall be received in Zambia at various licensed Government and OMC depots where upon offloading the fuel in the receiving tanks shall be certified for compliance with respective Zambian petroleum fuel quality standards by accredited laboratories. The petroleum fuel shall thereafter be distributed to end users.

3.1.3 Rail

Rail tank wagons shall load and transport petroleum fuels from receiving depots in various countries. The petroleum fuels in the bulk distribution depots shall be certified for compliance with respective Zambian petroleum fuel quality standards before transportation to Zambia. The petroleum fuels shall be received in Zambia at various licensed Government and OMC depots with wagon facilities where upon offloading, the fuel in the receiving tanks shall be certified for compliance with respective Zambian petroleum fuel quality standards by accredited laboratories. The petroleum fuel shall thereafter be distributed to end users.

3.2 Handling of Imported Petroleum Fuels

Imported petroleum fuels shall be dispatched from the source (overseas) with batch CoQ. The petroleum fuels shall be certified for compliance with respective Zambian petroleum fuel quality standards in the receiving tanks prior to transportation to Zambia. The CoQ of the receiving tank/s (at the load port) from which a consignment is uplifted, shall be presented to the Zambia Compulsory Standards Agency (ZCSA) inspectors at the point of entry for verification of compliance with the relevant Zambian petroleum fuels quality standards. Thereafter, quality checks of varying levels of detail including but not limited to density, presence of water, temperature and visual appearance shall be conducted on the product prior to offloading at the final destination for rail and road transportation.

Petroleum fuels shall be received in Zambia at various licensed Government and OMC depots where upon offloading, the fuel in the receiving tanks shall be certified for quality compliance with respective Zambian petroleum fuel quality standards by accredited laboratories.

3.3 Fuel Marking

The marking of unleaded petrol, diesel and illuminating kerosene shall be undertaken as follows:

3.3.1 Government owned depots

All imported petroleum fuels received via pipeline, road or rail shall be offloaded into receiving tanks after the requisite petroleum fuels quality checks outlined in section 3.2 have been undertaken by the receiving depot. Thereafter, all petroleum fuels uplifted by road or rail shall be marked with the appropriate marker prior to dispatch from the depot. Each road or rail tanker marked shall be issued with a Certificate of Marking as prescribed in SI No. 69 of 2017.

3.3.2 OMC depots

All imported petroleum fuels received via road or rail shall be sampled and the requisite petroleum fuels quality checks outlined in section 3.2 shall be undertaken by the Fuel Marking company. Upon ascertaining the indicative quality of the fuel, the respective road or rail tanker shall be marked with the appropriate marker prior to offloading into the receiving tank. Each road or rail tanker marked shall be issued with a Certificate of Marking as prescribed in SI No. 69 of 2017.

3.4 Systems and procedures at different points of handling finished petroleum fuels

3.4.1 Certification of petroleum fuels received through the pipeline

Diesel is received at the NFT and Mpika depot for distribution to the market. Upon receipt of each batch, the receiving tank shall be allowed to settle before a sample is taken and sent to an accredited Laboratory for re-certification. The Certificate of Quality (CoQ) for the product shall be filed at the respective depot and shall be availed to ERB, ZCSA and OMCs on loading. Loaded road tank vehicles and rail tank wagons shall be sealed and dispatched to OMC depots, retail sites and consumer facilities.

3.4.2 Certification of petroleum fuels received via rail and road

Petroleum fuels are received at various Government depots for storage and distribution to the market. Upon receipt of each batch, the receiving tank shall be allowed to settle before a sample is taken and sent to an accredited Laboratory for re-certification. The Certificate of Quality for the petroleum fuels shall be filed at the respective depot and shall be availed to ERB, ZCSA and OMCs on loading. Loaded road tank vehicles and rail wagons shall be sealed and dispatched to OMC depots, retail sites and consumer facilities.

3.4.3 Re-certification at OMC Depots

Depots operated by OMCs receive petroleum fuels from government owned bulk storage facilities and through imports. Road tank vehicles and rail wagons carrying imported petroleum fuels shall arrive with batch CoQ from the source. In the event that petroleum fuels are mixed from different sources and/ or batches, the 'mixed' petroleum fuels shall be subjected to re-certification. Loaded road tank vehicles and rail tank wagons shall be sealed and dispatched to OMC depots, retail sites and consumer facilities.

3.4.4 Receipt and handling of Petroleum fuels at Consumer and retail Sites

On receipt of petroleum fuels, the consumer facility/retail site operator shall ensure that all seals are not tampered with. The seals shall thereafter be broken and volume verified in compliance with ZMA regulations. The consumer facility and/ or retail site operator shall conduct quality checks prior to offloading of petroleum fuels. Quality checks include temperature, density, visual appearance and presence of water.

4.0 Biofuels and Blended Fuels

4.1 Denatured anhydrous ethanol

The subsections below guide the use of denatured anhydrous ethanol in blended unleaded petrol.

- i. Prior to blending, the fuel grade ethanol shall be denatured and certified by an accredited laboratory against the requirements of ZS 706: Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel. A copy of the certificate shall be submitted to the ERB;
- ii. A corrosion Inhibitor shall be added to the fuel grade ethanol prior to blending with unleaded petrol;
- iii. A licensee shall comply with the blending procedure of unleaded petrol with denatured anhydrous ethanol as stipulated in ZS 869: Blending and handling of biofuel blends – code of practice;
- iv. Prior to commencing the storage and dispensing of ethanol blended petrol, a selected tank shall be converted from storage of unleaded petrol to the blended fuel and shall be thoroughly flushed and cleaned in line with the requirements of ZS 869;
- v. The storage tank and dispenser for ethanol blended petrol shall be appropriately labelled to distinguish it from unleaded petrol in line with the requirements of ZS 869;
- vi. The blended petrol shall be certified by an accredited laboratory to meet the requirements of ZS 868: Ethanol Fuel Blends Quality Standard for Automotive Spark Ignition Engines – Specification. A copy of the certificate shall be submitted to the ERB; and
- vii. Appropriate water finding paste shall be used for checking water in the tank storing ethanol blended petrol.

4.2 Automotive Biodiesel

The subsections below guide the use of automotive biodiesel in blended diesel.

- i. Prior to blending, the automotive biodiesel shall be certified by an accredited laboratory against the requirements of ZS 702: Automotive Biodiesel Specifications. A copy of the certificate shall be submitted to the ERB;
- ii. A licensee shall comply with the blending procedure of biodiesel with diesel as stipulated in ZS 869;
- iii. Prior to commencing the storage and dispensing of blended diesel, a selected tank shall be converted from storage of diesel to the blended fuel and shall be thoroughly flushed and cleaned in line with the requirements of ZS 869;
- iv. The storage tank and dispenser for blended diesel shall be appropriately labelled to distinguish it from diesel in line with the requirements of ZS 869;
- v. The blended diesel shall be certified by an accredited laboratory to meet the requirements of ZS 867: Biodiesel fuel blends for automotive compression ignition engines-specification. A copy of the certificate shall be submitted to the ERB;

5.0 Critical Stages in the Supply Chain for Quality Control and Monitoring

Several stages in the handling of petroleum fuels are critical when it comes to ensuring that the quality of petroleum fuels reaching the consumer conforms to respective Zambian standards. These are as outlined in the subsequent subsections:

5.1 Critical Stages of diesel handling through the pipeline

The following stages are identified as being critical during diesel handling:

- i. Loading of diesel at loading port;
- ii. Discharge of diesel at discharge port (Dar-es-Salaam); and
- iii. Receipt of diesel at NFT and Mpika depot.

<i>Diesel handling Stage</i>	<i>Necessary quality Control measure</i>	<i>Responsible Entity</i>
Diesel loading port	Certification of product by independent inspector	Exporter
Discharge port (Dar-es-salaam)	Quality checks by an independent inspector	Importer
Receipt point at NFT and Mpika depot	Full quality analysis	TPPL and ZCSA

5.1 Critical Stages of handling petroleum fuels via road and rail

The sources of petroleum fuels on the Zambian market are wide. However, the following points are identified as critical points in the handling of imported finished products for quality assurance:

- i. Certification of petroleum fuel from source (receiving depot);
- ii. Certification of recipient storage tanks at Government or OMC depots;
- iii. Re-certification of Petroleum fuels at OMC depots; and
- iv. Receipt of Petroleum fuel at both consumer and retail sites.

<i>Handling stage for Imported Petroleum fuel</i>	<i>Quality control Measure</i>	<i>Responsible Entity</i>
Dispatch port from source	Certification	Supplier
Port of entry	Inspection	ZCSA
Discharge depots at the: • Government • OMC	a) Certification b) Re-certification	TPPL OMC
Receiving at retail site and consumer facility	Quality checks	Retail site or Consumer facility Operator

5.0 Sampling of Petroleum Fuels

Sampling of petroleum fuels shall be undertaken in accordance with the requirements stipulated in the Zambian Standard ZS 396: Sampling Petroleum Products Part 1: Manual sampling of liquid hydrocarbons. In the absence of a Zambian Standard for sampling of gaseous hydrocarbon, sampling shall be conducted in line with internationally accepted best practice.

6.0 Testing of Petroleum Fuels

Testing of petroleum fuels shall be done by an accredited laboratory.

7.0 Responsibilities of Stakeholders

In order for the consumers to be supplied petroleum fuels that meet the requirements of the respective Zambian petroleum fuel quality standards, all stakeholders shall play their role effectively. The following subsections highlight the said responsibilities:

7.1 Importer of Diesel through the pipeline

The importer of diesel shall ensure the following:

- i. CoQ from the port of origin and independent inspector shall be filed with TPL and the ERB before the cargo is received at Kigamboni tank farm; and
- ii. The diesel is offloaded into the tanks at Kigamboni tank farm in accordance with industry best practice.

7.2 TAZAMA Pipelines Limited (TPL) and TAZAMA Petroleum Products Limited (TPPL)

TPL shall do the following:

- i. Re-certify the tanks at Kigamboni Tank Farm (after receipt of each cargo) before pumping through the pipeline; and
- ii. Transport Diesel through the pipeline to Ndola and Mpika.

TPPL shall do the following:

- i. Certify the receiving tanks with accredited laboratories; and
- ii. Store and distribute diesel.

7.3 Importer of petroleum fuels via road and rail

The importer shall ensure the following:

- i. CoQ issued by an accredited laboratory from the source are filed with the ERB and ZCSA;
- ii. Ensure that all imported petroleum fuel meets the relevant Zambian Petroleum quality standards;
- iii. Engagement of an independent inspector for qualitative and quantitative checks at the point of loading and offloading;
- iv. The road tank vehicles or rail tank wagons are in conformity with the requirements of the relevant Zambian Transportation Standards;
- v. Offloading of all imported petroleum fuel at ERB licensed depot for certification before distribution into the market;
- vi. ERB licence to import petroleum fuels is valid at all times; and
- vii. Compliance with regulatory requirements e.g. facilitate inland inspections, sample collection and fuel marking.

7.4 The Fuel Marking Company

The fuel marking company shall ensure the following:

- i. To mark all unleaded petrol, diesel and illuminating kerosene uplifts made from government depots destined for the local market;
- ii. To undertake quality checks on unleaded petrol, diesel and illuminating kerosene receipts at OMC depots prior to marking;
- iii. To mark all imported unleaded petrol, diesel and illuminating kerosene prior to receipt at OMC depots;
- iv. To issue a Certificate of Marking for each road tank vehicle or rail tank wagon marked; and
- v. Licensee witness the marking of their unleaded petrol, diesel and illuminating kerosene.

7.5 Government bulk depot operator

The operator of Government depot facilities shall:

- i. Clean tanks at least once every three (03) years for Jet A1 and ten (10) years for other products. However, if there is reason to believe that petroleum fuel quality in the tank is compromised by, among others, excessive sludge accumulation, tank cleaning shall be undertaken earlier than the aforesaid period. Tank cleaning shall be undertaken in accordance with the provisions of all relevant Zambian standards including but not restricted to the following:
 - (a) ZS 604 Part 2: Tank Cleaning Safety Code; and
 - (b) ZS 671: Environmentally Sound Management of Waste Oils – Guidelines.
- ii. Provide CoQ as issued by an accredited laboratory for all petroleum fuel uplifted by OMCs; and
- iii. The said CoQ shall be filed with the ERB.

7.6 Oil Marketing Companies

The OMC depots shall:

- i. Conduct quality checks prior to receipt of locally sourced petroleum fuels. Checks are to include temperature, density, visual appearance and presence of water
- ii. Maintain documentation that clearly shows the chain of custody of all petroleum fuels. Refer to the Products Stock Transfer sheet in appendix 2;
- iii. Certify the receiving tanks with accredited laboratories.
- iv. Adhere to the Additised petroleum fuels guidelines;

- v. Clean tanks at least once every three (03) years for Jet A1 and ten (10) years for other products. However, if there is reason to believe that petroleum fuels quality in the tank is compromised by, among others, excessive sludge accumulation, tank cleaning shall be undertaken earlier than the aforesaid period. Tank cleaning shall be undertaken in accordance with the provisions of all relevant Zambian standards including but not restricted to the following:

- (a) ZS 604 Part 2: Tank Cleaning Safety Code; and
- (b) ZS 671: Environmentally Sound Management of Waste Oils – Guidelines.

7.7 Transporters (Local and Foreign)

The transporter of petroleum fuel shall:

- i. Ensure that the road tank vehicle complies with all the relevant Zambian Standards including but not restricted to the following:
 - (a) ZS 371: Road Tank Vehicles for Petroleum Based Flammable Liquids – Specifications;
 - (b) ZS 372: Transportation of Petroleum Products: Operational Requirement for Road Tank Vehicles – Code of Practice; and
 - (c) ZS 429 Part 4: The Handling, Storage and Distribution of Liquified Petroleum Gas (LPG) in Domestic, Commercial and Industrial Installations – Transportation of LPG in Bulk by Road – Code of Practice.
- ii. Local road tank vehicles shall be licensed by the ERB, issued with a certificate of conformity by ZCSA and issued with a verification certificate by ZMA;
- iii. Foreign road tank vehicles shall be compliant to regional standards for transportation of dangerous goods and issued with a certificate of conformity by ZCSA;
- iv. Ensure that the pipeline complies with all the relevant Zambian Standards including but not restricted to ZS 704: Transportation Pipeline Systems for Liquid Hydrocarbons – Code of Practice;
- v. Ensure that the rail tank wagon complies with all the relevant Zambian Standards including but not restricted to ZS 673: Rail Tank Wagons– Specifications;
- vi. Ensure that compartments are free from debris and free from water;
- vii. Flush the compartments whenever there is a change in loading from:
 - (a) Any petroleum fuel to another; and
 - (b) Any chemical to petroleum fuels.
- viii. Ensure that petrol and kerosene are not carried on the same trailer of the road tank vehicle;
- ix. Monitor the movement of their loaded road tank vehicles and rail tank wagons from point of loading to point of discharge;
- x. Monitor the movement of the diesel along the pipeline; and
- xi. Ensure that loaded road tank vehicles park only at designated park yards.

7.8 Road Tank Vehicle Driver

The drivers shall:

- i. Meet the requirements of ZS 372: Transportation of Petroleum Products: Operational Requirement for Road Tank Vehicles – Code of Practice - that are applicable to the driver;
- ii. Ensure that petrol and kerosene are not carried on the same trailer of the road tank vehicle;
- iii. Ensure that compartments are free from debris and free from water;
- iv. Flush the compartments whenever there is a change in loading from:
 - (a) Any petroleum product to another; and
 - (b) Any chemical to petroleum fuels.
- v. Ensure that they carry correct documents related to the load;
- vi. Not tamper with the seals and the ullage marks; and
- vii. Not tamper with the quality of the petroleum fuel.

7.9 Operators of retail sites and consumers facilities

The operators of retail sites and commercial consumer facilities shall:

1. Conduct quality checks on petroleum fuels on the truck prior to offloading. Checks shall include temperature, density, visual appearance and presence of water;
2. Maintain a record on site (for at least the last three months) of all deliveries showing the quality checks mentioned in (i) above. A sample of the record has been included as Appendix 2;
3. Clean tanks at least once every three years for Jet A1 and ten years for other products. However, if there is reason to believe that petroleum fuels quality in the tank is compromised by, among others, excessive sludge accumulation, tank cleaning shall be undertaken earlier than the aforesaid period. Tank cleaning shall be undertaken in accordance with the provisions of all relevant Zambian standards including but not restricted to the following
 - (a) ZS 604 Part 2: and
 - (b) ZS 671.
4. Be responsible for the quality assurance of petroleum fuels being offered to the consumers.

7.10 Energy Regulation Board

The Energy Regulation Board (ERB) shall

- i. Ensure that the guidelines herein are adhered to by Industry players;
- ii. Ensure that importation, transportation, storage, distribution and retailing of petroleum fuels are conducted by licensed entities;
- iii. Conduct planned and random sampling and testing of petroleum fuels from the following facilities:
 - (a) Government and OMC depots (at least twice a quarter);
 - (b) Consumer sites and retail sites (at random).
- iv. Conduct an audit of the quality control procedures of licensees as provided for by these guidelines;
- v. Obtain, interpret and maintain a database of all quality related information from all industry players.
- vi. Ensure that all unleaded petrol, diesel and illuminating kerosene sold on the Zambian market are appropriately marked; and
- vii. Conduct marker and fuel quality checks on unleaded petrol, diesel and illuminating kerosene at petroleum fuel storage, distribution and retailing facilities.

7.11 Zambia Compulsory Standards Agency

The Zambia Compulsory Standards Agency (ZCSA) shall ensure that:

- i. Local and foreign road tank vehicles transporting petroleum fuels in Zambia have obtained certificate of conformity from ZCSA;
- ii. Diesel imported through the pipeline is inspected, sampled and tested by accredited laboratories and issued with batch certificates for compliant products;
- iii. Petroleum fuels imported via rail and road are inspected, sampled and tested by accredited laboratories and issued with batch certificates for compliant products;
- iv. Market surveillance is conducted in the supply chain; and
- v. Importers provide CoQ issued by an accredited laboratory at the point of entry, copies of the same shall be shared with ERB.

7.12 Producer of Biofuel

The producer of biofuel (ethanol and diesel) shall:

- i. Ensure every batch of Biofuels produced meet relevant product quality standards for biofuels;
- ii. Certify all batches of biofuels produced in compliance with relevant Zambian product quality standards. COQ for each batch (identified by a number) shall be filed with the ERB;
- iii. Provide the CoQ to the off takers of biofuels; and
- iv. In the case of ethanol, ensure that a corrosion Inhibitor is added.

7.13 Blenders of Biofuel

The blender of biofuels shall:

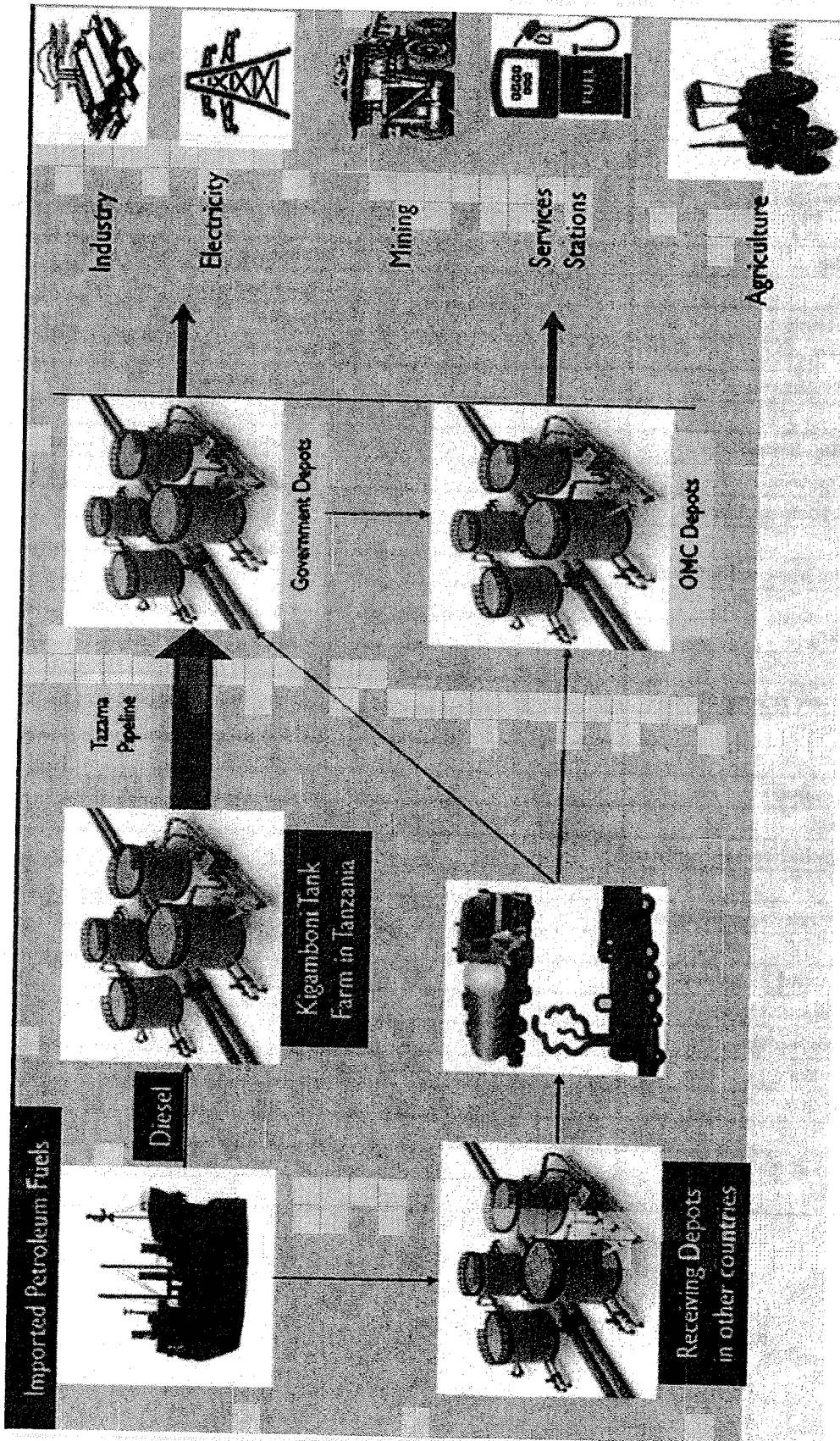
- i. Re-certify all biofuels received in compliance with the requirements of the relevant *Zambian Quality Standards* prior to blending with petroleum fuels;
- ii. Comply with the blending procedure as stipulated in relevant *Zambian Standard* for handling and blending biofuels;
- iii. Certify blended fuels in compliance with the requirements of relevant *Zambian Product Quality Standards* for blended petroleum fuels prior to retailing/selling to consumers. COQs for each batch (identified by a number) shall be filed with the ERB; and
- iv. Provide the CoQ to retailers and/or bulk consumers

8.0 *Handling of Contaminated Petroleum Fuels*

When handling contaminated and/or off spec petroleum fuels, the licensee and/ or ZCSA shall inform ERB of the contamination and/ or off spec petroleum fuels for further action. The licensee shall then have the petroleum fuel analysed at an accredited laboratory to ascertain the extent of contamination. Thereafter, the following options shall be considered:

- 8.1 Conditioning of the contaminated and/or off spec petroleum fuel by blending with an on-spec petroleum fuel. Blending shall be done at a licensed depot. The conditioned petroleum fuel shall be recertified at an accredited laboratory to ascertain conformity to the respective *Zambian quality standard*, and a copy shared with ERB for further instructions;
- 8.2 Acceptable alternative use of the contaminated or off spec petroleum fuel for calorific value i.e. use of contaminated and/or off spec diesel in processes that require fuel oil;
- 8.3 Incineration of the contaminated or off spec petroleum fuel in accordance with *Zambia Environmental Management Agency (ZEMA)* guidelines;
- 8.4 Selling the contaminated and/or off spec petroleum fuel as slopes to interested buyers for reprocessing; and
- 8.5 In the case of imported petroleum fuels, reject the contaminated and/or off spec petroleum fuel consignment at the point of

9.0 Appendix i: Zambian Petroleum Fuel Supply Chain



10.0 Appendix ii : Sample of a Products Stock Transfer Sheet

<i>Product stock transfer</i>			
<i>Bulk product by road/rail</i>			
1	ISSUING DEPOT	OIL MARKETING COMPANY	
	Date	Temperature/C	
	Batch Certificate No.	Density	
	Delivering Tank No.	Water Check	
	Observed volume Litres	Visual appearance	
	Seal No.	Suspended particles	
	Vehicle Registration No.		
	Dispatching depot		
	Operators Name and Signature		
	Tanker Drivers Name and Signature		
2	RECEIVING SITE		
	Date		
	Observed volume received Litres		
	Temperature/C		
	Density		
	Visual appearance		
	State of seals		
	Receiving official Name and Signature		
	Tanker Drivers Name and Signature		
3	TO BE FILLED BY RECEIVING SITE		
	Volume dispatched (Litres)		
	Volume received (Litres)		
	Loss/Gain (Litres)		
	% Loss/Gain		
4	COMMENTS BY RECEIVING SITE		