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INTRODUCTION

Zambia has a total of 215 filling stations. These facilities are usually located in major towns and metropolitan areas especially along the line of rail where Oil Marketing Companies (OMC's) including BP, Total, Engen, Chevron and Kobil have established filling stations. Some of these filling stations have been leased out to dealers while others are run by the OMC's themselves. However, most rural, remote or off-the-major roads areas of Zambia still do not have this essential infrastructure established. Some towns/districts including Namwala, Mwinilunga, Lukulu, Itezhi tezhi, Mporokoso, Chama, Mpongwe, Mwense, etc, have no filling stations at all while others like Kalomo have only one. One of the main reasons for the lack of filling stations in rural areas is the huge cost burden on investors against the limited market in those areas.

The absence of reliable fuel supply poses a major challenge for consumers (individuals, business houses and Government departments, etc) in these areas, who often have to travel many kilometres to purchase the commodity. In many instances consumers in these areas turn to unlicensed suppliers (illegal vendors) whose product quality cannot be guaranteed. Consumers also often buy and store large quantities of fuel for use and this has sometimes resulted in fire outbreaks causing damage to property and human life because of poor handling.

In order to help consumers in these areas, the Energy Regulation Board (ERB), in consultation with other stakeholders, has facilitated the development of a standard for setting up filling stations in rural areas or areas away from the metropolitan areas. The Standard has since been adopted by the Zambia Bu-

reau of Standards (ZABS) as ZS 703:2007 – Rural Filling Stations: Code of Practice.

The standard has been developed mainly as a response to some local entrepreneurs and OMC's who have expressed interest in setting up filling stations in rural areas but have cited lofty standards required of a modern filling station as prohibitive for these areas where sales turn over is limited.

The standard for a rural filling station has thus been developed with a view to minimising costs involved in establishing a model filling station but without compromising environmental and safety requirements. The ERB in consultation with OMCs, Environmental Council of Zambia, Lusaka City Council Fire Brigade, Zambia Weights and Measures Agency, Ministry of Energy and Water Development and Zambia Bureau of Standards has developed the standard for establishing rural filling stations. The technical requirements for the rural filling station standard have been set at the barest minimum and in itself, should act as an incentive to promote the setting up of filling stations in rural areas. It should be pointed out that though standards previously did not prevent anyone setting up an ultra modern filling station in any part of the country, few investors ventured into the remote parts of the country because of the huge cost of investment required. The 'relaxed' requirements contained in the rural filling station standard will certainly go a long way to minimise some of these costs.

This brochure is therefore a guide to interested parties, which include consumers, on basic requirements in establishing a filling station in rural areas.

BY DEFINITION a Rural Filling Station shall be

A site that provides lubricants and fuel for sale with a combined monthly average fuel throughput not exceeding 30m³ (30,000 litres). The rural filling station shall be located in an un-serviced area outside a minimum radius of 50km from an existing and operating filling station. The rural filling station shall either be a fixed installation or of the mobile unit type described below.

REQUIREMENTS

1. Planning for a rural filling station

The following aspects are key to the process of setting up a filling station:

- a. Siting approval shall be sought from the relevant Local Authority (chief and/ or district council) the Environmental Council of Zambia (ECZ) and ERB before any works can commence.
- b. The Filling Station technical design shall be generated by a registered engineer and shall be approved by the relevant local authority and regulatory agencies (ECZ and ERB).
- c. Operating licenses such as site allocation, Building Plans, Zoning Approvals etc shall also be obtained from the authorities mentioned in (b) above.
- d. Guidelines for the of rural filling stations shall conform with the guidelines for siting of petroleum installations as reflected below:

Guidelines for the siting of petroleum installations

Pre-construction requirements

The prospective filling station operator must obtain the following prior to actual commencement of construction works:

- Necessary Local Authority approval including site allocation, Building Plan and Zoning Approvals, in conjunction with ERB and ECZ.
- ECZ approval: This approval is given after the submission of a Project Brief to the ECZ. The Project Brief shall address issues including the following:
 - a) The site selected for the construction of a filling station should be chosen so as to minimize the potential risk the facility may pose to adjacent property. It should also take into account the potential risk to the filling station, in case of an incident at any adjacent property;
 - b) Proximity to public ways;
 - c) Proximity to waterways and other surface water;
 - d) Risk to and from other adjacent facilities;
 - e) Types and quantities of products to be stored:



- f) Proximity to populated areas and the possible effects of the new filling station on these areas:
- g) Present and predicted development or rezoning of adjacent properties and the filling station infrastructure;
- h) Location and availability of required utilities including the following: electricity, sewers, potable water, foul water and air:
- Requirements for receipt and delivery of products, license requirements and regulations applicable to construction and environmental requirements including these: zoning requirements, building permits and codes, operating permits, fire permits, water and waste discharge permits: and
- j) Proximity to ecologically or environmentally sensitive areas.

2. Designs

Safety Standards

- These shall comply with existing minimum retail site safety standards as outlined in ZS 385-1.
- The appropriate symbolic safety signs that comply with the requirements of SANS 1186 or BS 5499 shall be put up.

Environmental Concerns

These shall be in compliance with the general provisions of the Environmental Protection and Pollution Control Act (EPPCA) Cap 204 of the Laws of Zambia and shall address such environmental issues as:

a) Physical/Biological

- Pollution of surface/underground water, soil, air.
- Waste management (generation, handling, storage and disposal).

b)Social

- · Effect on local Community.
- Consultation, and participation and support from local community (possible resistance to development).
- Restriction of traditional access (pathways, religious site, etc).
- Illegal access and squatting.

Technical Specifications for a Fixed Installation Rural Filling Station

Tank Manufacturing Specifications

- All tank construction shall be in compliance with ZS 381
- All tanks shall have containment in accordance with ZS 385-1.

a. Above Ground Tank installation

- Diesel / Kerosene Tanks
- All tanks must be bunded

b. Underground Tank installation

• All tank installations shall be in compliance with ZS 385-3.

Petrol Tanks

- Due to the volatility of petrol, all petrol tanks shall be underground.
- All underground tanks shall be provided with geo-textile impervious lining.

Mobile Units

Mobile Units are compact transportable fuel filling stations providing practical, low cost and secure alternatives to the conventional filling stations. Under the provisions of this standard, Mobile Units shall only apply to diesel and kerosene.

Details about mobile units are found in ZS 703:2007 which may be obtained from Zambia Bureau of Standards.



Other important requirements for both fixed and mobile rural filling stations

Dispensing Equipment

- All Dispensing Equipment shall be in compliance with ZS 385-3 and ZS 398.
- Dispensing equipment shall not be used interchangeably between products.
- Where manual dispensing equipment is used such as hand pumps with a metering unit, these shall be verified by a capacity measure certified by Zambia Measures and Weights Agency (ZMWA).

Auxiliary Structures

- a. All buildings shall comply with Town and Country Planning Act Cap 283 and only fire resistant materials shall be used in the construction of the buildings.
- b. A rural filling station shall have the following:
 - Office Space
 - Lubricant Store Room
 - Convenience rooms
 - An accessible water point on the premises
- The storage tank area shall be provided with security fencing made of non combustible materials.

Dispensing Pump Area



An abandoned BP filling station in Chinsali

The forecourt area around the dispensing pump shall be of impervious material such as reinforced concrete slab of a minimum grade B specification (Cement 1: Sand 2: Stone 4 ratio) or other approved materials. The reinforced concrete slab shall be of a minimum area of 6m long and 3m wide. The said reinforcement shall be of a minimum of conforce 257.

Auxiliary Equipment

Each filling station shall have:

- Fire fighting equipment on site as outlined under ZS 373.
- · Sand buckets not less than 10kg,
- Appropriate symbolic warning signs,
- Emergency shut-off switch.

3. Signage

Price Displaying Facility

 Each filling station shall have a price display that is legible from a minimum distance of 25m

4. Calibration

All calibration and inspection of dispensing equipment shall be as provided for under the Weights and Measures Act Cap 403 of the Laws of Zambia and its regulations.

5. Electrical equipment

Electrical equipment shall be in accordance with ZS 385-2.

Source of funding

Funding for setting up a rural filling station may be obtained from various sources including savings, bank loans, Citizens Economic Empowerment Commission, etc.



KEY/FURTHER REFERENCES

BS 5499-2 Specifications for self-luminous fire safety signs

SANS 1186-2 Symbolic safety signs

Part 2: Self-luminous (radio luminescent) signs

ZS 373 Portable Fire Extinguishers

ZS 381 Carbon steel welded horizontal cylindrical petroleum storage tanks -specification

ZS 385-1 The petroleum industry - code of practice.

Part 1: Storage and distribution of petroleum products in above-ground bulk installations

ZS 385-2 The petroleum industry – Code of Practice

Part 2: Electrical installations in the distribution and marketing sector

ZS 385-3 Petroleum industry - Code of practice

Part 3: The installation of underground storage tanks, pumps/dispensers and pipework at filling stations and consumer installations

ZS 392 The storage and handling of liquid fuel - Code of Practice

Part 2: Large Consumer Installations

ZS 398 Liquid Fuel Dispensers - Specification

Environmental Protection and Pollution Control Act Cap 204

Engineering Institute of Zambia Act Cap 432

Petroleum Act Cap 435

Town and Country Planning Act Cap 283

Weights and Measures Act Cap 403

FURTHER INFORMATION

Further information about investment opportunities on rural filling stations or information on technical specifications may be obtained from ERB, Environmental Council of Zambia, Local Authorities and other relevant authorities. Contact details of some important authorities on this issue are indicated below:

opperbelt	Office
O	operbelt

Energy Regulation Board Plot No 332, Independence Ave. 8th Floor, Premium House P.O. Box 22281, Kitwe

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 P.O. Box 22281, Kitwee

 Nasser Road
 Tel: +260 212 220944

 P.O. Box 37631, Lusaka
 Fax +260 212 220945

Tel: +260 211 236002, Fax: +260 211 236003

Email: <u>erb@erb.org.zm</u> Website: www.erb.org.zm

Ministry of Energy and Water Development

(Responsible for energy policy)

Mulungushi House Tel: +260 211 251337

P.O. Box 36079 Fax: +260 211 252339/254491 LUSAKA Email doe@zamnet.zm

Environmental Council of Zambia

(Responsible for environmental protection)

 Suez Road
 Tel: +260 211 254130/254131

 P.O. Box 35131
 Fax: +260 211 254164

 Lusaka
 Email ecz@necz.ora.zm

Zambia Bureau of Standards

(Responsible for quality of products marketed to the public)

Lechwe House

 Freedom Way, South End
 Tel: +260 211 231385

 P.O. Box 50259
 Fax: +260 211 238483

 Lusaka
 Email zabs@zamnet.zm

Local Authorities

(Responsible for environmental protection)

(Depending on location, municipalities, town councils and rural councils.

