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 THE MOST MARVELOUS INSECTICIDE OF
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DATE
 485 1st May 1926

26 MAY 1926

HANDLING OF OILS AND PETROL ETC AT KILINDINI

Forwards copies of the full
 report of the Committee appointed to consider
 and submit his reasons on one or two points.

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C.O. 501/11

Downing Street,

18th August, 1921.

Sir,

With reference to Mr. Bonar Law's Circular despatch of the 31st of July, 1915, I have the honour to transmit to you a copy of a letter from the Petroleum Department respecting the preparation of model regulations for the storage of petroleum in bulk installations. I also enclose copies of a Bulletin which has been published containing a memorandum on the subject and model regulations.

2. These documents are forwarded to you in order that the advice given in the above Circular and its enclosures may be brought up to date. As will be observed, the memorandum and draft regulations deal only with the technical aspects of the subject, and make no attempt to take into account the military considerations that require to be duly weighed when petroleum installations are erected at ports or in the vicinity of the sea board. The draft regulations must of course be read subject to any instructions that may from time to time be given by the Oversea Defence Committee in regard to the naval and military problems involved.

I have the honour to be,

Sir,

Your most obedient, humble servant,

WINSTON S. CHURCHILL.

Communications on this subject should be addressed to:-

2, Queen Anne's Gate Buildings,

THE DIRECTOR,

Dartmouth Street,

PETROLEUM DEPARTMENT,

S.W.1.

2, Queen Anne's Gate Buildings,

WESTMINSTER, London, S.W.1.

314

and the following number quoted:-

1st April, 1921.

P.D/1169.

Sir,

I am directed by Mr. Kellway to request you to inform Mr. Secretary Churchill that this Department has had under consideration the advisability of preparing a set of model regulations in regard to storage of petroleum products for the information of local Governments and authorities in British Colonies and Protectorates.

In certain cases where the erection of bulk storage installations is now contemplated there seems to be a definite desire on the part of local authorities for some guidance as to the form which any regulations which may be introduced should take.

In many instances the tendency has been to issue regulations which have come to be regarded as unduly restrictive and which in addition to involving unnecessary cost may even discourage the provision of storage accommodation in districts where such regulations are in force.

The draft regulations enclosed which have been prepared in consultation with the Home Office, Admiralty, some of the leading petroleum companies, and the chief storage company in the United Kingdom, are accompanied by an explanatory memorandum (copy of which is also attached) dealing with certain points on which there is still considerable divergence of opinion and in connection with

these it has been thought better while furnishing the latest information bearing on the subject, to leave it to the authorities concerned to issue regulations with such provisions as may seem desirable in order to conform with local conditions.

In preparing the memorandum and suggested regulations, due regard has been paid to a memorandum circulated by the Colonial Office in July, 1915, entitled "Memorandum as to the Landing and Storage of Oil Fuel" (Miscellaneous No. 295) which contains valuable suggestions on this subject.

Recent experience has shown that it is desirable to modify certain of the proposals then put forward, for instance in regard to danger from lightning. As explained in the accompanying memorandum the tendency at the present day is to regard lightning conductors fitted to tanks as being undesirable and a source of danger rather than a safeguard.

It is considered that the instructions for the use of the safety lamp accompanying the Colonial Office memorandum are particularly useful and it is proposed to include them in the draft memorandum.

This Department will be glad to receive any comments which Mr. Churchill may wish to make on the subject and it is thought that after the regulations have been finally approved it would be desirable to circulate copies to the Governments of the Colonies and Protectorates. It is not suggested that these regulations should have any legal force but merely that they should be circulated for information and for the use of local authorities in preparing their own legislation.

I am, etc.

(SGD) J. C. CLARKE.

H.M. PETROLEUM DEPARTMENT

Memorandum and Draft
Regulations

in connection with the

Bulk Storage

of

Petroleum Products

LONDON:

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MEMORANDUM FOR THE INFORMATION OF LOCAL
 AUTHORITIES IN CONNECTION WITH THE
 PREPARATION OF REGULATIONS FOR
 THE STORAGE OF PETROLEUM
 IN BULK INSTALLATIONS.

Note.—In connection with the compilation of this memorandum and the draft regulations which follow valuable advice was obtained from Mr. A. McN. Cooper-Key, C.B., H.M. Chief Inspector of Explosives, and the representatives of the Admiralty; of London and Thames Harbour Docks, Wharves, Ltd. and of some of the principal petroleum companies.

Ordinances are already in existence on the subject of storage and there is considerable divergence of opinion on the questions which arise in connection with it. Some of the regulations drawn up when the storage of petroleum in bulk was much less common than at present, and when the nature and extent of the risks involved were less fully understood. This memorandum (containing a set of draft regulations) is intended to serve as a guide to framing legislation on lines which will allow of the adoption of every precaution without imposing restrictions of little practical value which would only tend to increase the capital cost of erection and the price of the products handled. During recent years it has become frequent practice in the case of small installations for "dangerous" to place the storage tanks underground. This method, while commendable from the standpoint of safety, cannot be adopted on a large scale owing to the considerable expense involved, and this memorandum accompanying regulations should be taken as applying only to tanks on the surface and not to underground tanks.

CLASSIFICATION OF PETROLEUM PRODUCTS.

It is suggested that for the purpose of such regulations petroleum should be divided into three classes as follows:—

(1) *Dangerous petroleum*, meaning petroleum having a flashpoint below 73° F. close test. It is somewhat difficult to define this class of petroleum satisfactorily, and different flashpoint temperatures have been used in different parts of the world; in some cases a temperature of as high as 100° F. has been fixed. Such a figure has the serious objection of being in accordance with trade practice, as it places certain kerosene in the class of dangerous petroleum while the remainder is treated as non-dangerous. On the whole a limit of 73° F. close test which has been generally accepted to be the equivalent of 100° F. open test seems appropriate. In using the term "dangerous petroleum" to motor spirit, it is suggested that it should come under the second class, this is the figure prescribed in the A.S.T.M. It may be mentioned that owing to the high value of petroleum there is now little danger of kerosene being supplied to the public at a price which would justify the expense of determining the flashpoint. It is necessary to specify the method to be used in determining the flashpoint. If some form of closed test other than the Abel is used a slight variation in the limit should be proposed.

(2) *Non-dangerous petroleum*, meaning petroleum having a flashpoint which is 73° F. Abel close test or above 150° F. Pensky Marten close test. This should include kerosene and gas or solar oil.

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3. Fuel oil, meaning petroleum used as fuel and having a flashpoint above 150° F. Pensky-Marten close test.

The latter class of petroleum is perfectly safe to handle under normal circumstances and only general regulations are required. Lubricating oils, on account of its very high flashpoint is practically non-inflammable and no special precautions are necessary.

PRECAUTIONS AGAINST FIRE.

With regard to arrangements for dealing with fires at installations, it would be of little service except for keeping tanks and buildings in the neighbourhood of any fire which may break out. Certain special apparatus making use of solutions of CO₂ have been found effective for the protection of tanks containing "dangerous" petroleum, but the expense of installing them on a large scale is considerable.

The nature and extent of the precautions to be enforced will vary largely on local circumstances, but it will always be desirable to have ready supplies of sand or dry earth and extinguishers shall be kept in readiness for use in case of fire occurring in the filling shed.

VENTILATING OPENINGS

Tanks containing "dangerous" and "ordinary" petroleum should be fitted with adequate ventilating openings to permit gas to escape. Such openings should be protected by double diaphragms of strong wire mesh, and if not provided with ventilating openings each tank should be fitted with a safety valve of an approved type. Precautions must be taken by regular inspection to see that these gauges are kept clean and free from dirt.

The roofs of all tanks should be of steel, and for the storage of "dangerous" and "ordinary" petroleum they should be made water-tight.

LIGHTNING

With regard to precautions against lightning, considerable expert opinion prevails on this subject, but it is generally agreed that the use of lightning conductors is undesirable. It is important to avoid sparking taking place in the neighbourhood of the tanks, and with this object in view continuity should be maintained in their construction. As already stated, the use of all metal tools is advisable.

Many authorities require the tanks to be efficiently earthed, but the necessity for special earthing has not been conclusively demonstrated. It is provided that the ventilating openings and vent pipes are fitted with lightning rods as recommended above, the addition of water gauges at the open end is also considered essential.

CAPACITY OF ENCLOSURES SURROUNDING TANKS

In case of fire or damage to a tank the chief consideration is to prevent the oil from escaping, and for this purpose tanks are surrounded with an enclosure. It is advisable in the case of "dangerous" petroleum

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enclosures should be of dimensions sufficient to contain an amount of oil equal to the capacity of the tank or tanks situated within the enclosure. It is recommended that the capacity of the basin shall be 10 per cent. in excess of the total capacity of the tanks, but this is not considered essential. It is found in cases where fires have occurred that although the roof of the enclosure collapses the walls remain standing and retain the bulk of the oil.

The Admiralty recommends that the capacity of the enclosures should be determined by local authorities, but it will probably be sufficient if the basin is of sufficient size to hold the contents of one tank of each group of tanks, including four members. In this connection the location of the tanks is an important factor, as if it is so situated as to involve any possibility of fire, the oil cannot escape into harbours, etc., the danger is much lessened. Enclosures are not usually provided for the tanks in the case of fuel oil tanks, but the Admiralty provide for the tanks the capacity of the tanks, which are normally arranged in rows.

PIPE MAINS

It is considered necessary to legislate in regard to the type of valve to be used for use in pipe mains, although it is desirable that whatever valve is used there should be some means of clearly indicating whether the valve is open or shut.

ENTERING TANKS OF GAS.

No person should be permitted to enter any tank without the authority of the manager of the installation and until the atmosphere in the tank has been tested and found free from vapour after test by a competent person. Special precautions should be taken for clearing tanks of all dangerous vapour if such tanks are to be undertaken which would expose the interior atmosphere to the risk of hot rivets or any other source of artificial heat. An effective method of ventilating tanks is by means of wind shoots, although steam is not used, especially on board ship. The fact that a tank has been tested should always be made. Unless a tank has been certified as safe for use, the use of electric lamps with sparking contacts should be prohibited. The use of portable oil or electric safety lamps of types approved for use in such circumstances should be permitted.

Attention should be drawn to the fact that the use of safety lamps for testing purposes is also best avoided.

OPENINGS OF TANKS

It is provided that all openings in tanks must have a neck the diameter of which bears some fixed proportion to the diameter of the opening. This regulation appears unnecessary. Openings on the top of tanks should have some form of neck, but the side manholes should be without necks.

If it is provided that steel tanks shall be designed in accordance with sound engineering practice, it is not considered necessary to specify any particular relation between the height and the diameter of the tanks, unless some time does

ELECTRIC LIGHTS AND WIRES.

Where "dangerous" petroleum is stored it is important that electric lights should be enclosed in double glass bulbs, the outer one of which should be gas tight. All switches and fuses should be outside buildings and enclosed in a gas tight box.

Regulations have sometimes provided that all electric wires should be carried in pipes, and that no bare wires should be permitted. It is possible, however, for accidents to occur through bad workmanship in the case of wires carried in pipes. It is desirable for insulated wires to be in all cases, but it is not essential that these be carried in pipes except where the wires enter buildings near the ground.

FILLING SHED ENCLOSURES.

To prevent the spread of any fire which may originate in the filling sheds it is important to provide for the retention of any gas which might be in these buildings, but any excavation made should not be deeper than the height of the free ventilation. A method frequently adopted is to lower the floor of the storage shed itself so as to form a cement apron. The vapour of petroleum being heavier than air tends to flow along the ground and to collect in any depression, where it forms an explosive mixture. The excavations should therefore be shallow and should cover a reasonably wide area rather than be deep and of small extent.

DISTANCE BETWEEN TANKS.

It is difficult to lay down any definite figure for the distance to be observed between tanks. The minimum distance which is being worked for in the United Kingdom in the case of dangerous petroleum appears to be 20 feet, though regulations elsewhere prescribe as much as 150 feet. It is not clear, however, whether the additional security obtained by providing tanks far apart is sufficient to justify the increased expenditure and the space involved. 50 feet is provisionally suggested as a suitable distance in countries where which must be reviewed in the light of local conditions. It should be noted that the question of climate has little or no bearing on the question of the distance between tanks, as petroleum gives off an inflammable vapour in all climates.

When the question arises as to what is the distance to be observed between tanks, it is doubtful whether any definite distances need be laid for space between tanks except in special circumstances. 25 feet should be ample clearance. Accidents between tanks are very rare, and the same remark applies to fuel oil. It should be taken direct between tank and tank irrespective of the distance between adjoining installations.

METAL CONTAINERS.

It is important that "dangerous" petroleum (other than that stored in tanks) is stored in well constructed tins or other metal receptacles up to the usual height. It is not considered necessary to lay down any specific thickness of metal to be employed. The packages are designed to hold the contents with an air space sufficient for safety, but variations in different climates make it difficult in any general regulations to lay down a figure for the amount of air space to be left. It seems desirable to stipulate that filled metal containers should be stored in a cool place, though such a clause may be useful to ensure safe transit.

INSTRUCTIONS ON THE USE OF THE SAFETY LAMP.

Before any tank which is not already known to be free from dangerous gas, a preliminary test of the atmosphere must be made with a safety lamp.

Persons using safety lamps should be carefully instructed as to the use of them in tanks and confined spaces. The flame of a safety lamp used for small quantities of inflammable gas with a miner's safety lamp must be carefully turned down until all the white light has disappeared and only a small blue flame is left. The presence of inflammable gas is indicated by a pale triangular flame or "cap" which appears above the blue flame, varying in size and intensity according to the amount of inflammable gas present. The lamp should be held close to the surface when making this examination.

It is important to note that petroleum gas is considerably heavier than air and therefore remain in the lower part of the tank whether closed at the top or not.

Before making a test, after the flame of the safety lamp has been turned down, a careful and detailed examination should be made in both the upper and lower part of the tank. The lamp must be tried as far inside the tank as can be held without losing sight of the flame and should be lowered until it is necessary to reach the bottom of the tank, for the purpose of a preliminary examination. As soon as the lamp will burn steadily in the lower part of the tank may be entered for the purpose of making a further examination.

It should be noted, however, that the flame of the safety lamp should be held in the lower part of the tank until it has been extinguished and the gas has been vented. It should be noted that any indication of inflammable gas should be immediately reported and the tank should be tested until no more gas is detected. If any inflammable gas is detected, a test should be made in the upper part of the tank.

It is important to prevent any unauthorized interference with the safety lamp, the person who is to make arrangements for trimming the lamps before they are used should be retained by some responsible person.

SECTION I

DRAFT REGULATIONS FOR THE STORAGE OF
PETROLEUM IN BULK INSTALLATIONS.

DEFINITIONS.

In these rules:—

(1) "Petroleum" means any inflammable liquid which is derived from petroleum, coal, shale, peat, or any other bituminous substance, or from any of their products.

(2) "Dangerous petroleum" means petroleum having a flashpoint below 73° F. Abel close test.

(3) "Ordinary petroleum" means any petroleum having a flashpoint which is not below 73° F. Abel close test and which is not below 150° F. Pensky-Marten close test.

(4) "Fuel oil" means a petroleum used as fuel and having a flashpoint which is not below 150° F. Pensky-Marten close test.

(5)—(a) The term "bulk installation" hereinafter referred to means a place specially prepared for the storage of petroleum in amount exceeding 500 tons.

(b) The term "storage shed" means a building used for the storage of petroleum in bulk, and includes a filling shed.

(c) The "proper authority" shall be the person or persons appointed for administering these rules.

SECTION II

GENERAL REGULATIONS APPLICABLE TO INSTALLATIONS FOR THE STORAGE OF ALL CLASSES OF PETROLEUM

(1) Every person managing or employed on or in connection with an installation or storage shed shall abstain from any act whatever which tends to cause fire or explosion and which is not reasonably necessary, and shall prevent any other person from doing such act.

(2) No smoking shall be permitted in a storage shed or in or about an installation except in such place as may be specially set apart for the purpose and suitable notices to this effect shall be conspicuously posted on the premises.

(3) All operations within any installation or storage shed shall be carried out under the supervision of a responsible agent of the owners of the premises.

(4) The ground in the interior of an installation shall be kept free from growth of an inflammable nature, waste vegetation and rubbish, and any inflammable material shall only be stored under conditions approved by the proper authority.

(5) An efficient fire service shall be provided in each installation and all employees shall be instructed periodically in the use of the various fire appliances.

An adequate supply of sand or dry earth shall always be kept ready for immediate use in an installation or storage shed for the purpose of extinguishing fire.

(6) *Clause dealing with protection against lightning may be inserted if desired. (See explanatory memorandum.)*

(7) Enclosures surrounding tanks shall be drained by a pipe fitted with valves situated from the outside of the enclosure. Such valves shall be kept closed except when they are actually in use. No water shall be allowed to accumulate in the enclosure.

(8) Drainage pipe mains, also valves in pipes for draining water, may be of the "float" type, but shall be provided with some form of indicator so that they may be readily seen from a distance, whether the valves are open or shut.

(9) All valves shall be hung in a conspicuous place in every installation or storage shed. Copies of these regulations in English and the Vernacular shall be kept in tanks shall be promptly repaired.

(10) No person shall enter any tank without the authority of the Manager of the installation.

(11) Before a tank is entered or repairs undertaken which would expose the interior atmosphere to contact with hot rivets or other source of unusual heat it shall be thoroughly ventilated and found free from dangerous vapour after test by a competent person who shall furnish a certificate to this effect.

(12) No tank is certified free from dangerous vapour only portable safety lamps, oil or electric, of types approved for use in fiery Coal Mines, shall be taken into it, and until such certificate has been granted the use of naked lights or electric lamps with wandering leads is strictly prohibited.

(13) Steel tanks shall be constructed of mild steel plates properly riveted and caulked and designed according to sound engineering practice.

(14) The proper authority or any officer duly authorised by him may at all times enter any installation or storage shed for the purpose of inspection with a view to ensuring conformity with these regulations.

(15) The distances specified in Sections III. and IV. following may be varied by the proper authority in cases where screen walls are provided, or where special precautions taken, or where there are special circumstances in the opinion of the proper authority, warrant such reduction.

(16) Every precaution shall be taken to prevent waste oil from passing into watercourses and from reaching shipping in harbours or waters where there is no tidal flow.

(17) *The general regulations (Sections I. and II. inclusive) shall not apply to tanks or separate sections of installations where fuel oil only is stored.*

(18) From the hours of sunset to sunrise installations shall be shut and no work shall be permitted except where electric lighting is exclusively used, and special permission has been given in case of emergency by the proper authority.

(15) No fire or naked lights shall be permitted within the installation in the offices, soldering sheds, laboratory, living-quarters, engine-room, workshop and smithy.

(16) Electric lights shall be enclosed in a double glass, the outer of which shall be gas-tight. All switches and fuses shall be outside the buildings and enclosed in gas-tight boxes.

(17) The storage shed shall be constructed of masonry, iron or other non-inflammable material and with tiled, paved, earthen or concrete floor.

(18) Each tank or group of tanks shall be surrounded by an embankment of substantial construction, or shall be partially sunk in an excavation.

The enclosure thus formed shall be of dimensions sufficient to contain

(a) in the case of "dangerous" petroleum an amount equal to the volume of oil that the tank or tanks are capable of containing

(b) in the case of "ordinary" petroleum the contents of one tank in each group of tanks not exceeding four in number

unless in the opinion of the proper authority the circumstances are such as to warrant a reduction in the capacity of the enclosures. The enclosure shall be so constructed as to prevent the leakage of oil therefrom, whether by the action of fire or otherwise.

(19) In the case of all storage sheds within the installation, doorways and other openings of the building shall be built up to a height not more than two feet above the level of the ground outside it and shall be sunk to a depth of not more than two feet below the level of the ground of the building itself shall be surrounded with a masonry or concrete embankment or built up. Provided that whatever method of preventing the escape of petroleum is adopted the receptacle so formed shall be capable of containing the whole of the petroleum liable to be present in the storage shed.

(20) All ventilating openings on tanks shall be protected by a wire mesh or straggles of strong wire gauze having a mesh of 20 to 25 square inches. The straggles shall be spaced not less than three inches apart. In the case of all such ventilating openings each tank shall be fitted with a pressure valve of an approved type.

(21) Adequate ventilation shall be provided in all storage sheds.

(22) The roof of all storage tanks shall be made gas-tight except where ventilating openings as provided in Section (20).

SECTION III

SPECIAL REGULATIONS APPLICABLE TO INSTALLATIONS FOR THE STORAGE OF DANGEROUS PETROLEUM

(1) The following minimum distances shall be observed between the points taken between the nearest points of the perimeters of the tanks in the case of installations for the storage of dangerous petroleum:

Between tank and tank
Between tank and building
Between building and building
Between building and installation

petroleum other than that stored in tanks shall be contained in gas-tight receptacles of galvanized sheet iron, steel, or lead plate receptacles fitted with gas-tight filling holes and well-fitting screw plugs, or fitted with screw caps or metal air-tight caps, subject to the following provisions:

(a) Sufficient air space to allow of expansion shall be left in each receptacle at the time of filling.

(b) Receptacles shall be so substantially constructed and secured as not to be liable, except under circumstances of grave negligence or extraordinary accident, to be broken or become defective, leading to insecure storage.

(c) The nature of the contents and the words "highly inflammable" shall be distinctly marked on all receptacles before despatch from the installation.

(d) Receptacles before being repaired shall be cleared of all petroleum and of all vapours arising therefrom.

(e) Petroleum in tanks shall not be carried out in the filling shed or in any part of the building not less than 100 feet distant. The receptacles, if they are heated, shall be heated in a separate compartment in which the soldering takes place. The opening between compartments through which the soldering irons are passed shall be not less than three feet from the ground and shall be provided with a door which can be lowered at once.

SECTION IV

REGULATIONS APPLICABLE TO INSTALLATIONS FOR THE STORAGE OF ORDINARY PETROLEUM.

The following minimum distances shall be observed, the measure to be taken between the nearest points of the perimeters of the storage sheds, as the case may be:

Between tank and tank
Between tank and building
Between building and building
Between building and installation

(a)

The report of this Committee has been studied by the Port Commission and the Commission has expressed its approval of the report.

It is no doubt that the Commission is of the opinion that the present methods of carrying on the work of the Port Commission are not satisfactory and that a general system of organization should be adopted.

It is also the opinion of the Commission that the Commission should be empowered to carry out the recommendations of the Committee.

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and shallow channel.

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the boats can be kept at the
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The channel is to be
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satisfy the Pitt Company.

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Uganda Railway and also for private consumption but considers that this is a matter which can only be dealt with by the competent authority which the Committee understands will shortly be appointed by Government to advise it on all matters connected with the future extension and general lay-out.

13. In conclusion the Committee wishes to point out that in view of the rapid expansion of trade not only in oil and coal but in the general trade of the port and the further very great expansion which is bound to occur in the near future as a direct result of the further opening up of the country by the new railways already opened, at present under construction and projected, it is strongly of opinion that a further comprehensive investigation into the future development and layout of the port is overdue and that if serious congestion and disorganization are to be avoided in about three years' time no time should be lost in appointing a competent authority to investigate these matters and to advise Government as soon as possible as to what measures should be taken to cope with them.

(Sgd.)

H. Walsh
Commissioner of Customs,
Kenya & Uganda (Chairman).

G.D. Rhodes
Chief Engineer, Uganda Railway

F. E. Bford
Resident Engineer,
Kilindini Harbour Works.

R. Sargent
Acting Port Captain.

S. Bennett
Personal Assistant to the
Director of Public Works.

Mombasa

18th September, 1925.

storage capacity is quite inadequate for existing needs.

The fuel oil is pumped ashore through a pipeline carried on a small jetty and ships tie up to 4 buoys in a very inconvenient berth near the end of this jetty which at certain times of the year becomes inaccessible; it is also very close to the wreck of the s.s. "Wissman" which is undoubtedly a danger to the berthing of ships here.

Ships cannot approach the end of the jetty and the space between the latter and the ship has to be made good by a length of flexible oil pipe secured to wooden floats.

In addition to being highly dangerous the whole installation at Kilindini can only be described as a temporary makeshift which would not be permitted to remain in use any longer than is absolutely necessary.

7. The Committee formed the opinion that at Shimani the area of Crown land set apart by Government for oil sites as shown on the plan submitted by the Land Office and attached to this report will be ample and sufficient for all requirements for many years to come. It is also sufficiently isolated and eminently suitable for the purpose for which it has been allocated.

As stated in paragraph 5 the only Company at present installed on this area is the British Imperial Oil Company, but the Vacuum Oil Company has applied for a site and the Anglo-Persian Oil Company proposes to apply shortly, but these Companies cannot obtain sites until the latter are put up for auction.

8. The Companies at present engaged in the importation and distribution of the oils under consideration are:-

(a)/

(a) The British Imperial Oil Company

(b) The Vacuum Oil Company

(c) The Anglo Persian Oil Company

(d) The Nagadi Soda Company imports fuel oil for its own use and deals with it at its own pier and in its own tanks at Shimoni.

(e) The Uganda Railway imports oil for its own use and has its own tanks as already stated in para. 4.

The British Imperial Oil Company imports petrol, kerosene, and fuel oils in bulk and packs the petrol and kerosene in tins and cases for distribution at its installation at Shimoni. The oil is pumped ashore from ships lying alongside the Nagadi Soda Company's pier through a pipe line from that pier to this Company's premises.

The Vacuum Oil Company imports petrol and kerosene in cases but its representative stated that this Company does not propose to go in for the importation of oil in bulk.

The Anglo Persian Oil Company at present only imports fuel oil in bulk and has an arrangement with one of the lighterage companies for supplying ships requiring bunker oil. This Company does not own its own storage tanks, but has an arrangement with the Uganda Railway for the use of its tanks at Kilindini. It proposes to start importing petrol and kerosene in cases at the end of the present year.

9. The estimated imports of oils for the year 1925, based on the actual quantities imported during the first 6 months of this year are as follows: -

Petrol and Kerosene in bulk	13,500 tons.
Fuel Oil in bulk	31,000 "
Total imported in bulk and pumped ashore	44,500 "
Petrol, kerosene, and lubricating oils in cases landed from lighters	11,500
Total estimated importation of oils for 1925	<u>56,000</u>

The British Imperial Oil Company imports up to the beginning of September this year show the following increases over the same period last year:-

Petrol 285%

Kerosene 71%

Fuel Oil 111%

If the same rates of increase in this Company's imports occurs during 1926 and allowing an increase of 100% for the Vacuum Oil Company's and Anglo Persian Oil Company's imports the estimated importations of oil for 1926 works out as follows:-

Fuel Oil, petrol and kerosene in bulk	95,500 tons
Petrol, kerosene, and lubricating oils in bulk	<u>27,000</u>
	<u>122,500</u>

It is impossible to forecast whether these estimated figures for 1926 will be achieved, but with the large expansion of trade which is taking place in this Colony and adjoining territories it is quite possible that they may be and the Committee is of opinion that Government should proceed on the assumption that they will be.

10. The position as regards the landing and shipping of oils can be summarized as follows:-

Oil imported in cases is carried ashore from lighters which are beached as near as possible to the existing oil godowns at Kilindini.

Oil imported in bulk is pumped ashore from a very inconvenient berth at Kilindini and from the Magadi Soda Company's pier.

Bunker/

Bunker oil is supplied to ships by means of a special oil lighter owned by the East African Lighterage Company and which is filled by means of the pipe line on the small jetty which serves the oil tanks at Kilindini.

11. Having cited the foregoing the Committee makes the following recommendations:-

- (a) The whole of the business of the importation, handling and storing of oils should be concentrated on the area already allocated for that purpose at Shimani and the existing oil installations at Kilindini closed as soon as possible.
- (b) To enable this to be done the plots on the Shimani area should be put up for auction immediately and the Vacuum Oil Company and the Anglo Persian Oil Company should first be notified that six months after the date of the auction or within such reasonable time as may be subsequently determined, Government will cease to provide storage accommodation for petrol and kerosene oil, and that the landing and storage of oils in cases at Kilindini or Mombasa will be prohibited from that date.
- (c) That it is essential that Government should provide a suitable pier adjacent to the Shimani area for the landing of cased oils and oils in bulk, and suitable for bunkering ships with oil fuel and when necessary, at the earliest possible moment; oil in cases will be unloaded on to the pier by ships tackle but it should be equipped with one or two fixed cranes (the exact number and position to be decided by the Government's engineering advisers) to enable oil in cases to be loaded into or discharged from lighters; that railway access should be provided to this pier and also road

access for motor lorries. Upon the completion of the pier each Oil Company should lay its own pipes from their premises on to it for connection to ships discharging and should be charged a tonnage rate for the use of it. The design of the pier, its exact site, length and alignment and all other such like details to be determined by the Government's Engineering Adviser in these matters.

The Committee considers that the technical advice offered by the Superintendent Engineer of the British Imperial Oil Company might be taken at the time when details of construction of the pier are under review, but that no sufficient reason for his immediate attendance existed at the present time when matters of principle only are under discussion. The Agents of the British Imperial Oil Company concurred in this view and stated that the Superintendent Engineer could attend at any time convenient to Government.

(d) That pending the completion of this pier, which will take some little time, the existing landing arrangements for fuel oil in bulk should be continued at Kilindini and the British Imperial Oil Company should be allowed to continue the use of the Hagadi Soda Company's pier. Similarly the beaching of lighters must continue at Kilindini until the requisite godowns for the reception of oil in cases can be built at Shimanzi, but directly these are available the landing of oil on the beach at Kilindini should be prohibited, and lighters should be allowed to beach at Shimanzi until such time as the new oil pier is ready for use. As soon as the new pier is completed the beaching of oil lighters in any situation should be prohibited and similarly the pumping ashore of bulk oil anywhere except over this pier should also be prohibited, the British Imperial Oil Company/

Company discontinuing the use of the Magadi Soda Company's pier, and the Uganda Railway the use of the existing arrangement at Kilindini.

As regards the handling of fuel oil imported by the Magadi Soda Company over its pier, the Committee is unaware of the conditions under which this is at present allowed, but is of the opinion that if possible all oil should be dealt with at the Government pier, use of the Magadi Soda Company's wharf being confined solely to shipments of the products of that Co. only.

(e) That as the present oil berth at Kilindini is dangerous and unsuitable for use by large tank steamers but can only be abandoned when the erection of a new oil pier at Shimanzi is completed, in the meantime steps should be taken to render it reasonably safe. The erection of dolphins is not recommended but the 3 buoys asked for by the Port Captain should be provided forthwith. When the use of this berth is discontinued these buoys can be readily used for other purposes in connection with the shipping of the port.

(f) That road and rail access to the sites for storing cacao oil at Shimanzi and road access from such sites to the adjacent beach should be provided forthwith as well as a suitable road from Kilindini Railway Station to the area in question.

(g) That the whole oil area shown on the accompanying plan should be properly surveyed as soon as possible.

(h) That the erection of a pier for landing oils by any private company should be prohibited.

(i) That the working of the new oil pier should be in the hands of the authority controlling the general working of the port which should receive all dues.

As in the opinion of the Committee it is essential that

that the control and working of this new oil pier should be in the hands of the authority which controls the landing and shipping work and all other interests and undertakings in connection with Port facilities provided by Government and as it is possible that the tonnage charges for oil landed over the new oil pier may not cover working expense and interest and sinking fund on the Capital expenditure on its construction, at any rate for the first few years, this Committee is of the opinion that the Government oil sites and pier at Ehimani should be regarded as one unit among the various other Government port undertakings and that sums derived from the sale of leases and rents should be credited to this unit as well as the amounts received from tonnage dues over the new oil pier, all expenditure on the proposed pier, road and sidings similarly being debited against this unit. If this is done it is probable that the oil sites and pier will pay for themselves from the commencement. The question of the disposal of any surplus ^{or} profit which may arise in the future could be decided by Government later. In order to inaugurate this method of dealing with these properties the management and control of the whole oil area as well as the pier should be placed in the hands of the Authority that controls all the other Government interests of the Port.

(J.) That the question of providing facilities for ships to bunker oil alongside the new deep water wharves should be borne in mind. The Committee is of opinion that undoubtedly these facilities will have to be provided at no very distant date. It is informed that a chamber has been left in the concrete of the wharf wall at the middle of each berth to permit of the installation of the necessary valves whenever a pipeline may be laid. The Authority controlling the port is the only one which can

decide when a pipeline from the oil sites at Shimani to the new wharves should be laid. When the Railway tanks are removed from Kilindini and re-erected at Shimani they should be placed at such a level as will enable oil from them to gravitate to the pipe at the new wharves when such pipe is laid.

(k) That as the British Imperial Oil Company have exhibited considerable enterprise in their new installation at Shimani and are desirous of extending it the Committee consider that this Company should be encouraged and that the extra land which it has applied for should be allotted to it without auction as there is ample land available for other Companies who may require sites for bulk storage and this procedure could not operate to the general advantage disadvantage of the public.

(l) That proper rules governing the handling and storing of oil on the Shimani area, and the landing of same over the pier, together with a proper tariff of charges for the use of the pier, etc. should be drafted and put into force as soon as possible; these matters should be referred to the Committee which it is understood has been appointed by Government to draw up rules and tariffs for the new deep water wharves.

12. As regards coal, the consensus of opinion is that little use is likely to be made of this port for coal bunkering purposes for many years to come, and therefore the immediate necessity for the provision of additional facilities in this connection does not arise.

The Committee find, however, that the importation of coal by the Uganda Railway is growing very rapidly and will amount this year to about 70,000 tons. The whole of this has to be carried ashore out of lighters which are berthed at Shimani and lighterage charges have to be paid.

As the rapid increase in the import of coal by the