

1914.
NEW ZEALAND

EXPLOSIVES IN NEW ZEALAND

(REPORT OF THE ROYAL COMMISSION OF INQUIRY INTO THE CARE AND CARRIAGE OF)

Presented to both Houses of the General Assembly by Command of His Excellency.

COMMISSION.

LIVERPOOL, Governor.

To all to whom these presents shall come, and to Robert West Holmes, Esquire, Engineer-in-Chief, Public Works Department; Lieutenant Theodore Keppel Elmsley, R.N.; Captain Henry Molesworth Edwards, R.E.: Greeting.

WHEREAS it is expedient that inquiry should be made into certain matters relating to the care and carriage of explosives in New Zealand:

Now, therefore, I, Arthur William de Brito Savile, Earl of Liverpool, the Governor of the Dominion of New Zealand, in exercise of the powers conferred by the Commissions of Inquiry Act, 1908, and of all other powers and authorities enabling me in this behalf, and acting by and with the advice and consent of the Executive Council of the said Dominion, do hereby constitute and appoint you, the said

ROBERT WEST HOLMES,
THEODORE KEPPEL ELMSLEY, and
HENRY MOLESWORTH EDWARDS,

to be a Commission to inquire into and report as to the care and carriage of explosives in New Zealand, and with special reference to the following matters:—

- (1.) Should private magazines for the keeping or storing of explosives be allowed, or should magazines in future be established and maintained by the Government?
- (2.) What conditions should govern the approval or selection of a site for such a magazine?

- (3.) What maximum amount of explosives should be allowed to be stored in any magazine ?
- (4.) Should one magazine building be allowed, or should a number of small magazines of limited capacity be established at a safe distance from each other ?
- (5.) Should the magazines at Maraetai and Thames, having regard to their capacity, propinquity to roads existing and intended, adjoining settlement, methods of carriage and other matters, be continued or closed ?
- (6.) Should the law as to the carriage of explosives on shore be so amended as to expressly permit of such carriage by wagons driven by steam or petrol engines ?

And generally to inquire into and report upon such other matters arising thereout as may come under your notice in the course of your inquiries, and which you consider should be investigated in connection therewith.

And with the like advice and consent I do further appoint you, the said

ROBERT WEST HOLMES,

to be the Chairman of the said Commission.

And for the better enabling you, the said Commission, to carry these presents into effect you are hereby authorized and empowered to make and conduct any inquiry under these presents, at such times and places in the said Dominion as you deem expedient, with power to adjourn from time to time and place to place as you think fit, and to call before you and examine on oath or otherwise, as may be allowed by law, such person or persons as you think capable of affording you information in the premises ; and you are also hereby empowered to call for and examine all such books, papers, writings, documents, or records as you deem likely to afford you the fullest information on the subject-matter of the inquiry hereby directed to be made, and to inquire of and concerning the premises by all lawful means whatsoever.

And, using all diligence, you are required to report to me, under your hands and seals, not later than the thirty-first day of July, one thousand nine hundred and fourteen, your opinion as to the aforesaid matters.

And it is hereby declared that these presents shall continue in full force and virtue although the inquiry is not regularly continued from time to time or from place to place by adjournment.

And, lastly, it is hereby further declared that these presents are issued under and subject to the provisions of the Commissions of Inquiry Act, 1908.

Given under the hand of His Excellency the Right Honourable Arthur William de Brito Savile, Earl of Liverpool, Knight Commander of the Most Distinguished Order of Saint Michael and Saint George, Member of the Royal Victorian Order, Governor and Commander in Chief in and over His Majesty's Dominion of New Zealand and its Dependencies ; and issued under the Seal of the said Dominion, at the Government House at Wellington, this thirteenth day of May, in the year of our Lord one thousand nine hundred and fourteen.

H. D. BELL,

Minister of Internal Affairs.

Approved in Council.

J. F. ANDREWS,
Clerk of the Executive Council.

REPORT.

To His Excellency the Right Honourable Arthur William de Brito Savile, Earl of Liverpool, Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, Member of the Royal Victorian Order, Governor and Commander-in-Chief in and over His Majesty's Dominion of New Zealand and its Dependencies.

MAY IT PLEASE YOUR EXCELLENCY,—

1. The Commission intrusted to us by Your Excellency directed our attention to the following matters in connection with the care and carriage of explosives in New Zealand :—

- (a.) Should private magazines for the keeping or storing of explosives be allowed, or should magazines in future be established and maintained by the Government?
- (b.) What conditions should govern the approval or selection of a site for such a magazine?
- (c.) What maximum amount of explosives should be allowed to be stored in any magazine?
- (d.) Should one magazine building be allowed, or should a number of small magazines of limited capacity be established at a safe distance from each other?
- (e.) Should the magazines at Maraetai and Thames, having regard to their capacity, propinquity to roads existing and intended, adjoining settlement, methods of carriage, and other matters, be continued or closed?
- (f.) Should the law as to the carriage of explosives on shore be so amended as to expressly permit of such carriage by wagons driven by steam or petrol engines?
- (g.) And generally to inquire into and report upon such other matters arising thereout as may come under your notice in the course of your inquiries and which you consider should be investigated in connection therewith.

2. Having now concluded our investigations and inquiries, we have the honour to submit to Your Excellency our report upon the several matters referred to us.

3. Your Excellency's Commission, dated the 13th May, 1914, was duly received by us, and we proceeded as soon as possible to carry out the required duties.

4. The procedure was first discussed and formulated, and duly arranged.

5. We append hereto the Commission issued to us by Your Excellency; the minutes of our proceedings, which contain the names of the witnesses examined; and a report of the evidence taken on oath. [Not printed.] We also append exhibits handed in and marked Nos. 1A, 1B, 1C, 2A, 2B, 3, 4, 5A, 5B, 5C, 5D, 5E, 5F, 5G, 5H, 5I, 5J, 5K, 6, 7A, 7B, 8, 9, 10A, 10B, 10C, 10D, and 11. [Exhibits not printed.]

6. Dealing with the six questions submitted to us :—

- (1.) We are of opinion that no sufficient reasons have been adduced or are apparent for the Government assuming control of the larger magazines, and also, in view of the large number of small magazines required, which it would be impracticable for the Government to own, that there is no objection to privately owned magazines being allowed.
- (2.) We recommend that the following conditions should be considered in selecting sites for magazines :—
 - (a.) Remoteness from dwellings, population, and from embankments for preventing inundation :
 - (b.) Easy communication to and fro by water :
 - (c.) Remoteness from public roads :
 - (d.) Accessibility to roads and railway sidings :
 - (e.) Reservation of sufficient land to preserve isolation :
 - (f.) The presence of natural obstacles for protection purposes :
 - (g.) Natural water-supply :
 - (h.) Observance of British Government Home Office regulations for magazines.

- (3.) In populated districts we recommend a maximum quantity of 50 tons ; in other districts where natural conditions afford suitable protection we consider that the maximum quantity may be increased to 100 tons. "Populated district" is defined to mean a district in which there is more than one dwelling per square mile within a radius of five miles of a magazine.
- (4.) We are of opinion that a number of small magazines is preferable to one large magazine.
- (5.) We recommend that the magazine at Maraetai should be continued and that at Thames be closed.
- (6.) We recommend that, except on railways, the transport of explosives, other than those in Class 6, in mechanically propelled vehicles or in trailers behind such be prohibited.

7. Having inspected the harbour and approaches we founded our conclusion that the magazine at Maraetai should be continued on the following reasons :—

- (a.) Its isolated position in comparison with other sites :
- (b.) Protection afforded by natural features :
- (c.) Distance from frequented steamer routes :
- (d.) Sheltered position from prevailing winds and sea, thus facilitating lightering operations :
- (e.) That sufficient land has been acquired to ensure continuous isolation and compliance with Home Office regulations :
- (f.) That it offers safer conditions than any of the islands which are situated in a sufficiently sheltered position to allow of transport of explosives with safety and minimum interruption.

8. The following reasons govern our recommendation that the magazine at the Thames be closed :—

- (a.) Too close to existing houses, town, and road, observing that in addition to the usual damage caused by an explosion there is grave risk of a serious landslip occurring, which would cause further damage to existing buildings and road :
- (b.) Faulty construction, in that—(i) Buildings are too close together ; (ii) ventilation is imperfect ; (iii) there are no shifting lobbies ; (iv) lightning-conductors are of bad design ; (v) there are no provisions for maintenance of equable temperature :
- (c.) The means of conveyance of explosives to and from the magazine are dangerous :
- (d.) The necessity for handling explosives on the roadside.

9. Having recommended that the present site at Maraetai be retained for magazines, we make the following remarks and recommendations with respect to the existing building :—

- (a.) That the building itself is a very suitable one :
- (b.) The maximum range of temperature is very small—an important point in all magazines :
- (c.) That the ventilation is satisfactory :
- (d.) That the number of working-entrances be reduced to one near each end, the others to be blocked by dwarf wall and door above for lighting purposes :
- (e.) That lightning-conductors be reconstructed in accordance with latest principles :
- (f.) That racks be provided within the magazine for the stacking of cases, to prevent any likelihood of cases becoming dislodged :
- (g.) That a proper shifting lobby and barriers be provided, as required by British regulations :
- (h.) That gritless asphalt be used for repairing the flooring in the entrances :
- (i.) That a separate detonator-store be established at least 50 yds. to the eastward of the magazine, and a regulation traverse be built.

10. In connection with the magazine at Maraetai, the necessity for the existing gazetted road along the foreshore in front of the magazine requires consideration. The evidence and our personal inspection clearly shows that there is no necessity for a foreshore road in front of the magazine, and that sufficient and good communication can be obtained by an inland road from the schoolhouse on the western side to the foreshore road on the eastern side at an existing bridge. We therefore recommend that the road along the foreshore be closed to the required extent, and that a new road be taken as described above, and a horse-track be at once constructed along it. Messrs. Nobel approve of this being done, and offer to contribute towards the cost.

11. In connection with the present condition obtaining in Auckland, of Messrs. Nobel owning the only available magazine, it appears from the evidence that rival traders have some objection to their business becoming generally known. To overcome this Messrs. Nobel offered to lease to the Government a sufficient area or areas as sites for other private or Government magazines. This would overcome all objections on the part of traders. There are sufficient suitable sites available for the purpose.

12. We find it necessary to make the following recommendations regarding several matters which came under consideration during our proceedings:—

(a.) The existing railway regulations governing the conveyance of explosives tend to cause illicit conveyance of small quantities in passenger-trains. We therefore make the following recommendations regarding amendments to the regulations (Division 2, page 67), which we consider desirable:—

(i.) That a quantity of explosive not exceeding 50 lb. in weight be carried in mixed trains, in a truck placed at least 70 ft. from the locomotive and also from the nearest carriage carrying passengers. Such explosive shall be placed inside a strong iron cylinder or case heavily galvanized after manufacture, lined with soft felt, and provided with means to prevent the explosive moving. The cases should be provided by the Railway Department or large dealers.

(ii.) That all regulations dealing with conveyance of explosives be made public, the largest dealers at present being unaware of the existence of regulations.

(b.) In order to facilitate railway traffic in explosives we consider that—

(i.) Whenever explosives are conveyed from the magazine to the railway by water, a special landing-jetty be constructed, connected by siding with the railway and provided with a roof or shed to protect the railway-trucks while being loaded:

(ii.) That elsewhere a railway-siding should be constructed as near the magazine as possible, to avoid entirely or reduce to a minimum intermediate conveyance by road, and thereby save handling.

(c.) We are of opinion that the General Government should exercise a closer supervision than at present exists of the storage and sale of small quantities of explosives throughout the Dominion.

(d.) We recommend that every vehicle conveying or containing explosives, whether by railway or road, be distinctly marked by placard of the word "Explosives," and by conspicuous exhibition of a sufficient red flag.

(e.) We recommend that every coasting-vessel carrying explosives be fitted with an approved magazine, or a portion of the hold be specially adapted to meet the requirements of the Inspector of Explosives, in which the explosives shall be stored.

13. Further, in connection with your inquiry several matters were brought under our notice, more particularly by the owners of the "Sabulite" manufacture, as regards storage and conveyance, and by Mr. L. Stanton regarding the obtaining of explosives for criminal purposes; but as these matters are outside our order of reference we recommend that they be referred to the Department for consideration,

14. With reference to our recommendation that the Government should supervise the storage and sale of small quantities of explosives, we append hereto in support a newspaper account of the storage of explosives in retail establishments in the Town of Pahiatua.

15. We wish to make special reference to the offer by Messrs. Nobel to carry out any alterations to their Maraetai Magazine which are herein recommended.

16. A description of an explosion of 90 tons of high explosives which occurred in the Suez Canal in 1905 was handed in by Mr. Timson, Messrs. Nobel's representative in Australasia; it is attached hereto as Exhibit No. 10. [Not printed.] From this it will be seen that the damage caused was confined to a much smaller area than was expected—for instance, the Freshwater Canal, situated quite close, was undamaged.

17. A petition in two parts was handed in by Messrs. Porter and Co., addressed to the Hon. Minister of Internal Affairs, which is appended hereto (Exhibits Nos. 2A and 2B) praying in effect that the present conditions regarding the storage, handling, and supervision of explosives in Auckland be allowed to continue. It will be observed that Exhibit No. 2A is signed by a large number of responsible merchants of Auckland City, and that Exhibit No. 2B is signed by a number of residents of Maraetai, Clevedon, and Whitford. [Exhibits not printed.]

18. In conclusion, we desire to acknowledge the assistance rendered to us during the inquiry by the witnesses, and to express our appreciation of the facilities afforded by Messrs. Nobel's Limited and the Thames Harbour Board in our inspections.

Mr. L. M. Shera ably and satisfactorily discharged the duties of secretary, and Miss Walker those of reporter to the Commission.

Given under our hands, at Wellington, this first day of July, one thousand nine hundred and fourteen.

R. W. HOLMES, M.Inst.C.E., Engineer-in-Chief, Chairman.

T. K. ELMSLEY, Lieutenant, R.N.

H. M. EDWARDS, Captain, R.E.

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