cc MASTER OPS

FILE

BM

PRIME MINISTER'S PERSONAL MESSAGE SERIAL No. T217/83

10 DOWNING STREET

THE PRIME MINISTER

16 December 1983

Your Majesty.

During your visit here, which we all recall with so much pleasure, you mentioned to me a product called Stabisoil. I promised that we would investigate it.

I have now received some expert advice on the stabilisation of sand and soil by the addition of various chemicals. Much of the work is based on the well-known natural phenomenon in 'salt flats' where the gradual percolation of various salts from a water table just below the surface of the flats produces a hard and durable surface. Other methods of stabilisation depend on the use of a cement-based grouting compound.

The product which Your Majesty showed me does not appear to fall into either of these categories since one of the major constituents is an organic chemical. I am advised that stabilisation using this type of compound is liable to degradation from prolonged sunlight and damage from surface water. There appears to be no published technical literature on the Stabisoil product so it has not been possible for our experts to check whether these problems have been overcome by some novel addition.

I am told that general experience with the use of chemicals to stabilise soil and sand has been disappointing. While there is

/ always scope

always scope for successful innovation, Your Majesty may wish to get good independent technical advice on this new development before making a substantial financial commitment.

With respectful good wishes,

Yours sincerely

Margaret Thatcher

His Majesty King Taufa'ahau Tupou IV, GCMG, GCVO, KBE

FILE

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10 DOWNING STREET

From the Private Secretary

16 December 1983

King of Tonga

Thank you for the advice contained in your letter of 13 December about a letter from the Prime Minister to the King of Tonga about Stabisoil.

I now enclose a letter which the Prime Minister has signed and I should be grateful if you would arrange for its delivery.

I am copying this letter and enclosure to the Chief Scientific Adviser.

A. J. COLES

Peter Ricketts, Esq.,
Foreign and Commonwealth Office.

CT

File

10 DOWNING STREET

From the Private Secretary

DR. NICHOLSON

CABINET OFFICE

TONGA

I attach a copy of a letter which I wrote on 26 October reporting the contents of a conversation between the Prime Minister and the King of Tonga.

May I draw your attention to the passage on page 2 about a Swiss company called Stabisoil and that company's product which, according to the King, was potentially very significant.

You will note that the Prime Minister said that we would ourselves investigate the effectiveness of the product. I imagine that the Department of Trade and Industry and the MOD are looking into this as a result of my letter.

BF

The Prime Minister has now asked me to send to you a sample which was handed to us by the King's suite. I am arranging for this to reach you by separate means, and I should be grateful if you could in due course let the Prime Minister have your observations.

4 November 1983

Foreign and Commonwealth Office

London SW1A 2AH

13 December, 1983

Dear John,

Visit of the King of Tonga: Stabisoil

Thank you for your letter of 8 December, with which you enclosed a draft letter from the Prime Minister to the King of Tonga about the product 'Stabisoil'.

We see no objection to advising the King to proceed with some caution as suggested in the Chief Scientific Adviser's letter. However, the King may have expected HMG to offer him independent technical advice, and may therefore be disappointed by the terms of the concluding paragraph.

If the King does react in this way and indicates that he would like further assistance from us over the provision of independent technical advice we could explore the possibilities of providing it under the existing programme for technical cooperation with Tonga. But this might require the Tongans to give up other projects which they have put forward.

Yours ever,

Peter Ricketts

(P F Ricketts)
Private Secretary

A J Coles Esq
10 Downing Street

Tonga NOV 79 Visits by King

CONFIDENTIAL

10 DOWNING STREET

From the Private Secretary

8 December, 1983

Visit of the King of Tonga: Stabisoil

Would you please refer to my letter of 26 October about the visit of the King of Tonga.

The Prime Minister asked me to follow up the King's reference to the product called Stabisoil.

I now enclose a copy of a minute of 7 December by the Chief Scientific Adviser and the associated documents.

I believe that the Prime Minister may well wish to write to the King of Tonga broadly in the terms proposed by Dr. Nicholson. But I should be grateful for confirmation that you see no objection to this and for any observations you may have on the drafing of the letter. I do not think we should delay this matter further and should therefore be grateful for your reply by Tuesday, 13 December.

A. J. COLES

P. F. Ricketts, Esq.,
Foreign and Commonwealth Office

CONFIDENTIAL

CONFIDENTIAL

W.0821 7 December 1983

TO: MR COLES, 10 Downing St.

FROM: DR NICHOLSON

STABISOIL - KING OF TONGA

I have now received the report on Stabisoil from the Building Research Establishment and a covering letter from the Chief Scientist of the Department of Environment, both of which I attach.

2. I am inclined to agree with the conclusion of Dr Holdgate that the Tongans are being taken for a ride but one cannot of course be sure and the limited (perhaps deliberately so) samples of material make it difficult to come to certain conclusicns.

3. I have therefore drafted a fairly cautious response for the Prime Minister to send the King of Tonga and I have not picked up Holdgate's suggestion that we volunteer the services of ODA. However I am copying this correspondence to ODA so they can take any action which seems appropriate using their normal channels of communications.

4. I assume that no further action is required with De La Rue which, in any case, was your contact rather than mine.

PRSN

cc: Dr Holdgate, DoE
Mr Cunningham, ODA

CONFIDENTIAL

DRAFT LETTER FROM THE PRIME MINISTER TO THE KING OF TONGA

During your visit here, while we all recall with so much pleasure, you mentioned to me a product called Stabisoil. I promised that we would investigate it.

I have now received some expert advice on the stabilisation of sand and soil by the addition of various chemicals. Much of the work is based on the well-known natural phenomenon in 'salt flats' where the gradual percolation of various salts from a water table just below the surface of the flats produces a hard and durable surface. Other methods of stabilisation depend on the use of a cement-based grouting compound.

The product while Your Majesty showed me does not appear to fall into either of these categories since one of the major constituents is an organic chemical. I am advised that stabilisation using this type of compound is liable to degradation from prolonged sunlight and damage from surface water. There appears to be no published technical literature on the Stabisoil product so it has not been possible for our experts to check whether these problems have been overcome by some novel addition.

I am told that general experience with the use of chemicals to stabilise soil and sand has been disappointing, and while there is always scope for successful innovation, ~~I am sure you will~~ Your Majesty may wish to get good independent technical advice on this new development before making a substantial financial commitment.

WR 14/12.

Department of the Environment and
Department of Transport
2 Marsham Street London SW1P 3EB

01-212 7390

Chief Scientist and Deputy Secretary
Dr M W Holdgate CB

30 November 1983

Dr R Nicholson
Cabinet Office
Whitehall
SW1

CONFIDENTIAL

Dear Robin

STABISOIL

I have seen the BRE report of 23 November on this subject.

You will want to consider handling. As I read the situation, it looks very much as if the Kingdom of Tonga is being taken for a ride by a bunch of crooks. How we get a warning out to them that they ought not to trust this product, at least without very exacting field trials, I do not know. Obviously we would not want to lay ourselves open to action in the courts on the basis of the kind of warning that the BRE report contains, but it does look very much as if the product does not come from a well known firm, that its provenance is not exactly well documented, and that is performance under field situations is likely to be disappointing (to say the least!). It may be that a link between the offices of the Prime Ministers could be the most convenient way of warning the Tongans to be careful, and it is possible that ODA (who have an association with BRE) might volunteer to look into the optimum way of carrying out soil stabilisation in Tonga as part of whatever aid we provide in that direction?

Best wishes

Yours ever.
Martin

M W HOLDGATE

CONFIDENTIAL

Dr R B Nicholson
Cabinet Office
70 Whitehall
LONDON SW1A 2AS

SAMPLE OF PRODUCT CALLED STABISOIL

In reponse to Val Meadows minute of 9 November (W0 739) I attach a short report of our investigations.

J B MENZIES
Building Research Establishment

23 November 1983

cc Dr Holdgate
Dr Watson

CONFIDENTIAL

INVESTIGATION OF SAMPLE OF PRODUCT CALLED STABISOIL

1. A small sample of the product STABISOIL, a clear colourless fluid, together with four sample pellets of stabilsed soil, which had recently been handed to the Prime Minister's Private Office by the King of Tonga's suite, were delivered to the Building Research Establishment (BRE) on 10 November for investigation. The product was reported to be a soil stabiliser.

SEARCH FOR TECHNICAL INFORMATION ABOUT STABISOIL

2. The product was unknown to BRE. A search of the International Road Research Data Base failed to reveal any reference to it in the technical/scientific literature and the Swiss Embassy in London found no reference to the firm Stabisoil Ltd in the Swiss Trade Directory nor in the telephone directory of the town of Brig where the firm's factory was reported to be located.

3. The following manufacturers and suppliers of chemical grouting and soil stabilisation compounds, contractors specialising in geotechnical processes and other organisations were contacted for information:

Rhone - Poulenc (UK)
ICI (Petrochemicals Division) Ltd
Cementation Piling Foundations Ltd
Foundation Engineering Ltd
Foraky Ltd
GKN Keller Foundations
Colcrete Ltd
Wimpey Laboratories
Schweizerischer Technika Verband, Zurich
Engineering Intelligence, Department of Transport
Transport and Road Research Laboratory
Overseas Development Adminstration

4. Apart from ICI, none of the representatives of these organisations had any technical data on 'Stabisoil' and only the last two had heard of it and that only as a result of the Swiss sales efforts in Tonga. ICI were, however, able to locate a reference to Stabisoil in the form of a report dated 26 January 1981 produced by the Geotechnical Institute (not further identified). A study of the report revealed little useful technical information. The chemical composition of the product was not given. The product was stated to act as a catalyst but the explanation of its function was not understood.

5. An article in the Tonga Chronicle (2 September 1983) was located which discussed the product. It adds little technically to the report but it does state that the Stabisoil has been used for ten years in airport construction and road making in Europe, Asia and Africa.

EXAMINATION OF SAMPLES

6. Examinations of the small fluid sample (acidity, action of heat, infra-red spectrometry, ion chromatography, flame emission, and atomic absorption spectrometry) revealed Stabisoil to be an aqueous acetic acid solution of an organic material, possibly pectin. It also contains small amounts (approx. 0.2-0.3%) of fluoride, sulphate and sodium.

7. The high acidity and absence of aluminium and silicon indicates Stabisoil is not one of the usual sodium silicate/aluminate soil stabilisers which are highly alkaline.

8. A stabilised soil sample-made by mixing Stabisoil with a quartz sand, lightly compacting and leaving overnight - was quite hard in compression but when dropped into water disintegrated completely into a layer of sand.

9. The sample pellets of stabilised soil were quite hard and resistant to rubbing. However, on wetting, their surfaces became soft and very friable.

10. If Stabisoil is based on a natural product like pectin it would be unlikely to be durable when subjected to UV light and biological action.

CONCLUSIONS

11. There have been several 'miracle' soil stabilising chemicals marketed in the last decade or so and all have proved disappointing and have failed to live up to their manufacturers claims. This history and the fact that Stabisoil is virtually unknown amongst UK and some European organisations concerned with stabilisation suggests caution should be exercised before any commitments to purchase or use the material are entered into.

12. The apparent inability of Stabisoil to stabilise samples except in the absence of water and probably also sunlight and biological action supports the above conclusion. An evaluation involving evidence from technical literature, larger samples and field trials would be needed to determine the value of this product as a long-term stabiliser.

BUILDING RESEARCH ESTABLISHMENT
Department of the Environment

22 November 1983

W.0766 17 November 1983

MR J D COLES, 10 DOWNING STREET

Prime Minister.

A.J.C. 17/11

PRIME MINISTER'S MEETING WITH THE KING OF TONGA

After receiving your minute of 4 November and the samples from the King of Tonga, I discussed the matter with Dr Holdgate, Chief Scientist at the Department of the Environment and then sent the material to the Building Research Establishment. On receipt of your minute of 15 November I spoke to the Building Research Establishment to see whether they had completed their investigation.

They have had some difficulty in tracing the Company, Stabisoil, in Switzerland and are also having some difficulty with the clear fluid which was included in the samples submitted by the King of Tonga. However they expect to be able to report to me on their findings early next week.

I did not disclose to the BRE that you had also received some information from the De La Rue Company on this matter, since I felt that this would only serve to confuse the issue. At this stage it seems unlikely that the process referred to by the King of Tonga is a cement grouting process since the clear fluid we were given is obviously in no way associated with cement. However it would be premature for me to comment further on the De La Rue Company information until I have received the report from BRE.

RBN

ROBIN B NICHOLSON
Chief Scientific Adviser

Tonga NOV 79
Visits by King & Queen.

10 DOWNING STREET

From the Private Secretary

DR. NICHOLSON
CABINET OFFICE

In my minute to you of 4 November, I brought to your attention the remarks of the King of Tonga during his recent visit about a chemical substance which, according to the King, could be used to turn sandy areas into landing areas for aircraft.

I now attach a letter which the Prime Minister has received from the De La Rue Company commenting on this matter.

As stated in my previous minute, the Prime Minister would be most grateful for any advice which you can offer on the usefulness of the substance referred to by the King of Tonga.

A. J. COLES

15 November 1983

10 DOWNING STREET

From the Private Secretary

15 November 1983

The Prime Minister has asked me to thank you for your letter of 9 November summarising the information which your scientists and engineers have obtained about the substance for solidifying sandy areas which was mentioned by the King of Tonga during his recent visit to London.

Mrs. Thatcher is most grateful for this information.

Sir Arthur Norman, K.B.E., D.F.C.

Garden Rooms
CF
Press Office
Political
Joy
NT

Tessa

Sorry not to be able to help - has John Coles been asked if he knows anything about it?

Joy

14.11.83

John - This has been around the office but, alas, we cannot trace the Chairman's letter of 26th October. Do you recall it pl? Kay 15/11

Tey

The Foreign Minister(s)
talked to me at
lunch but I forget
in reference to what

S 12/11

Jon

This means nothing to Amanda or me, but I just wondered if anything had come via D.T.?
Could you ask him and then, if "no", let me have it back to ask Michael?

Thanks

Jessica

CF?
No.
GR No.

The De La Rue Company p.l.c.

AGN/JM.

Chairman's Office
Sir Arthur Norman KBE DFC

Registered Office
De La Rue House 3/5 Burlington Gardens
London W1A 1DL

Telephone 01-734 8020
Telex 24977
Cables Delinsul London W1
Registered Number 58025 England

9th November, 1983.

The Right Hon. The Prime Minister,
Mrs. Margaret Thatcher, P.C., M.P.,
10, Downing Street,
LONDON, S.W.1.

PM

Dear Prime Minister

With further reference to my letter of October 26th concerning a statement made to you by His Majesty The King of Tonga, on his recent visit, I attach a brief summary of the information which our scientists and engineers have been able to obtain.

Yours sincerely,

Chairman.

Enclosure.

THE DE LA RUE COMPANY, p.l.c.

SOLIDIFYING TONGAN BEACHES.

1. A University Lecturer in soil stabilisation makes the point that in many areas covered by sand there is often a water table only just below the surface and this causes salts to rise to the surface thereby solidifying the sub-surface area to a considerable degree. An example is the salt flats in Utah used for motor racing. There are many other surfaces in the USA and in Australia on which an aircraft could land without any additional treatment. There are also many areas where the sub-surface is rather solid with only a small depth of loose sand on top. Areas just above the sea water line are often like this. This contact had not, however, heard of any process which could be the basis of that described by H.M. the King of Tonga.

2. In attempting to trace the chemical substance that is being used in Tonga, to turn strips of ordinary sandy beaches into Landing areas for aircraft - the type of aircraft being unspecified - after extensive enquiries we spoke with an authority at the Cement and Concrete Association who at first disclaimed all knowledge of such a chemical and then stated that he thought it was possible to use cement grout. This is mixed into the sand in position on the beach. Then water is added, and the end result is a stable surface capable of supporting an aircraft.

For confirmation, this same source suggested that we rang a contact at ECT, European Container ... in Holland. Apparently this process is used quite a lot in the Delft area where they dredge sand and then harden it in the way described above. This man confirmed the process and said they can then use the land for industrial purposes. The maximum depth of the surface is 50 cm. and the mixer machines they use are available in Continental Europe, the U.S.A. and Australia. They are not particularly large machines, but he nevertheless thought it was unlikely that they would have them in Fiji or Tonga. If we want further information about the machines, the person to ask is :-

Mr. Hank van de Loes,
Larenco Netherlands B.V.
Tel. 010 31 10 85 649410.

This company does have an International Division for export.

9.11.83.

AGN/JM.