

WATER RESEARCH COMMISSION PROJECT NO. 201

THE TREATMENT OF INORGANIC BRINES AND CONCENTRATES

APPENDIX 16

**Memorandum of Agreement in Connection with an Investigation into the
Recovery and Reuse of Sodium Hydroxide and Water from
Bottle Wash Effluents**

Pollution Research Group
Department of Chemical Engineering
University of Natal
Durban

October 1990

CONFIDENTIAL

WRC DOCUMENT NO. : 4/3/88

WATER RESEARCH COMMISSION PROJECT NO. 201

TREATMENT OF INORGANIC BRINES AND CONCENTRATES

STEERING COMMITTEE 1988

APPENDIX 10

**MEMORANDUM OF AGREEMENT IN CONNECTION WITH AN
INVESTIGATION INTO THE RECOVERY AND REUSE OF
SODIUM HYDROXIDE AND WATER FROM BOTTLE WASH EFFLUENTS**

Pollution Research Group
Department of Chemical Engineering
University of Natal
Durban

1988

MEMORANDUM OF AGREEMENT

**IN CONNECTION WITH AN INVESTIGATION INTO THE RECOVERY AND REUSE
OF SODIUM HYDROXIDE AND WATER FROM BOTTLE WASH EFFLUENTS**

ENTERED into by and between:

**THE WATER RESEARCH COMMISSION
(Hereinafter referred to as the Commission)
of the first part**

and

**THE UNIVERSITY OF NATAL
(Hereinafter referred to as the University)
of the second part**

and

**NATIONAL BEVERAGE SERVICES (Pty) Ltd.
(Hereinafter referred to as the Company)
of the third part**

WHEREAS the Commission, in the execution of its statutory charge and with a view to promoting research into the problems of the treatment of industrial effluent within the Republic of South Africa, is prepared to grant assistance in pursuance of a performance evaluation project for the treatment of bottle wash water using a process which has been patented by the Water Research Commission,

AND

WHEREAS the Company, in the execution of its production of beverages, produces an effluent known as bottle wash water, is therefore desirous to grant assistance to a programme to improve the performance of the same,

AND

WHEREAS the Pollution Research Group of the Department of Chemical Engineering of the University is prepared to conduct the aforesaid programme to investigate the treatment of bottle wash effluents, it is, therefore hereby agreed that the University shall carry out the investigation in Annexure A, subject to the following conditions:

1. **RESPONSIBILITIES OF THE COMMISSION**

The Commission shall, without prejudice to its rights as specified in Section 3(2) of the Water Research Act, No. 34 of 1971 as amended, make funds available to the University on request, as detailed in the attached Budget.

The responsibility of the Commission is limited to that as detailed in Clause 5 of this agreement.

2. **RESPONSIBILITIES OF THE UNIVERSITY**

The University shall in the discharge of their obligation as set out above, inter alia:

- 2.1 Carry out the study as specified in Annexure A at the Company's subsidiary, Peninsula Beverage Company Ltd., Industrial Ring Road., Parowvallei.
- 2.2 Submit working programmes to the Technical Sub-Committee for consideration and recommendation (refer Clause 4).
- 2.3 Carry-out the working programmes as recommended by the Technical Sub-Committee (refer Clause 4).
- 2.4 Prepare progress reports throughout and a final report within the duration of the project, on the project for submission to the Technical Sub-Committee and for transmitting to the Commission and the Company.

3. **RESPONSIBILITIES OF THE COMPANY**

- 3.1 The Company shall in the discharge of its obligation as set out above, inter alia:
 - (a) Fund all direct costs such as transport, subsistence and travel.
 - (b) Provide electricity, chemicals and effluent supply.
 - (c) Provide all maintenance and such modifications as may be agreed.
 - (d) Supply all operating data to the University.

(e) Permit access to the premises at all reasonable times to any accredited representative of the Commission and the University for purposes related to work on the project.

(f) Protect patent rights mentioned in Clause 8.

3.2 It is recognised that the production of beverages by the Company is carried out according to strict standards and the Company reserves the right to disallow any activity which, in its opinion, will be harmful to its primary requirements in the production of beverages.

4. TECHNICAL SUB-COMMITTEE

4.1 A Technical Sub-Committee will be constituted which will consist of the following:-

Chairman : to be nominated by the Commission.

Members : one representative nominated by the Company,

: one representative of the University.

4.2 The Technical Sub-Committee will meet whenever necessary to consider the progress and guide the working programme of the investigation at the Company's factory.

5. FINANCE

The costs of the work described in Annexure A will be met by the Company and the Commission. The direct costs to the Commission will be limited to the salary component of the investigation as detailed in the enclosed budget.

6. DURATION OF PROJECT

6.1 The agreement shall, subject to the provision of Clause 12, remain in force for a period of 12 months as from the date of commencement of this agreement.

6.2 Any extension to or variation in the aforementioned period can be mutually agreed upon by the parties thereto and confirmed in writing.

7. PUBLICATIONS

7.1 All reports and details of any plants relating to the project must be treated as confidential and the collective property of the contracting parties, but none of the contracting parties shall have the right to publish any one of the reports or any abridged version thereof, without mutual agreement between the parties concerned.

7.2 All details of the investigation i.e. the total treatment process shall remain the property of the Company, the University and the Commission, and shall not be disclosed to any other party without the consent of the Company, the University and the Commission, except as provided for in Clause 8.

7.3 The principle is recorded that the University will be entitled to publish research results of scientific interest pertaining to this agreement, provided that such publication will be subjected to prior written approval of the Company and the Commission.

8. PATENTS

- 8.1 Any patentable inventions, developments or improvements to existing patents resulting from this project, shall belong to the Commission. In the case of a patent arising from work done under this contract within the factory of the Company, the Company shall receive free licence to use the results of this work.

9. CONFIDENTIALITY

All persons coming into contact with data, reports and pilot plant relating to the project shall be required to sign a secrecy agreement, as shown in Annexure B prohibiting them from divulging any information on the project to parties who are not contracted to this agreement.

10. INDEMNITY CLAUSE

- 10.1 The Company does hereby indemnify the Commission and the University against and shall not hold the Commission or the University liable for any claim for damages to the Company's equipment arising out of the installation, adjustment, removal and/or operation of the effluent plants by the University or arising out of the University performing any of its rights or functions in terms of this agreement by the University.
- 10.2 In turn the Commission and the University hereby indemnify and save harmless the Company against any claim howsoever arising from damages to representatives or property of the University and the Commission as may arise from the activities of such representatives upon the property of the Company.

11. CAPITAL ASSETS

All capital assets bought by funds made available by the Company will remain the property of the Company at the completion of the project.

12. CANCELLATION OF CONTRACT

Any party to this agreement has the right to cancel this contract without further obligation on its part should any other party to the agreement fail to carry out its obligation in terms of this agreement. One months notice in writing shall be served upon the other parties of the intention of any party to cancel this agreement. Parties shall be responsible for their financial obligations in terms of this agreement up to the date of such cancellation. All parties to this agreement shall be entitled to retain one copy of all relevant data accruing up to the date of the aforesaid cancellation.

SIGNED at PRETORIA this day of 1988 in the presence of the
subscribing witnesses:

For the Commission

.....
EXECUTIVE DIRECTOR

WITNESSES:

- 1.
- 2.

SIGNED at this day of 1988 in the presence of the subscribing
witnesses:

For the University

.....
REGISTRAR

WITNESSES:

- 1.
- 2.

SIGNED at this day of 1988 in the presence of subscribing
witnesses:

For the Company

.....
CHAIRMAN

WITNESSES:

- 1.
- 2.

ANNEXURE A

AN INVESTIGATION INTO THE RECOVERY AND REUSE OF SODIUM HYDROXIDE

AND WATER FROM BOTTLE WASH EFFLUENTS

1. BACKGROUND

The Pollution Research Group (PRG), Department of Chemical Engineering of the University of Natal has developed processes for the closed loop recycle of sodium hydroxide and water while undertaking a research contract for the Water Research Commission (WRC). These processes have been patented by the Water Research Commission. The beverage industry uses sodium hydroxide for the washing of glass bottles and consequently produces an alkali (or acid neutralised) effluent. In certain circumstances the disposal of this effluent is both costly and environmentally undesirable. In order to assess the suitability of the sodium hydroxide recovery process for the treatment of bottle wash effluents it is proposed to undertake a pilot plant investigation at a bottling plant.

2. SCOPE

The WRC, through the PRG, will make the capital equipment available for a pilot plant exercise.

Staff of the PRG will train a staff member of the bottling plant in the operation of the process and in the interpretation of the results. This training will take place in the PRG's laboratory in Durban.

The bottling plant staff member will dismantle the equipment, and re-erect the equipment at the bottling plant.

The pilot plant will be operated by the bottling company under agreed experimental conditions. The results will be transmitted regularly to the PRG for assessment and comment.

Progress meetings will be held at six weekly intervals at the bottling factory.

Routine chemical analyses will be undertaken at the factory. Specialised tests (e.g. membrane fouling tests) will be carried out by the PRG.

3. FINANCE

The salaries of the PRG personnel will be met by the WRC.

The refurbishing of the equipment (which is currently in King William's Town) will be met by National Beverage Services.

All direct costs (chemicals, maintenance, return cartage to Cape Town, subsistence and travel) will be met by National Beverage Services.

BUDGET**WATER RESEARCH COMMISSION**

Salary	Time (days)	Daily rate	Cost	
Group Leader	17	150	2 550	
Consultant	11	150	1 650	
Project Leader	41	150	6 150	
Chemist	15	150	2 250	
Typist	17	75	1 275	
Technician	13	75	975	
TOTAL				14 850

NATIONAL BEVERAGE SERVICES

Travel and Subsistence - Cape Town	7 300	
Equipment Relocation	7 000	
Chemicals	1 000	
Maintenance	3 000	
Refurbishing of Equipment	5 000	
TOTAL		38 150

TEST PROGRAMME - 6 MONTH

	Staff Allocation (days)						
	NBS Man	Group Leader	Consultant	Project Leader	Chemist	Typist	Technician
Refurbishing		2	1	5			10
Planning and Site Visit		2	2	2			
Instruction	9	1	2	7			1
Operating Manual		2	1	6		4	
Packing (and return)	1						2
Installation / Commissioning		2		3			
Progress Reports (4 off)		3	4	12		10	
Progress Meetings (4 off, Cape Town)		4		4			
Fouling Test		1	1	2	15	3	
TOTAL	10	17	11	41	15	17	13