



New Zealand
THE DRILLER

OFFICIAL PUBLICATION OF THE NZ DRILLERS' FEDERATION

AUTUMN 1983 No 7



SURESCREEN

Stainless Steel Wedge Wire WATER WELL SCREENS

Special stainless steel high tensile structural ribs to provide smooth unrestricted bore.

The
Perfect
Screen
for Water
Wells

Special stainless steel wedge wrapping sections, helically wrapped to form a continuous non-clogging aperture.

- ☐ SURESCREEN'S continuous slot wire wound screens have provided the water well industry with the most efficiently designed well screen produced which allows a water well to be developed to its fullest potential.
- ☐ SURESCREEN has the largest area of screen with a collapse strength greater than any other.
- ☐ 25mm to 1500mm diameters.
- ☐ 1mm to 25mm slot size.
- ☐ Continuous lengths to 7 metres.
- ☐ 21 year guarantee.
- ☐ Best range of stock readily available for fast delivery.
- ☐ Competitively priced.

FOR FULL SURESCREEN DETAILS, SPECS
AND SAMPLE, MAIL COUPON TO...

THE
DOMINION
CONSTRUCTION
COMPANY
LTD.



13 GARRETT ST PO BOX 11-077
TELEPHONE 843-671
WELLINGTON, NEW ZEALAND

Please mail literature, etc., to...

NAME

STATUS

ADDRESS

NZDF heads for Tauranga

THE ANNUAL conference of the New Zealand Drillers Federation, and the associated drillings school, will be held at Tauranga from July 27-30. It will be based at the Willow Park Motor Hotel, the city's main conference venue.

Full details of the programme were not available when this edition of The New Zealand Driller went to press, but will be included in registration forms distributed early in June.

Topics likely to attract interest include environmental law and its impact on drillers, and discussion of features of the Bay of Plenty's geology and hydrology.

The organisers also hope to set up a session on computers, showing how increasingly 'friendly' personal computers and calculators can help drillers.

The popular drilling demonstrations are planned for Te Puna, west of Tauranga. Those attending will see a bore through Tauranga alluvial gravel structures, and down-the-hole hammers working on some very hard rock.

The demonstrations are expected to take up most of the conference's time on Friday, July 30.

Proceedings begin on Wednesday, July 28, with an informal welcoming social function.

Drilling supply companies' representatives get the chance to talk about new products and services in a session on the evening of Thursday, July 28. Indications are that several companies have developments to be unveiled.

The annual meeting of the Drillers' Federation will be held in the evening of Friday, July 29.

The conference wind up dinner and dance on Saturday, July 30, will include a well-known cabaret act and be preceded by a cocktail hour.

Bus trips to various points of interest throughout the Bay of Plenty will be arranged for women accompanying delegates should there be sufficient demand.

Conference registration forms were due for distribution in early June, with registrations closing on June 30. People seeking further details on the conference should contact

Mr Mel Ouston
NZ Drillers' Federation
P O Box 1318
HAMILTON

Publicity for fed members

ADVERTISEMENTS IN two agricultural publications recently publicised the abilities of members of the New Zealand Drillers Federation, and how to get in touch with them.

The directory of full members appeared in the December 18, 1982, edition of 'Straight Furrow', the official publication of Federated Farmers, and the 1983 directory issue of 'Southern Horticulture', serving New Zealand's fast growing horticultural industry.

Members admitted

THREE NEW members — two companies and an employee — were recently admitted to membership of the New Zealand Drillers' Federation.

The full members are

Barham United Welldrillers Ltd, of Te Awamutu and Hamilton. The company, formed in 1935, operates rotary drilling equipment.

Rex Brown Welldrillers Ltd, of Ngauruhia, has more than 20 years experience in farm water wells, site investigations, core sampling, and industrial water supplies.

The employee member is

Greg Pemberton, principal of Groundwater Consultants (NZ) Ltd, of Nelson. The business specialises in water exploration work and well logging using geophysical techniques.

Cover:

Drilling technology in the 1930s ... Rotorua Welldrilling Co Ltd hits steam in Rotorua. Pictured from left are Jack Hoffman, now head of the DSIR's drilling section, Geoff Brown, founder of Rotorua Welldrilling Co Ltd and father of the company's current managing director Mr Gordon Brown, and employee Bert Thompson. More about the company today, and its thoughts on the future, in articles on Pp 5, 8, 9, and 11.

The Driller is the official publication of the New Zealand Drillers' Federation Inc.

EDITORIAL

All editorial inquiries, including manuscripts, should be directed to

The Editor
The NZ Driller
P O Box 245
WELLINGTON
Ph (04) 729 924

The New Zealand Driller is produced by The Contract Editorial Company Ltd on behalf of The New Zealand Drillers' Federation.

Editor: Greg Newton

ADVERTISING

Advertising inquiries, material should be directed to

The Advertising Manager
The NZ Driller
P O Box 245
WELLINGTON
Ph (04) 729 924

Advertising rates

Full page	\$200
Half page	\$120
Quarter page	\$75
Specified pos	+ 20 per cent
Two colour	\$40 extra
Classified	\$3/col cm
Columns 26cm deep x 13 ems	

SUBSCRIPTIONS

Inquiries to

The Circulation Manager
The NZ Driller
P O Box 1318
HAMILTON
Ph (071) 390 069

Cost \$10 for four issues

The NZ Driller is circulated free of charge to all members, employee members and associate members of the New Zealand Drillers' Federation, and to selected catchment authorities, territorial local regional water boards and government departments.

Information published in The NZ Driller may be republished, provided that the source is acknowledged.

Before installing your next pump contact the experts



Proud to be New Zealand agents for world renowned

T.R.W. Reda

and

Standard submersible pumps

T.R.W. Reda have pumps operating in 108 countries. And in New Zealand, McNeill Drilling now stocks a range from three inch 0.5hp to ten inch 100hp pumps. . .

Contact McNeill for more information on these outstanding performance of these pumps, as well as the TRADE DISCOUNT associated with T.R.W. Reda pumps.

McNeills also stock other leading brands including

Grundfos Aturia Brown Bros Renown Posiflo



McNeill Drilling is also
South Island distributor for
Gruner Williams rock bits
BUILT TO BITE

Contact

McNeill Drilling Co Ltd
P O Box 1041 Invercargill
Ph (021) 66 035

Drill manual in new edition

THE NATIONAL Waterwell and Drilling Association of Australia has published the fourth edition of its 'Drillers' Training and Reference Manual'.

It has over 300 pages of text, illustration and tables covering the full range of drilling applications, and is fully updated from the earlier edition. Designed for use either in the classroom, as a standard text, or on the drill site, it is also highly regarded as a standard technical reference.

The NWDA says the manual has provided an invaluable training and reference source for drillers and others associated with the drilling industry. Information from

NWDA
P O Box 187
St Ives, NSW 2075
AUSTRALIA

Big rigs or Rotorua

TWO NEW drilling rigs, imported second hand from North America, have joined Rotorua Welldrilling Co Ltd's fleet.

They arrived in New Zealand earlier this year and are both now in work.

Largest of the two rigs is a Gardner Denver 15W, mounted on a Ford 9000 truck.

Fitted out with an 850cfm air compressor, foam pump, and a 6 x 5 GD mud pump, the rig is rated to drill close on 8000 metres, or 2 500ft, with 2 3/8 inch drill rods.

The unit is powered by a 225kW GMC diesel and weighs 21 tonnes all up.

The smaller rig is a Mayhew 1000, mounted on a shiny black Kenworth, also powered by the 225kW GMC. It is older than the Gardner Denver, has a 600cfm compressor, and is rated to drill about 500 metres, or 1 500ft.

Mr Brown said the rigs were bought in the US where a lot of similar equipment is for sale at competitive prices because of the recession.

"We paid about \$100 000 for the Gardner Denver, which would probably have cost about quarter of a million to buy and set up like that from scratch.

"That's outside what our rates can afford."

The rigs are the first in the Rotorua Welldrilling fleet which the company



Smaller of the two new drilling rigs bought by Rotorua Welldrilling Co Ltd is a Mayhew 1000, mounted on a GMC-powered Kenworth. The Mayhew includes a 600cfm compressor, and is rated to drill 500 metres.

has not built itself, and are the first they have commissioned since 1971.

Mr Brown said the company does not intend retiring any of its present units. Rather it will allow some to be taken out of service for major overhauls, while others will be relegated to reserve status.

The new Gardner Denver is in for a varied life.

After modifications are carried out to fit a walking beam, its main role will be drilling holes to monitor various aspects of Rotorua's geothermal fields.

This work is an attempt to find out about the resource, and how much energy it can provide without being permanently damaged.

It will also be used for drilling large diameter shallow wells, for both hot and cold water.

Boring regs get popular

ANOTHER CATCHMENT Board has advised The New Zealand Driller of regulations to control water bore

construction, testing, operation and alterations, pile driving and dredging. The Driller, in its Summer 1982-83 edition, reported a bylaw effective in the Hawkes Bay Catchment Board area from November 1, 1982.

Similar controls became effective in the Manawatu Catchment and Regional Water Board area from May 1, 1982.

Anyone making or altering a bore within the board's district — which extends from Paekakariki and Eketahuna in the south to Rangiwahia and Norsewood in the north — must obtain a permit.

The permit will be issued subject to conditions, or may even be declined. Decisions will be made within 20 working days, or one month, of the application.

Permit holders are required to give the board information including a copy of a complete bore log, the date, driller's name, drilling method and test results. He will also be required to allow access to the bore for testing and monitoring, and to construct head-

Continued on P6

Continued from P5

works suitable for monitoring should it be required in future.

Old or unused bores that waste water, connect different aquifers, or allow pollution of groundwater may have to be sealed.

Anybody planning to drive piles, drill, dredge or excavate more than five metres below ground level anywhere in the board's area must give 14 days notice.

If the board thinks the works will affect the supply or purity of natural water it can either prohibit the work or impose conditions.

This requirement also applies to the extraction of piles, pipe casings and similar equipment from an existing well or bore.

Penalties for breaching the bylaw are provided under the Water and Soil Conservation Amendment Act 1973, and include fines for both the original offence and every day on which it continues.

Full copies of the bylaws are available from

**The Secretary
Manawatu Catchment Board
P O Box 2043
PALMERSTON NORTH**

MWD to cut drilling

GOVERNMENT INVOLVEMENT in drilling will be wound down this year when the Ministry of Works and

Development stands down one of two rigs employed on geothermal exploration.

The cut was announced by the Minister of Energy, Mr Bill Birch. He expects savings of \$5 million a year, although up to 60 jobs could be at risk. Geothermal energy priority downgrading results from concern about the cost of future geothermal power stations, and 1982 Energy Plan findings that stations would not be needed for many years.

The two-rig operation, currently involving one at Ngawha, in Northland, and one at Mokai, in the Bay of Plenty, will be reduced when the first deep well at Ngawha is complete.

Maintenance operations at Kawerau and Wairakei, and development of the Broadlands field for the Ohaaki geothermal station, will not be affected.

More moves on drill training

REPRESENTATIVES OF the New Zealand and Australian drilling industries have met to discuss the prospect of Australian assistance in training New Zealand drillers.

The meeting involved the New Zealand Drillers' Federation training committee — president Mr Hamish Pearson, vice-president Mr Bill Washington, and councillors Dick Baylis and Ces Woodford — and Mr Les Mahoney, executive training officer

with the Australian Drilling Industry Training Unit.

The Labour Department was represented by Mr Andrew Crisp.

Australia's drilling course is a 15-module package, based on the Australian Drillers Guide, supported by cassette tapes and assignments. Students train on the job, rather than through special schools.

The guide has fifteen chapters, available as spiral wire-bound field reference texts, or five hardcover executive reference volumes. The chapters cover

The purpose of drilling, for holes or information, and the drilling industry.

Making use of geology, and factors affecting drilling such as rock types and soils.

Types of drilling, characteristics and suitability of drilling machines.

Drilling fundamentals, calculations, maps, hydraulics, structures, material strength and rig setup.

Plant mechanics, service and maintenance, hand tools, ancillary plant, trouble shooting.

Drill strings and casings, tool joints, threads, handling equipment and hoisting.

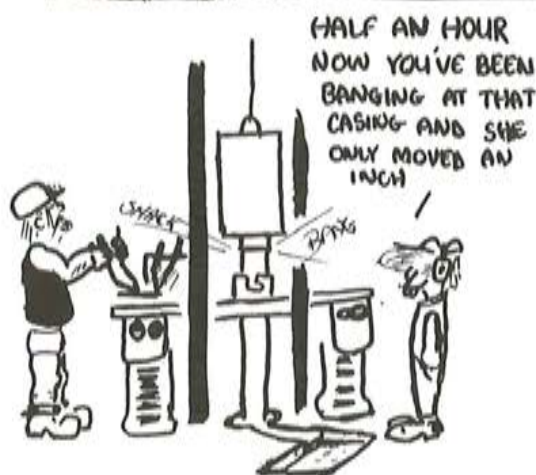
Making holes, bit cutting action, direction control, bit care, bottom hole clearing.

Clean and stable holes, circulation systems and fluids, hole stability.

Sample and coring, collection, accuracy and handling.

Tests and measurements, site investigation, pressure control, hole surveys, in-hole tests.

Easier ground



I RECKON YOU NEEDS MORE WEIGHT IN THE MONKEY



GEE WHY DIDN'T I THINK OF THAT



Logs, records and reports, form and value, accuracy requirements.

Hole completion, screening, developing, testing, abandoning hole, leaving site.

Overcoming down hole problems, cementing, liners, fishing, formations, equipment and human causes.

Safe and sure drilling, casing and cementing, pressure control, safe drilling practices, fishing.

Rig and crew management, personnel, camps, first aid, planned drilling operations.

The Drillers' Federation is hoping for financial assistance to get the course of the ground here, because the Australian material will need altering for New Zealand conditions.

The Labour Department provides subsidies to assist training development, but requires matching industry grants.

Various alternative proposals that may allow the use of existing educational resources in New Zealand are being considered, according to federation secretary Mr Mel Ouston.

Survey sets apprentice scheme off

A SURVEY of New Zealand Drillers' Federation members seeking information about the industry's resources is the first step toward establishment of an apprenticeship scheme for drillers.

Survey forms were sent to federation members in late March, and should be returned as soon as possible.

Information about the industry's personnel and equipment resources will be used in approaches to the government.

The federation is optimistic about establishing an apprenticeship scheme after new legislation is enacted.

The law will allow trade associations to employ apprentices, and co-ordinate their movement between various employers to ensure they experience all aspects of the industry in which they work.

The provision will be especially useful in drilling, where many companies specialise in a limited variety of work.

An approach will be made to the commissioner of apprentices, with the aim of introducing a suitable scheme once the law is passed.

THE MONO PUMP

MINE DEWATERING

Mono Rotor/Stator Combinations

HEAVILY LADEN SOLIDS

Lifts up to 27 Feet

EXPLOSIVES

(Vacuum of 28" Hg.)

SLURRIES

If you can pipe it, Mono can Pump it.

PRIMARY INDUSTRY WASTES

45 years' world wide experience.

Information is Free and yours for the asking.



MONO.PUMPS.

Mono Pumps (NZ) Limited

39A Peterborough Street, P.O. Box 25-136,
Christchurch. Ph 67-680.

35-41 Fremlin Place, Avondale. P.O. Box 71-021,
Auckland. Ph 889-053.

Wellington Office: P.O. Box 40-792, Upper Hutt.

The drillers that get into more hot water than most

MOST DRILLERS make a point of keeping out of hot water.

But a company in Rotorua does quite the opposite.

For nearly 50 years Rotorua Well-drilling Co Ltd has specialised in getting into the hot water and steam of the district's geothermal resources.

Development is slower today, with widespread concern that the resource may be pushed too hard. But putting in new wells, and maintaining existing ones, still provides over 60 per cent of the firm's work.

Managing director Mr Gordon Brown, immediate past president of the New Zealand Drillers' Federation, is obviously confident of the future.

Two rigs, one the largest the company has ever owned, were bought earlier this year and are now in work.

The decision to spend well over \$100 000 is not the action of a man fearful of future prospects.

Mr Brown's father, Mr Geoff Brown, founded the company during the depression, taking over a drilling rig formerly owned by his brother-in-law, in lieu of wages.

The latest Kenworth and Ford 9000-mounted units could run over the old Model A, with its six-metre-high Oregon pine mast, without knowing they'd hit something. But



that unit on occasions bored its way to close on 100 metres below the ground.

It drilled its first geothermal well in the mid-30s, and the company moved to Rotorua in 1936.

"This company has come right through the history of drilling in New Zealand," says Mr Brown, who took over on the death of his father in 1965.

"It was one of the first to have its own gas sets for welding. Blacksmiths did all that sort of work before.

"In those days it used to have a horse and sledge loaded with 44 gallon

The same crew pictured on the cover of this edition of The New Zealand Driller — with another successfully drilled steam bore roaring away behind them. Note the Oregon pine drill mast, mounted on the back of a Model A Ford

drums to fetch water, with men filling and loading buckets from waterholes."

That sort of thing is well in the past now. It operates from a modern workshop and office building in a large industrial subdivision.

Something to get steamed up about at times

THERE'S MORE to drilling a geothermal well than pushing a bit through the ground until you strike hot water.

Rotorua Welldrilling Co Ltd is the only New Zealand drilling company that specialises in the work. And although it has faced competitors over the years, few stayed long.

The company's managing director, Mr Gordon Brown, says local knowledge and experience count for a lot. "Everybody tends to think that in Rotorua you can find hot water anywhere, but that's not right."

There's the famous incident of the well that pumped cold water, even though it was the same depth as one five metres away producing steam.

Geothermal drilling is a hazardous branch of a hazardous business.

A bore can 'take off' for one of three reasons; hydrogen sulphide gas, artesian water under pressure, or striking a high pressure steam pocket. Precautions are taken, but accidents do happen.

"Many of the staff have been burnt in the face and legs. But most of the accidents are caused by human things — forgetting to do something, or just getting complacent."

And in nearly half a century nobody has been killed, or permanently incapacitated.

Modern equipment and techniques are helping reduce the danger. For instance, air compressors start



Rotorua Welldrilling's managing director Gordon Brown, nearest camera, talking over a troublesome bore with the rig crew. They are boring a new geothermal well to provide steam for a group of Rotorua houses

Any given day there's five rigs working around Rotorua. A pumplifting crew will be out maintaining conventional water wells. And then there's the agency and franchise lines covering drilling equipment and

parts, pumps, hoses, couplings and fittings.

Mr Brown joined the company in 1959 after serving an apprenticeship as a toolmaker in Hamilton.

"It was a stepping stone toward the engineering involved in the design and operation of drilling equipment, welding and that sort of thing.

"In this business you end up with three or four trades pretty quickly."

They were all needed when the company built its own drilling rigs. It was so successful one was sold to Norfolk Island.

production, rather than pumps which have to be withdrawn section by section as pressure builds up.

Drilling conditions vary tremendously throughout the city.

When The Driller was interviewing Mr Brown a report came through from a crew making over a metre an hour, while it had taken the whole of the previous day to drill a metre, with two tonnes on the bit.

Stability is very poor in some areas, while rhyolite bands are among the hardest rock in the world, capable of chewing out bits within an hour or so. "There's a lot of local knowledge in knowing where to safely and suc-

cessfully place a well. It can be so critical that 10 feet too much will cut off the steam and make the hole worthless, while 10 feet too little will mean it is unstable."

A typical geothermal well bears little resemblance to a conventional water well.

Most are from 100-150 metres deep, and cased for virtually their entire length.

A 10 inch casing is sunk part of the way, to case off any cold water aquifers. Then a six inch casing is sunk, and a four inch casing goes down inside that.

The 10 inch pipe is grouted into the

The manufacturing process wouldn't be smiled on by Toyota or General Motors but it worked. One rig built in 1950 is still used regularly while another built in 1965 drilled a seven inch hole 1 813 feet — or 552.54 metres.

"We'd look for a reasonably popular truck like a Bedford or a Ford and work out whether we wanted four wheel drive or two wheel drive was enough, and whether it needed two axles or three and so on.

"Then we'd assemble the components.

"The pumps are all Gardner Denvers, a pretty standard model, the gearbox would come from a Ford, and we'd pirate the winches and main drives off an old bulldozer.

"The main thing was that all the gear had to be pretty well used so that we would not have problems getting parts.

"Then we'd lay it all out on a part of the workshop floor the same size as the truck. Hopefully we wouldn't have to put one part on top of another, but we just assembled it in the most economic and efficient way.

"The truck was always about six inches too short for the ideal arrangement.

"It was a bit like building a jigsaw."

The last Brown-built rig went into service in 1971 and the five machines carried the company's workload since.

Mr Brown has the future of the business firmly in his mind.

One of the old rigs will be converted to run on LPG during its major overhaul.

"Just to see how it goes."

But more importantly is the new sort of work that the new rigs will be able

Continued on P11

country, and more is pumped into the space between the 10 inch and six inch pipes, and more again between the six inch and four inch. As much as four tonnes of cement will go into a well.

The casings and grout protect the well from attack by the highly corrosive geothermal steam and water. Despite this protection some have to be rebored within 15 years, and few last more than 30 years.

The wells are more expensive than a conventional single-cased water well, Mr Brown said.

Most have to be worked over every six or 12 months to eliminate silica build-ups that would otherwise block the well and its control equipment.

One call - that's all you need to make for all drilling and exploration supplies

Just a small selection of stock
available ex our New Plymouth store

7 3/4 x 5 3/4 x 3 metre core barrel
Float sub 2 3/8 API Pin - 2 3/8 API Box
Drill rods 3 metres NQ and 1.5 metres NQ
NMLC & HMLC core barrels 1.5 and 3 metres
'Smith' 8 1/2 inch TRI CONE soft (4 1/2 API)
NW 3 metre casing, drill pipe 5m x 2 3/8 MH reg

Rotary Drilling Rigs
& parts for
Failing & Gardner-Denver



SPECIAL

Completely rebuilt FAILING 1250 drill S/N EM8214C which is 90 per cent new and will be sold under NEW WARRANTY. It has a 32ft new 40 000lb mast with 8 inch hydraulic cylinder, double drum draw works with two 14 inch double twin disc air clutches, heavy duty sub-drive case, four speed transmission, 5 5/16 retractable table, new drill deck, 1 1/2 inch pulldown chains with two speed transmission, FM 45 5 x 6 1/4 inch mud pump, b/out tongs, bailing drum which can be removed and credited if not required, rod racks for 20ft drill pipe, drillers' and helpers' platforms, new 3 3/8 x 26ft 6in kelly and drive bushing plus new S1275 1 3/4 inch swivel. Provision left for mounting air compressor which SSI (NZ) could supply.

\$NZ 160 125

Just one of the rigs available ex North America and Australia. Freight, duty and other charges will be additional.



Mill Tooth Bits



Button Bits



Hammer Bits



Drag Bits



Blade Bits



SEISMIC SUPPLY INTERNATIONAL (N.Z.)

90-92 Clemow Road
New Plymouth N.Z.
Tel (67) 84 397 Telex N.Z. 31383

Head Office: 193 Mary Street, Brisbane
Queensland, Australia 4000.
Phone (07) 31 0221
Telex AA40422. Cables 'SEISPLY'.

Continued from P9

to handle, and the opportunities that will open.

In 1965 if a Rotorua householder wanted free heat courtesy mother nature he got on the phone and ordered up a drill.

Today, it can take months to get a permit. Rotorua Welldrilling has not put a new bore within a mile of the Whakarewarewa geothermal area for two years, "and that's a big part of our geothermal area."

Mr Brown is not convinced geothermal fields are under any more stress from the development, especially in the last 20 years or so. He believes rainfall, drainage and climate patterns are more important.

He is in favour of studies that produce useful information about the resource.

But he does get angry about alarmist statements from so-called experts who, after a few days investigation, announce the imminent disappearance of the resource.

"The geysers out here are going better than they have done for 50 years. Pohutu used to go off for weeks at a time, but it performs regularly now.



Rotorua Welldrilling's first rig was mounted on a Model A Ford, and had a six-metre-tall oregon pine mast.

"I'm certainly not here to stuff the whole geothermal enterprise up, and I would be the last person to promote a high draw-off usage like a power station in Rotorua.

"But many bores in the town haven't altered by a pound of pressure in 40 years, which is the true indication of what the replacement factor is. It's very rare that putting a new bore down has any long term effect on neighbouring bores."

He has great hopes for US heat exchanger technology that would use underground hot water, rather than steam.

"The great potential for this kind of well is that it's going to conserve the draw-off and still achieve benefits for the customer."

The downhole heat exchanger is a simple U-tube suspended from the top of a well. Cold water enters at the top, is warmed at the bottom, and rises up the tube by natural circulation.

Experiments with small exchangers in narrow diameter wells have proved reasonably successful. The new drill capable of drilling large diameter shallow wells can make the technique really work properly.

"It's something that's got support, and has to go ahead."

It seems a safe bet that Rotorua Welldrilling is going to be getting into hot water for a while yet.

ROTORUA WELLDRIILLING CO LTD



Geothermal and Coldwater Welldrilling Engineers
Tally Ho St, Rotorua
P O Box 727, Rotorua
Ph (073) 87 687

Geothermal energy utilisation specialists
Rural and domestic water supplies
Pumping systems and associated engineering

North Island stockists and agents for Gruner
Williams drilling bits, and Reda deepwell
submersible pumps.

Manufacturers and suppliers of drill rod couplings, screens and fishing tools.

Stockists of Mastport Onga and Davies pumps, Hitachi and Kitizaqa stainless steel valves, bandit stainless steel strapping, preformed clamps and tools, Stocks Camlock couplings, Flexible hoses and G.F. pipe fittings.

New hi-tech bits made in Auckland

THE LATEST range of new technology diamond impregnated core bits is now made at Longyear New Zealand Ltd's Auckland factory.

The bits have small synthetic diamonds evenly distributed throughout the matrix. New cutting points are exposed evenly as the bit wears, ending the old problem of progressive diamond wear.

The result is faster, more uniform, drilling rates and longer life, reducing the number of bit changes required and substantially cutting costs for each metre drilled.

The synthetic diamonds are engineered for consistent performance.

Longyear makes a range of impregnated diamond bits for different rock types, formations and conditions.

Each series is colour coded — green for very abrasive fractured formations, silver for medium to hard abrasive and partly fractured formations, and copper for hard to very hard competent and non-abrasive formations. Information from

Longyear NZ Ltd
P O Box 43 030
Mangere AUCKLAND
Ph (09) 275 4049

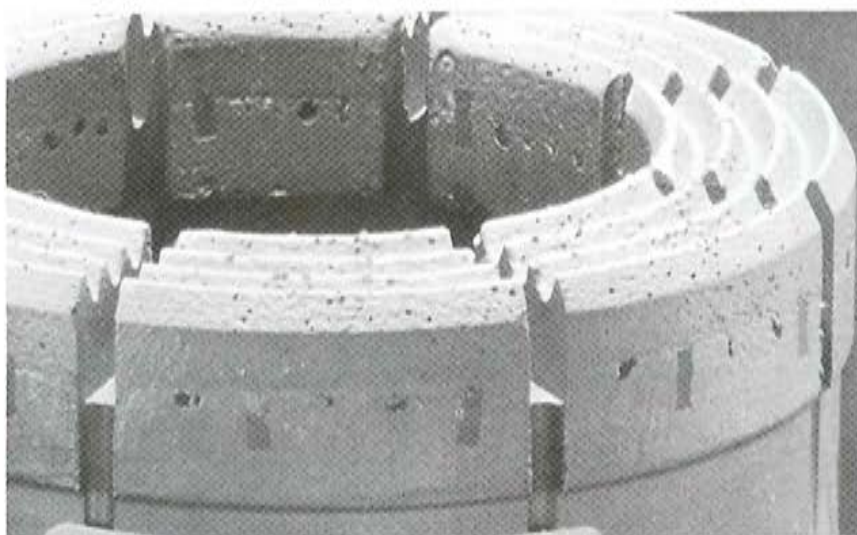
Programme aids drill calculations

AN AUSTRALIAN has developed a way of using programmable hand calculations in water well and drilling industries.

A letter in the December 1982 edition of Water and Mineral Development, the official publication of the National Waterwell and Drilling Association, disclosed details of the programme.

It was devised by Mr Anthony Lane, of Australian Hydrogeologists International, for use with the Hewlett Packard HP41C programmable calculator.

He has used the calculator, more sophisticated than the conventional 'shirt pocket' type, for two years. The programmes make the day to day business of hydrogeology easier.



One of the new diamond-impregnated drill bits now manufactured by Longyear New Zealand Ltd at its Auckland factor. Synthetic diamonds are distributed throughout the matrix, eliminating the problem of progressive diamond wear

Using the calculator is, Mr Lane said, a practical proposition.

The industry should be made aware the programmes are available to improve the level of computation skills, and give a valuable and rapid means of getting important information.

Advantages include the accuracy of the results, and the speed with which they become available.

The practical programmes cover a wide range of practical drilling calculations, from hole and annulus volume to flow rates. They are idiot proof.

"A necessity, since I wrote them for myself," Mr Lane said.

Because it is too difficult to remember the order of input required by the calculator, every programme prompts the operator by asking a question when input is required.

Mr Lane said that on receiving serious enquiries he would prepare programmes with the appropriate documentation and instructions to make a presentable package. Information from

Mr Anthony P. Lane
Australian Hydrogeologists P/L
P O Box 151
Forest Hill VIC 3131
AUSTRALIA

New chemical easily added

LIQUO-DRILL is a new liquid polymer formulation for building viscosity and inhibiting clay and shale formation.

The product is easily added. Its use

improves core recovery, and prevents the dispersal of cuttings by forming a protective membrane around drilled solids. Information from

Drilling Services and Supplies Ltd
P O Box 15
NEW PLYMOUTH
Ph (067) 84 397

Versatile rig handles varied ground

A DRILL rig produced by Acker is specially engineered to perform a wide range of drilling jobs and cope with the varying ground conditions encountered by New Zealand drillers.

The Core-Max can accommodate a full range of options, meeting the requirements of a hydraulic production core drill and a top-drive rotary, as well as a range of down-the-hole hammers.

The truck-mounted machine can be fitted with either a six or nine-metre folding derrick, for vertical or angle drilling up to 40 degrees.

The derrick's sectional, split-hinged design allows road travel.

On site, it is raised by two double-action hydraulic cylinders.

The derrick equipment includes a combination rod rack and working platform, a twin-sheave crown, fluid stand-pipe, ladder, and fall arrestor system.

A high speed drill head with eight

ranges, combined with high torque, provides a wide operating range to match drilling conditions. Drill revolutions are infinitely variable.

Drilling capacity ranges from 944 metres (3 000ft) using AQ rod to 274 metres with PQ; nearly 400 metres with 2 3/8 inch pipe, 304 metres with 2 7/8 inch pipe.

The drill head spindle bore is 9.182cm diameter, and capable of handling rod sizes up to HW.

The swing-away head moves to give clearance for hoisting, while the bottom of the spindle is fitted with a quick disconnect device to handle various drive adaptors for rod, casing or down-the-hole hammers.

A male thread connection on top of the spindle allows direct connection of a grout swivel, Ackermatic chuck, or drill rod bushing.

The truck platform is of electrically-welded structural steel to balance the weight of the drill rig components.

Seismic Supply International
P O Box 15
NEW PLYMOUTH
Ph (063) 84 397

Aussies' directory

THE NATIONAL Waterwell and Drilling Association of Australia is to produce a comprehensive directory of Australian drilling contractors, consultants and equipment suppliers.

Scheduled for November publication, the 'Australian Drilling Directory' will provide the first published list of all NWDA members — drilling contractors and operators, manufacturers and suppliers of drilling and associated equipment and services, and consultants engaged in servicing minerals, site exploration and groundwater development.

Non-members with a bona fide working relationship with Australian drilling can submit business names, addresses and phone and telex numbers for inclusion.

Directory listings will be published free, fully cross referenced and indexed to permit users to quickly and accurately locate special skills, equipment, services and materials.

The directory will have about 100 pages of listings, supplier and service facility profiles, and appropriate technical reference data, including abstracts of technical papers and relevant Australian inventions.

Copies will be distributed to selected overseas and Australian government representatives, trade commissioners, international funding organisations, and potential overseas users of skills available through the NWDA and its members. Information from

NWDA
P O Box 187
St Ives NSW 2075
AUSTRALIA

Record year across Tasman

AUSTRALIA'S OIL exploration industry had a record year in 1982, with \$800 million spent on 341 wells and ancillary works.

Continued on P14

Introducing

LIQUO-DRILL

*New liquid polymer formulation
The easy to use drilling fluid*

- * An easily added liquid viscosity builder
- * Prevents the dispersal of cuttings by forming a protective membrane around drilled solids
- * Prevents clay and shale swelling and sloughing problems
- * Saves drilling time, transport and storage costs
- * Improves core recovery
- * Effective in fresh, saline and KCL fluids
- * High resistance to calcium contamination
- * Environmentally acceptable

DRILL FLUID

Available in 5kg pails

DRILLING SERVICES AND SUPPLIES LTD

90-92 Clemow Rd, P O Box 15
New Plymouth, New Zealand
Telephone 84 397 Telex NZ 31383

Continued from P13

The Australian Petroleum Exploration Association reported 230 exploration wells and 93 development wells were completed, with 18 in progress at year's end. The previous record was 311 and stood since 1969. But that level of demand is unlikely to hold up.

The APEA executive director said 1983 prospects reflected the continued drought of risk capital, and the general impact of the economic recession.

"Drilling contractors are particularly concerned at the low level of firm commitments for onshore rigs and the preliminary projections for seismic activity in 1983 have disturbing implications for drilling activity levels in 1984 and 1985."

The good year in 1982 was attributed to several factors including world parity pricing of crude, various forms of taxation assistance, and a higher discovery rate arising from new technology.

Dywidag licences NZers

GROUND ENGINEERS Foundation Techniques Ltd are now licensees for Dywidag Systems International's prestressing systems, rock and soil anchor techniques, and gewi pile and reinforcing methods.

Dywidag permanent ground anchors use deformations on the bar to transmit loads from anchor to surrounding grout. Corrosion protection is available.

Gewi piles are used for underpinning structures, and can be installed in confined spaces in most soil types. They will take working loads of up to 45 tonnes in tension.

Unique auger bits faster

A DISC auger developed by a US drilling tool manufacturer is an important breakthrough.

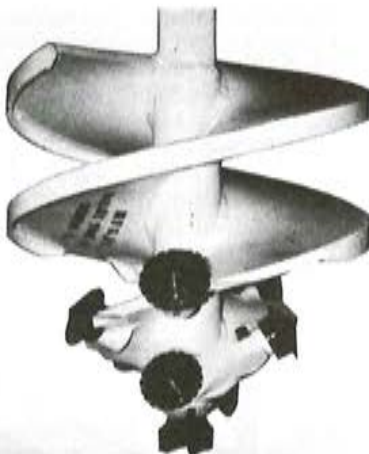
The bottom of the Dalby disc auger is fitted with several cutters and field testing has shown faster penetration rates and reduced torque requirements.

The cutters are durable enough not to require constant replacement. The rolling action of the cutter smooths the auger's dragging action, reducing shock loads, twisted kellys and rig maintenance requirements.

The cutters are durable enough not to require constant replacement. The rolling action of the cutter smooths the auger's dragging action, reducing shock loads, twisted kellys and rig maintenance requirements.

The augers are available in sizes from 450-1 300mm, and can drill through dirt, boulders and rock. Information from

L.T. Walker Ltd
P O Box 22 432
Otahuhu AUCKLAND
Ph (09) 276 2205



The Dalby disc auger, fitted with several cutters, gives faster penetration rates and needs less driving power

Wire rope may be saved

THE FIRST mobile service facility for preserving wire ropes now operates throughout New Zealand.

Wirelube provides on-site attention at short notice, aiming to reduce capital and downtime costs in all industries using wire rope.

A special imported lubricant is forced into the core of a cable by a portable, air-powered device. It can be done while under load, stationary, or moving at up to 1000 metres an hour.

Any broken, protruding strands are automatically laid flat, and a special tool is available to open the rope and allow inspection of its core.

The company says many wire ropes are damaged because people use the

wrong lubricants on them, and commonly used swab-on lubricants wash off quickly. Information from

Wirelube
P O Box 9006
WELLINGTON
Ph (04) 836 041

Prices of welders cut

THE LATEST MIG welders are selling for 20-25 per cent less than the models they replace.

The price cut comes from the use of common components in the three new Transmig 'Composites', modern design, and improved production facilities.

The 180 and 240 machines are designed for heavy repair and volume production work. They operate off three-phase 400V power, with the 180 handling steel up to 5mm thick, and the 240 handling steel up to 10mm thick. Information from

NZIG
P O Box 13 019
Onehunga AUCKLAND
Ph (09) 661 056

Next issue

The Winter 1983 edition of The New Zealand Driller will be published on July 27, 1983, and distributed at the New Zealand Drillers' Federation conference. Advertising material for this issue should be in the hands of

The Advertising Manager
The NZ Driller
P O Box 245
WELLINGTON
Ph (04) 729 924

by July 1, 1983.

The deadline for editorial submissions, including new product and services information, is July 1, 1983.



New Zealand
THE DRILLER

**YOUR MAGAZINE
YOUR CHANCE**

**to find that experienced employee
to clear that junk from your yard
to find work for that unused gear**

The only magazine in New Zealand that talks to the drilling business

Wanted to buy

Situations vacant

Work wanted

Equipment for sale

Equipment for hire



**CLASSIFIED
ADVERTISING**

New Zealand
THE DRILLER

NAME _____

ADDRESS _____

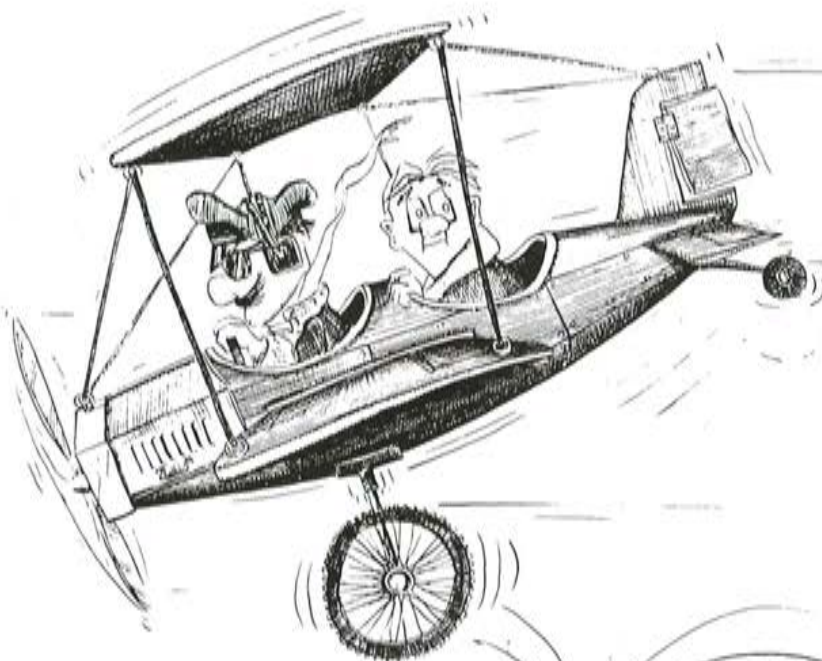
PHONE _____

ADVERTISEMENT COPY

CHARGES: Half page \$120 Quarter page \$75 Run on \$3/col cm

Post to: The Advertising Manager, The Driller, P O Box 245, Wellington

Are you sure you want to go with less than the best?



A CHEAP SCREEN SUBSTITUTE can let you down. Hard. Poor slot control can turn your good work into a sand pumping well. Less open area can mean your well's efficiency is nowhere near what it could be. Low grade materials and poor design can aggravate problems with plugging and corrosion. Why jeopardize your first-class work with third class screens? Go with Bisleys. They have Johnson Screens to let your wells be first class all the way to the bottom.



A.M. Bisley & Co. Ltd
P.O. Box 487
Hamilton
Phone: 56-179

A.M. Bisley & Co. Ltd
P.O. Box 16-044
Hornby, Christchurch
Phone: 499-009