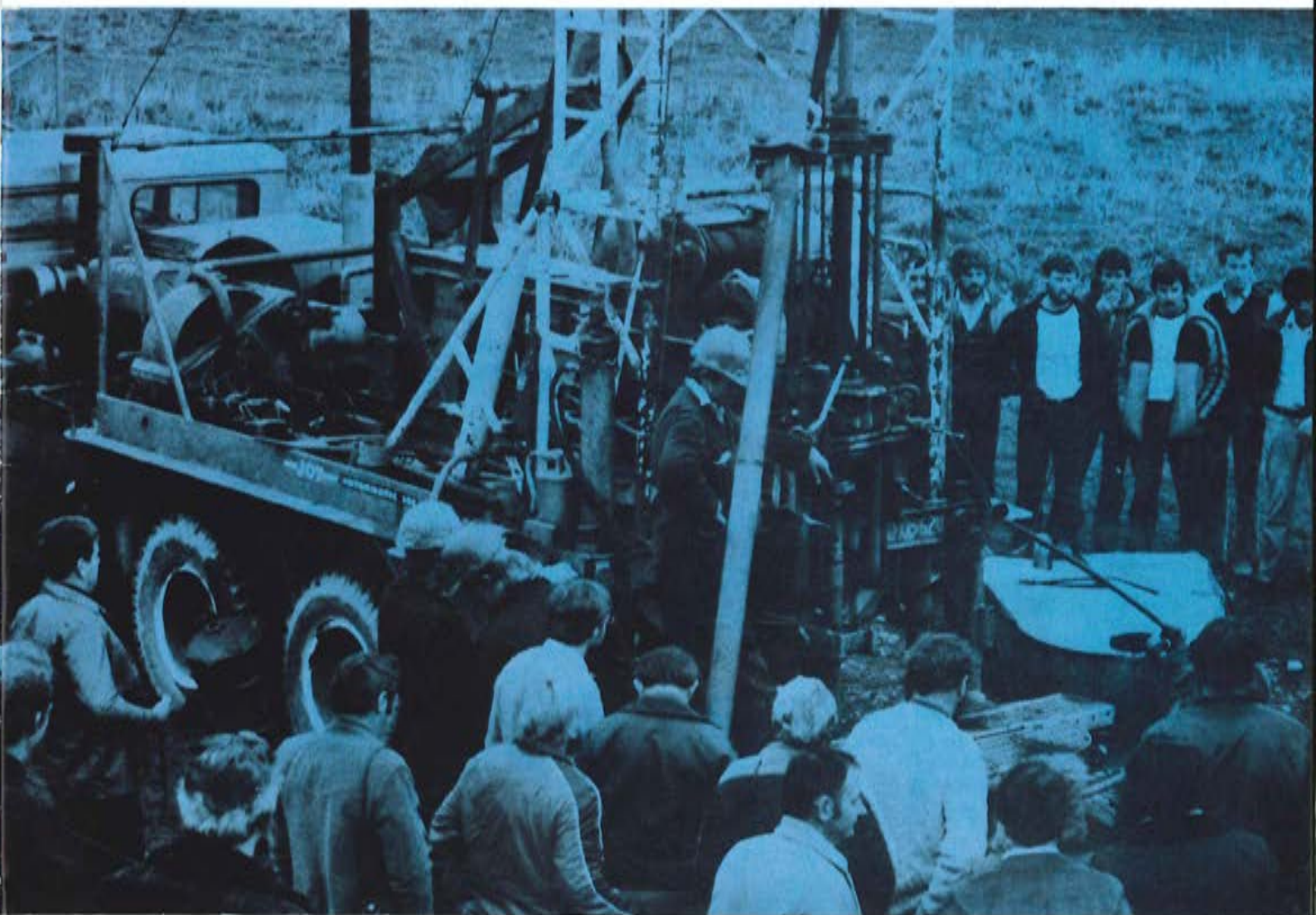




New Zealand  
**THE DRILLER**

OFFICIAL PUBLICATION OF THE NZ DRILLERS FEDERATION, SPRING 1982, No 5



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Practical demonstrations are an important part of every Drillers' Federation conference, and there is never any shortage of interest from participants. So it was with the Nelson conference this year when a variety of techniques were demonstrated (see accompanying article). Never before have so many displayed so much interest in a hole in the ground . . . or how it was put there

## Early efforts bring results

THE DEDICATION of members of the New Zealand Drillers' Federation over the last eight years in now standing out.

"Your federation is in great shape and at present very strong financially," said the federation president, Mr Hamish Pearson, in his annual address.

The council was involved in many projects during the year, but the introduction of a drillers training and apprenticeship scheme was the main one.

"Although it is not yet off the ground, the foundation has been laid.

"The council is also preparing a standard contract document and in today's economic situation I feel this is a must and should be given top priority for early delivery to members."

Mr Pearson said the federation had, during the year, increased the number of organisations to which it is affiliated. They now include National Water Well Associations in Australia, the US, Canada and South Africa, as well as the British Drilling Association.

## Conference a success again

by Jacky Woodford

THE ANNUAL New Zealand Drillers' Federation conference ended on Saturday July 31 after an informative and interesting three days at Nelson.

Each year the conference aims at training younger drillers and keeping the more experienced up to date with modern techniques and products.

An important consideration was the proposed driller training schools and apprenticeship scheme, to provide security for people wishing to enter the industry.

At least four specialised drilling schools may be developed within the next few years.

Continued on P5

## Next issue

The Summer 1982-83 issue of the New Zealand Driller will be published early in 1983.

Advertising material for this issue should be in the hands of

**The Advertising Manager  
The New Zealand Driller  
P O Box 245  
Wellington**

by December 10, 1982

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All editorial inquiries, including manuscripts, should be directed to

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

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Editor: Greg Newton

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The conference was officially opened by Mr Jock Braithwaite, general manager of the TNL mining and minerals subsidiary Lime & Marble (NZ) Ltd.

Lectures, talks and field demonstrations took up most of the conference programme. Many delegates sat an examination comprising questions drawn from information presented by speakers.

Mr Michael Dicker, hydrologist of the Nelson Catchment Board, was the first speaker, talking about the Waimea Plain and its hydrology. The associated topic of Nelson's geology was also covered in that first session by Mr Michael Johnston, resident geologist with the DSIR.

Many of the practical demonstrations were conducted at Eves Valley, site of the now abandoned CSR-Baigent pulp mill.

On the first day, methods of soil sample recovery were demonstrated. Mr Rod McCallum, representing Johnson Well Screens, Australia, showed how to set a well screen using the Revert mud system, and developing a 250mm diameter well, at the Waimea County Council's Queen St well field.

At Eves Valley the next day, Mr Dave Moore, of Mintech (NZ) Ltd, and Mr George Strickland, of Baroid (Australia), demonstrated the mixing of various types of modern basic drilling muds. A short diamond coring demonstration followed.

Among other conference highlights was a session given by US speaker Mr Dave Friend, associated with Australasian Diamond Tools Ltd, on the new Strata-Pax diamond drilling rig. A short look at Marlborough's Wairau Plain and its hydrological potential, along with a method of setting up a 24 hour pump test and the importance of recording well behaviour statistics, was presented by Mr Jon Cunliff, hydrologist for the Marlborough Catchment Board.

Other sessions of general interest included

A look at lignite investigations, by Mr Peter Riley, drilling operations manager for Lime & Marble (NZ) Ltd; Shifting drilling rigs by helicopter, by Mr Peter Tait, general manager of Helicopters NZ Ltd; Wire line coring and an audiovisual display presented by Mr Simon Fitzgerald and Mr Andrew Bicknell, from Longyear; and an update on Petrocorp's Taranaki operations, from Mr Doug Chase.

Mr Lex Welham, from consulting

engineers Tonkin & Taylor, discussed building site investigation drilling, and Mr Ken Dalrymple, of Drilco, Australia, covered the reverse circulation drilling system.

One of the most impressive sessions came from Mr John Tawhai, drilling supervisor at the Ministry of Works and Development's Wairakei geothermal area. He concentrated on the subject of safety near drilling rigs, and supported the promotion of driller training schools and apprenticeships.

With every session the conference gained momentum, reaching an entertaining climax at the very lively dine and dance. Highlights included the president, Mr Hamish Pearson, recording appreciation for the work of conference organiser Mr Cecil Woodford and his assistants, and a kangaroo court run by vice-president Mr Bill Washington.

## New cup stays in Nelson

MR WAYNE BRADLEY, of Waimea Drilling Co Ltd, Richmond, won the Australasian Diamond Tools Ltd cup for the working driller scoring top marks in the annual training school examination.

The cup was presented this year for the first time by Mr Stan Nicholson, manager of Australasian Diamond Tools Ltd.

Mr Bradley, runner-up Mr Ewen Cameron, of Tauranga, and third-place getter, Mr Alistair Taylor, of Timaru, were all presented with pottery sets donated by associate members.

The following associate members are asked to accept the federation's thanks: Australasian Diamond Tools Ltd (Hamilton), Brown Bros



Wayne Bradley, an employee of Waimea Drilling Co Ltd, Nelson, became the first winner of the Australasian Diamond Tools Cup when he finished with top marks in the Drillers' School examination, held in conjunction with the 1982 conference

Engineering Ltd (Christchurch), Dominion Construction Co Ltd (Wellington), Drilling Services and Supplies Ltd (New Plymouth), Longyear NZ Ltd (Auckland), Atlas Copco NZ Ltd (Lower Hutt), D.H. Davies & Co Ltd (Auckland), Tasman Oil Tools Ltd (Auckland), Triefus Australia Ltd (Sydney), Seismic Supply Ltd (Brisbane), Johnson Screens (Kiriaweke NSW), A.M. Bisley Ltd (Christchurch), Mintech NZ Ltd (Nelson), Scott Technical Instruments Ltd (Kaiapoi), General Electric Ltd (Sydney), and Baroid Australia Pty Ltd (Auckland).

## Exam pass rate rises

A TOTAL of 43 candidates – 26 per cent more than last year – passed the annual examination held in conjunction with the 1983 New Zealand Drillers Federation conference and training school.

The school was held in Nelson, from July 28-31.

All candidates have received advice of their marks, and certificates will be posted at the first opportunity.

The council of the Drillers Federation congratulates all successful candidates. The top 10 were

Wayne Bradley (Waimea Drilling Co Ltd, Richmond) 1, Mark Hely (MWD, Clutha) 2, Ewen Cameron (Camerons Welldrilling, Tauranga) 3, Alistair Taylor (Washington Drilling Ltd, Timaru) 4, Stuart Montgomerie (Camerons Welldrilling, Tauranga) 5, Murray Gillies (Hill Welldrillers Ltd, Hastings) 6, Kevin Smith (Hawkes Bay Catchment Board, Napier) 7, Derek Brough (Waimea Drilling Co Ltd, Richmond) 8, Doug Smith (McNeill Drilling Co Ltd, Invercargill) 9, Ray Stevenson (Camerons Welldrilling, Tauranga) 10.

A significant feature of the results was the placing of three men from Camerons Welldrilling, Tauranga, in the first ten, with two from Waimea Drilling, Richmond.

Waimea Drilling won the special prize award by the federation for the company team scoring most points in the drilling school examination.

## One new councillor

THE NEW council of the New Zealand Drillers' Federation, elected at the annual conference at Nelson in July, has only one new member.

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He is Mr Martin Brown, of Drillwell Exploration Ltd, Auckland.

The federation president, Mr Hamish Pearson, and vice-president, Mr Bill Washington, were re-elected to the positions. Other council members re-elected were

Dick Baylis (Napier), Gordon Brown (Rotorua), Ewen Cameron (Tauranga), Russell Farquhar (Christchurch), Pat Garnett (Putaruru), John Hill (Hastings), Peter Lemmon (Wellington), John McCallion (Opoitiki) and Ces Woodford (Nelson).

## Hot water no problem

THE CONTROVERSY about Rotorua's geothermal resource is not affecting the business of the country's largest geothermal well drilling specialists.

Rotorua Welldrilling Co Ltd's manager, Mr Dennis McErlane, said the only impact so far is a ban on new bores within 1.5km of the Whakarewarewa geothermal field.

And people wanting bores drilled within the old Rotorua city boundaries must now obtain water rights from the Bay of Plenty Catchment Commission.

Speaking for the company while its managing director and former Drillers' Federation president Mr Gordon Brown was overseas, Mr McErlane said the company is represented on a steering committee set up to investigate the whole issue of geothermal resources in the district.

He doubts whether the Whaka activity downturn can be blamed on the draw-off of water for domestic, commercial and industrial purposes, such as home and pool heating.

"We know from our drill logs that there's five or six production zones in Rotorua.

"If the Whaka decline was caused by the level of draw you'd expect the outer bores, nearer the lake, to show a reducing pressure first, but that's just not happening.

"We've been told that the scientists don't really know what's happening. Until they've had a chance to have a look at it and make some conclusions nobody really knows what's happening," Mr McErlane said.

## Parched plains drive drills

IT'S NOT often a driller looking at an order book filled with six months work says "It looks like it could be a pretty tricky year all round".

But that's the verdict of Mr Bill Washington, managing director of the

Timaru-based firm Washington Drilling Ltd, on the effect Canterbury's prolonged drought is having on his business, and that of other drillers in the province.

"All the drillers have got a backlog of 6-7 months in waiting lists - everyone's working under very heavy backlogs," Mr Washington said.

With three-quarters of the year gone, Timaru has only had 25cm of its annual average 60cm rainfall, coming on top of a previous very dry year.

Farmers who considered installing artesian irrigation schemes for a long time now have the spur to act.

"But they're finding they have to wait a few months before we or anybody else can get round to doing anything for them. These people making up their minds have made quite a difference."

Other demand is coming from farmers with bores that need deepening because of disappearing water tables.

"A lot of wells pumping for a very long time have gone dry."

The cloud for all this silver lining comes with the tight financial straits in which many farmers find themselves.

"The point is going to come where farmers won't be able to have wells put down.

"This drought is all OK for drillers as far as workload goes, but a certain cut-off will be reached. The freezers are still full of carcasses and there's a

## Easier ground



lot of last season's wool still not sold. "And drilling isn't the only cost. People looking at irrigation are up for anything from \$60 000 to \$100 000 by the time they get their gear above the ground," Mr Washington said.

"They have to be able to finance that sort of investment, and finance is going to be the problem."

Demand for drilling services can be handled within the province's existing resources, and there's little evidence of 'out-of-town' drillers taking an interest in the work opportunities.

The heavy Canterbury gravels tend to keep them away. "A lot of it's problem country," Mr Washington said.

The only new rig operating in the province is a Schramm, imported from Australia by McMillan Water Wells Ltd, of Southbridge, near Christchurch. It is understood to be operating very successfully after some early teething problems were solved.

## Australians get together

AUSTRALIA'S TWO drilling-related trade associations have joined forces.

The merger of the National Water Well Association and the Australian Drilling Association was to be ratified at the first conference of the National Waterwell and Drilling Association of Australia at Bunbury, Western Australia, from October 9-15.

The new association has about 800 members including professional engineers and consultants, contract drilling companies, manufacturers and suppliers of drilling equipment, and companies involved in water and minerals exploration, mining and civil engineering.

The National Water Well Association specialised in groundwater development, while Australian Drilling Association members were primarily involved in mineral exploration and foundation engineering.

The organisations worked together on the development and application of drilling technology, and the establishment of industry standards and codes of practice.

The theme of the new association's conference was 'Water supplies and drilling techniques of mineral development'.

Topics covered included waterwell drilling, mineral exploration, sample recovery and mine operations, including dewatering. Manufacturers and suppliers displayed equipment at indoor and outdoor exhibition facilities.

## Training for senior execs

A DRILLING workshop for executives, organised by Australia's Drilling Industry Training Committee in collaboration with the National Waterwell and Drilling Association, was held recently in Perth.

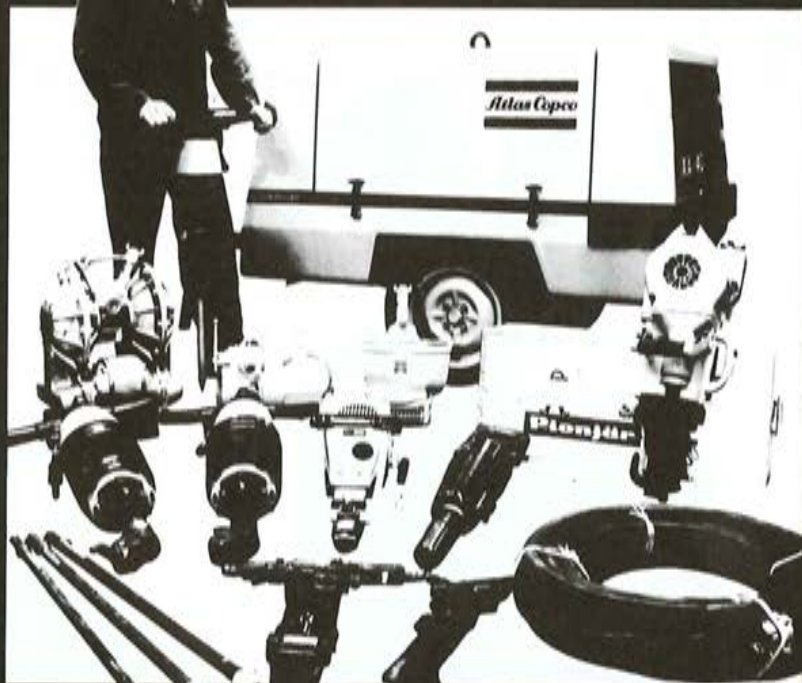
The workshop concentrated on contract law and drilling specification. Sessions on contract law were conducted by Mr Robert Simpson, a senior solicitor in a Sydney law practice. He covered general contract law, tort liability, environmental law and the value of arbitration.

The session on 'Specifying Drilling' was conducted by Mr Frank Eggington, executive engineer of the DITC. He used a typical drilling programme to demonstrate the types of problems which could be encountered, and available solutions.

The 20 people attending included exploration managers and geologists, senior executives of major contract

Continued on P15

## Atlas Copco: Mechanised muscle for construction.



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AG 152

# Australian development overcomes windmill drawbacks

A REVOLUTIONARY wind-powered water well system is expected to be launched on the New Zealand market next year.

The Mono wind turbine, developed by the University of New South Wales, recently won first prize at an international technology exchange fair from more than 100 other entrants.

It is said to overcome many of the disadvantages of conventional

windmills, and their use with Mono pumps.

The conventional windmill is a highly inefficient machine because much of the energy it receives from the wind is used lifting rods and working cranks. Only part of the wind power actually raises water from bores.

Another problem with the conventional windmill is that it does not operate in light winds, preventing it from converting a zephyr into water raising ability.

On top of this, one of the most efficient pumps for raising water from deep boreholes, the Mono-designed positive displacement helical rotor pump, has never been successfully coupled with a conventional windmill because of the pump's high starting torque.

Motive power has instead come from electric, diesel or petrol engines, even tractor power take-offs. For isolated farm communities, engine-driven pumps are always an inconvenience, and thus the reliance on windmills.

The Mono wind turbine, still under development, will change that. Mono

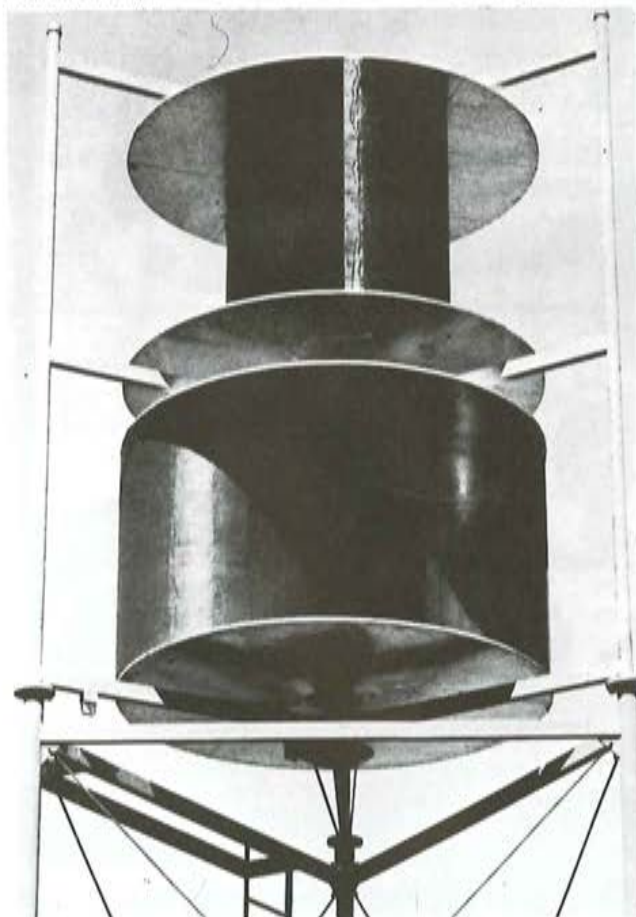
Pumps Australia expects to have its first production models of this unique power system available next year.

The wind turbine features a vertical axis turbine driving a helical rotor pump. The secret of the design is a patented centrifugal clutch between turbine and pump, allowing intermittent, but very efficient, pumping in very light winds.

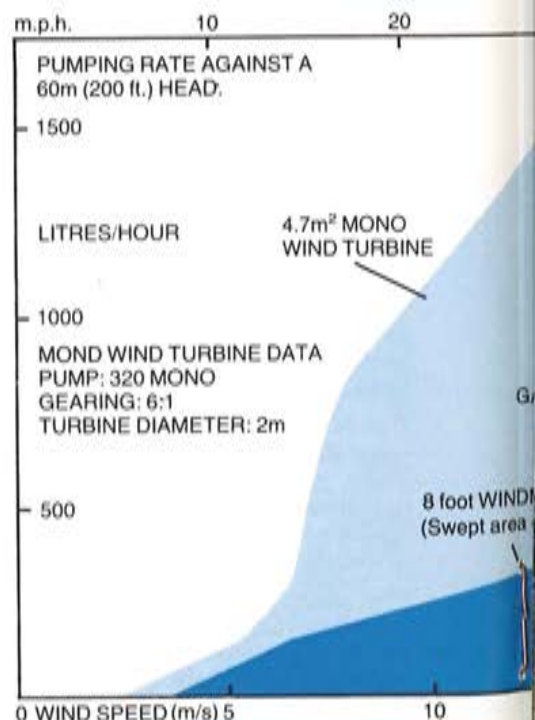
Designed by a NSW University engineering team at Duntroon, under project leader Dr John Baird, the new mill is expected to cost considerably less than a conventional mill of an equivalent swept area.

Mono Pumps (Australia) Pty has now signed an agreement with Unisearch (Australia) Pty Ltd — the university's research organisation — to further develop and then market the invention in Australia and overseas.

The power source of the revolutionary Mono Wind Turbine is the special 'S' rotor developed by researchers at the University of Queensland. The design was chosen after exhaustive wind tunnel tests of nearly 50 vertical axis turbine shapes and



Left, the unconventional top works of the Mono wind turbine... gone is the traditional blade and arms, replaced by 'S' rotors, specially designed for the application



Tables compare the performance of the Mono with the conventional windmill. The bar chart at right shows the estimated amount of water pumped by the conventional windmill.

configurations by a NSW University engineering team at Duntroon.

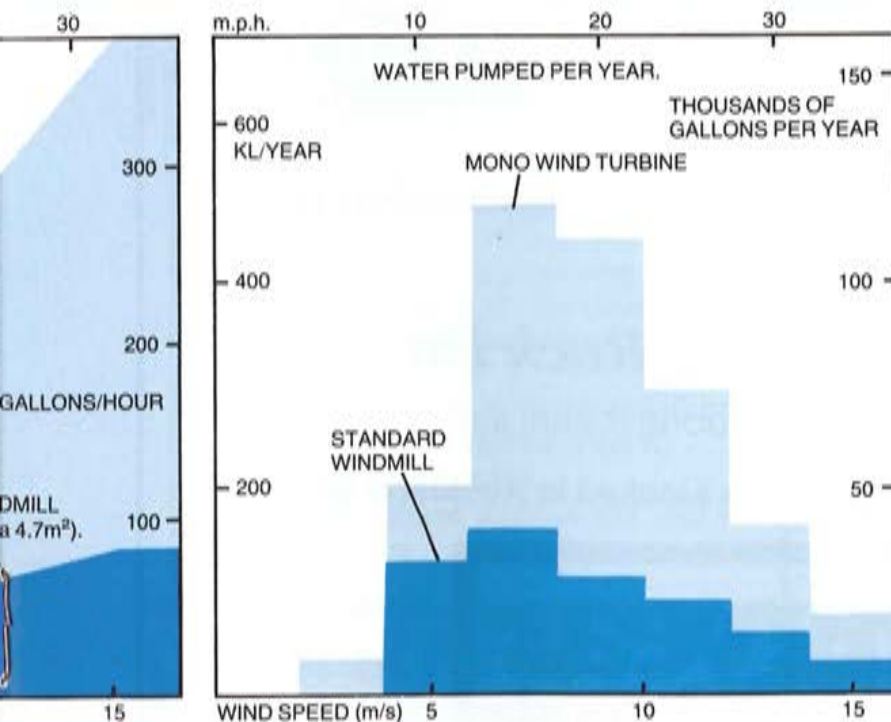
This breakthrough in wind energy technology has significant advantages over existing farm windmills

- Considerable improvement in pumping power over existing installations of similar size and cost.
- Much reduced maintenance requirement for both the turbine and the pump
- Elimination of the need for a pump jack in installations requiring auxiliary power, and
- Improved performance in low wind speeds when the turbine pumps intermittently, but efficiently

This latter feature ensures a more continuous supply of water over a period of time, and will reduce the size of storage reservoir needed in many installations.

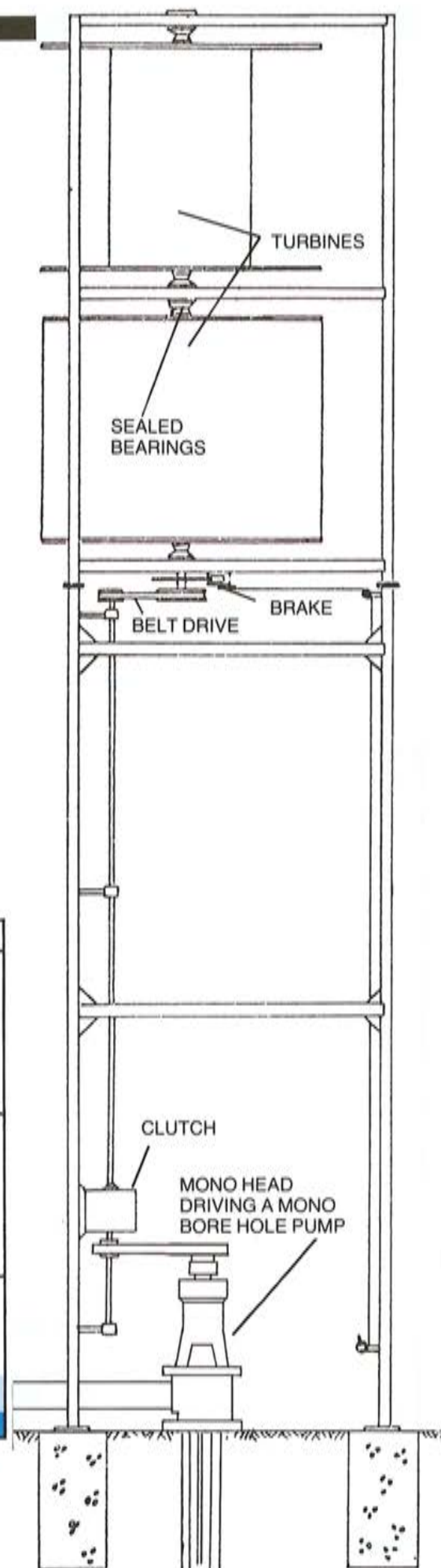
The use of vertical axis rotors running on sealed bearings eliminates much

**Continued on P10**



mono wind turbine with its conventional counterparts. At left can be shown the wind speeds over 20kmsh but also in gentler airs.

Amount of water pumped by the same turbine in a year, compared with the



### Continued from P9

of the machinery required at the tower head of existing mills, and greatly reduces tower head maintenance.

The patented clutch has an 'impulsive engagement' system which allows the drive to build up momentum at low wind speed. The clutch cuts in to allow pumping until the momentum is used up, then cuts out while the rotors build up for the next input. The total drive mechanism is sealed in a weather-proof box and is practically maintenance free.

In winds between approximately 9-20 km/h the turbine operates the pump in an intermittent manner. The cycle begins with the clutch disengaged. Without the drag of the pump the wind turbine stores the wind energy in its increasing rotational speed until it has sufficient speed to engage the clutch.

The pump, highly geared to produce large amounts of water, then uses the available wind energy, as well as the stored energy, to pump water. In this phase, because of the light winds, the turbine decelerates until the clutch disengages and the cycle is repeated.

The process has been optimized by detailed computer calculations and ensures the maximum use of available energy.

Previous windmill designers have used reduced gear ratios to lower the starting wind speed, and by doing so, have paid the penalty of poor performance in winds of 20-46 km/h.

The Mono wind turbine operates continuously at wind speeds above approximately 20 km/h and since the starting wind speed is determined by the clutch cut-in speed and not by the gear ratio, it is possible to select a gear ratio such that a large amount of water is pumped in moderate breezes. In this way, much more efficient use is made of the available energy.

A development programme is under way in which performance data is being gathered from various sites for analysis. This information will be used to determine the appropriate size of turbine, gear ratio and clutch adjustments to ensure that the required performance will be achieved at minimum cost.

Whilst present development work on the Mono Wind Turbine pump prototype has a capacity in excess of 1500 litres/hour, larger wind turbines are

being looked at. Merely by changing the belts on the head of the Mono borehole pump and attaching it to an electric motor on diesel engine, high capacities can be achieved from the same bore during periods when more water is needed.

Based on the work already carried out with the prototype, it is likely Mono pumps will produce wind turbines which equate with the wind swept areas of conventional mills with 1.8-4.25 metre fan diameters. However, because of the higher efficiency of these wind turbines compared with fan mills, their capacities would be equivalent to 3-7.6 metre diameter mills.

This breakthrough in wind energy technology will have far-reaching effects not only with farmers needing borewater for stock and crops, but as the prime mover for surface pumps to save on scarce, and sometimes non-available non-renewable fossil fuels. The first production models will be available in 1983. Information from

**Mr A. Bryan**  
**Mono Pumps (NZ) Ltd**  
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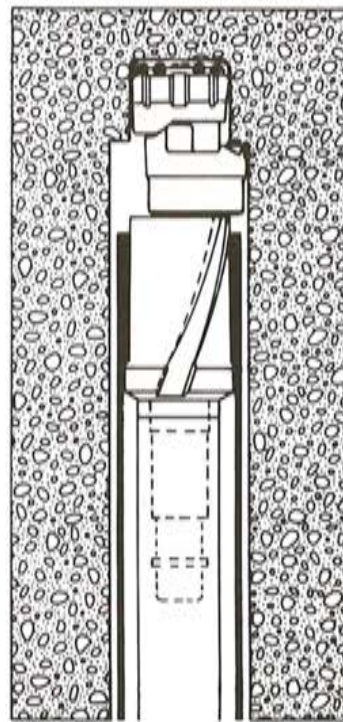
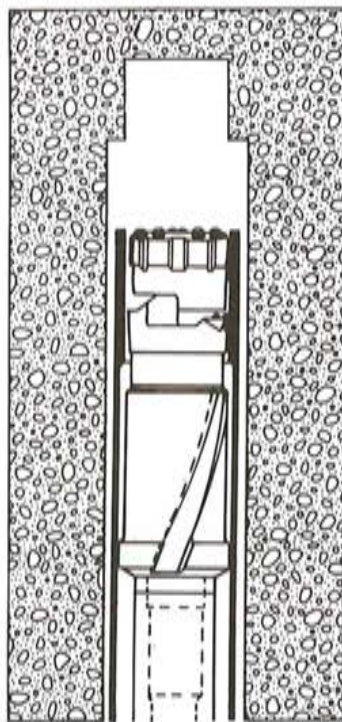
THE ODEX drilling method will solve water well drilling problems caused by tricky ground conditions.

The technique, developed by Sandvik and Atlas Copco, gives reliable drilling with high penetration rates in all soil types, despite boulders, cracks, and fissures, down to solid rock.

It employs a revolutionary eccentric reamer and drill bit to drive an oversize hole for a steel tubular casing.

The casing follows the reamer down the hole as it is cutting. It does not rotate but is driven smoothly by the feed force or the impact energy transmitted from drill hammer to casing.

The torque and power of the rock drill are concentrated on hole drilling, making it possible to drive holes up to 100 metres deeper than could be achieved with earlier equipment types.



*Odex equipment at work. The pilot bit drills at the foot of the hole. When rotation begins, the reamer swings out automatically and reams up the hole so the casing tubes may slide down (left). When drilling is complete the drill bit is reversed, and the reamer swings in — allowing the drilling equipment to be easily withdrawn through the casing tubes.*

Continued on P12

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**Continued from P11**

The basic down-the-hole Odex components are the guide and the combined pilot bit and reamer, fitted with cemented carbide buttons. A special casing shoe which engages the bit guide is employed to assist the descent of the casing.

Relatively thin non-machined steel tubes extended by welding can be used and are much more economical than threaded casing, when used only once and left in the ground. Threaded casing is available for applications where the casing can be recovered and re-used.

On completion of drilling, the Odex equipment is reversed. The reamer automatically swings inward, allowing the whole unit to be retracted back up through the casing. Standard drilling equipment is used for continued drilling through the casing once solid bedrock is reached.

On the most common size, the Odex 115, the reamer moves around eccentrically cutting a 152mm hole, sufficiently large for the ID 128mm casing tubes which follow. The casing shoe permits a 115mm down-the-hole bit to pass for continued drilling in

bedrock. Some other sizes are available.

The best flushing medium is foam, supplied through the flushing hole in the drill rods and forced out via channels in the pilot bit, reamer and guide. Cuttings are carried in an annular column between the casing tube and deflecting strainer on the guide, then up through the space between rods and casing to be discharged via a top outlet and hose.

Air or water can be used down to depths of about 15 metres but foam must be used below this and is preferred to minimise equipment wear, stabilise the hole walls, and lubricate the surface ready for the casing tubes.

Six Atlas Copco rigs are factory-prepared for Odex — the 461 and 661 Aquadrills, 1302 and 1802 Rotamecs, Mobile Drill B80 and ROC 604-01 down-the-hole crawler unit. Other rigs can easily be modified. Optional equipment includes casing cutters and welding sets, special tube-handling yoke, a selection of handling tools, and the foam flushing equipment. Information from

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## **New viability for air pump**

LOW ENERGY costs overcome an inbuilt lack of efficiency and make air lift pumps viable again.

The air lift water pump works by injecting air into the lower end of an open pipe, immersed in the liquid to be pumped.

In pumping, air under pressure is forced through the air pipe into the pump unit.

The expansive force of compressed air forms layers of bubbles in the water pipe, to lift and discharge the water through the upper end of the pipe.

Because of the continual flow of water from outside to the interior of the pump, by gravity, the ascent through the pipe is free from shock, jar or noise.

The Bowjon air lift pump is designed for use in farm bores, where its 55mm diameter means only a 75mm bore is needed.

**Continued on P14**

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Manufacturers and suppliers of drill rod cou-  
plings, screens and fishing tools.

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



# DRILLING SERVICES AND SUPPLIES LTD

For the complete range of mud supplies and technical backup

PRODUCT INFORMATION

## DRILL TROL

Granular powder polymer for building viscosity and inhibiting clay shale formation problems

PRODUCT INFORMATION

## DRIL VIS

Rapid high vis cellulose polymer in powder form for instant viscosity building

PRODUCT INFORMATION

## DRILL-X-10

Liquid thickening/viscosity stabilising agent used to extend Bentonite yield

PRODUCT INFORMATION

## DRILUBE

Lubricant additive blend of non-polluting degradable surfactants and polymers

PRODUCT INFORMATION

## DRIL FOAM

Polymers and misting agent in liquid form for complete foam construction

PRODUCT INFORMATION

## DRIL DET

Detergent and wetting agent surfactant blend for any water-based mud

PRODUCT INFORMATION

## DRILFLOC TEN

Encapsulating polymer emulsion for shale stabilisation

PRODUCT INFORMATION

## DRILLFLUID DEFOAMER

A liquid defoamer preventing surface foaming and down hole aeration

PRODUCT INFORMATION

## DRILFLO HT

Liquid anti-gelling polymer product

PRODUCT INFORMATION

## SCAVOX

A powerful liquid oxygen scavenger for corrosion prevention

## DRILLING SERVICES AND SUPPLIES LTD

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

**Continued from P12**

The pump is made of high impact PVC, with brass and stainless steel fittings. It cannot be affected by minerals or water pollutants, and its perforated tail piece means the inlet pipe cannot clog.

Advantages of the air lift pumping system are the lack of moving parts in the well or in contact with liquid; the use of a surface power source readily accessible for servicing, and able to be at a distance from the well; no need for a stand-by pump; and the ability to increase output by increasing air supply.

Other benefits include its ability to run dry, the absence of sand or grit problems, water aeration that makes even brackish water bright and sparkling, and the prospect of installing more than one pump if the bore is sufficiently large.

Disadvantages are in the pump's relative lack of efficiency, and the submergence required — at least 10 metres, and ideally 60 per cent of lift height, from the water surface to the discharge tank.

The Bowjon pump is inexpensive,

and its compressed air can be provided from either diesel or electric motors, or a Bowjon windmill.

All methods are more economic than conventional deep-well submersible pumps or orthodox windmills. Both have pumps with moving parts under the water and potential maintenance problems. The deep-well pump is also energy hungry and the orthodox windmill must be located over the well.

Information from  
**Bowjon Pacific Ltd**  
P O Box 1195  
**AUCKLAND Ph (09)**

## **NZ prospects at open day**

A VARIETY of drilling equipment with potential New Zealand applications was on show at the annual English Drilling Equipment Co Ltd open day, held in September.

The equipment included both developments of gear already operating here, and other completely new concepts to deal with problems experienced in the past.

The release of the EDECO Stratadrill 280 top drive core drill was perhaps the day's biggest development.

The unit has infinitely variable speed up to 1 490 rpm. Feed is a single hydraulic cylinder, with a 3.6 metre stroke and 11 tonnes thrust. The unit has a 66kW diesel, and using NQ rods on single line pull is rated for 740 metres.

The prototype hydraulic drive version of the Stratadrill H40 was unveiled, and more information will be available as its trials are completed and production begins.

EDECO is well known for its underground mining and tunnelling equipment.

Offerings in this field included an extension to the Mini-hydrack series, now available on a modular basis to suit individual requirements; 12kW and 22kW power packs; three drill frames from 380-1 500mm; a selection of drill heads; and suitable control tables.

The units can form 12 combinations to suit the requirements of any job.

The Hydrabore 52 is a new low-speed hollow spindle drill with hydraulic chuck, powered by a standard mini-hydrack 12kW power pack giving

# **Pump maintenance a problem?**

**Change now to Bowjon —**

**the no problem pump**

- No moving parts under water
- No maintenance — at all
- Will not clog, and runs dry without problems
- Made of high impact pvc, stainless steel and brass — means minerals and pollutants cannot harm the pump
- Water pumped by Bowjon is aerated — even brackish water becomes bright and sparkling

**BOWJON AIR LIFT WATER PUMPS** operate on low pressure compressed air — either from the farmer's own compressor or from a BOWJON windmill compressor — the only windmill that can be sited up to 400 metres from the well.

AN ENERGY RESOURCES COMPANY **Bowjon Pacific Ltd**

**Enquiries to**

P O Box 1195  
Auckland  
Ph (09) 795 679  
Telex NZ60007

Suite 304  
3rd floor  
8 Commerce St  
Auckland

And at Wellington  
5 Alpha Street  
Ph (04) 726 755

recommended maximum capacity of 150 metres with 1.625 inch drill rods. The Hydrabore 70 is a high-speed hollow spindle drill for both underground and service use. Its feed length is 1.625 metres and NQ capacity is 250 metres. A 30kW electric engine is standard, but diesel and air options are available.

Information from

**Allan Farmer**  
**Dominion Construction Co Ltd**  
**P O Box 11 077**  
**WELLINGTON**  
**Ph (04) 843 671**

## Centrifugal made in NZ

HIGH HEAD, high flow, pumping in agriculture, horticulture and process industry applications can be performed by a New Zealand-designed pump.

The Wallace vertical multi-stage centrifugal pump has a high efficiency rating, rugged design, and contains many of the best features of more expensive imported equivalents.

### Continued from P7

drilling organisations, and mining company and government drilling managers.

Further workshops were planned for Sydney and Melbourne. Information from

**Mr Les Mahoney**  
**P O Box 215**  
**Gordon NSW 2072**  
**AUSTRALIA**  
**Ph 883 834**

AN 'OFF-SHORE' training course organised by the Australian Drilling Industry Training Committee attracted 70 Australian delegates to Manila.

The course covered five topics — mud techniques and tests; drilling decision making, instruction and communication techniques; managing for supervisors; and an introduction to the Drillers' Certificate.

Delegates who completed the course were presented with certificates by a counsellor from the Australian Embassy in Manila.

## WANTED TO BUY

### Line pipe offcuts or lengths.

To deepen an existing well we need about 70 metres of 13 inch OD line pipe, new or second hand.

**R.B. McCully**  
**'Aronul', Temuka RD26**  
**Ph 839 Clandeboye**

## This space to let

Clear the yard!

Your rubbish is probably just what someone else is looking for.

Advertise in the New Zealand Driller, the only magazine circulated exclusively to drillers and the drilling industry.

Isn't it time you used it?

## Information on P3

## BOWJON WINDMILLS & WATER SYSTEMS

### AGENCIES & DEALERSHIPS Available in selected areas

Following a change of distribution policy, the revolutionary Bowjon system of water transfer is now available for local agencies and dealers. This system, from Bowjon Pacific, is unique in that the windmills drive compressors which in turn activate air-operated pumps.

A full range of pumps is available for wells and shallow water sources, such as dams and creeks. A further unique feature is that the windmill can be sited up to 400 metres from the pump without the need for elaborate high towers.

### ENQUIRIES

Managing Director

**BOWJON PACIFIC LTD**  
 Commercial Securities House,  
 8 Commerce St, Auckland  
 P O Box 1195, Auckland, New Zealand.  
 Ph (09) 795 679 Telex 60007

Agents or dealers should be well experienced in water pumping and be able to offer full sales and installation service.

## BAROID® MINI™ DESANDER The Clean-Mud Machine for Water Well and Minerals Exploration Drilling

### What it can do for you

Benefits of limiting the sizes and amounts of solids in drilling mud:

- Cleaner muds
- Improved drilling rate
- Less time spent on formation clean-up and development
- Increased equipment life for bits, swivels, pumps and drill pipe
- Decreased pump pressure to prevent loss of circulation and to lower fuel costs
- Reduced mud-ringing, bit-balling, sludging-out, wall-sticking
- Simplified mud pit construction and cleaning
- Improved quality of formation samples
- Savings in drilling water requirements
- Simplified disposal of excess mud

## MINTECH (N.Z.) LIMITED



Steer 314

P.O. Box 440, Nelson, New Zealand  
 Telephone Nelson (054) 80092  
 Telegraphic Address: "Minerals" Nelson  
 Telex NZ 3653

P.O. Box 62-118,  
 Sylvia Park,  
 Auckland.  
 Telephones 578966; 577174,  
 Telex NZ 21051.  
 Telegraphic Address: "Minerals" Auckland.

# Bisleys are dedicated to solving your problems.

You encounter a variety of problems in the well drilling business...Bisleys offer products to solve them. For example ...

**Fitting well screens to geologic conditions can be a problem.**

That's why Bisleys have Johnson screens in such a wide range of lengths, slot sizes, materials and designs. Whatever conditions you encounter, Bisleys have a Johnson screen to solve your problems.

**Johnson Nu-Well® solves screen cleaning problems.**

Just dump these convenient pellets down the well. Nu-Well works fast to free screens of incrustation and restore well yield.

**Johnson Revert® solves drilling problems.**

Drillers report increased penetration rates, better sampling, and better wells with this amazing, self-destructing drilling fluid additive.

**Well construction or design problems? Call a Bisley's man.**

There's one in your area, trained, experienced, thoroughly familiar with drilling conditions in your area and ready to help you solve problems that arise.

**Problems down the hole?** Bisleys have Johnson-Keck geophysical instruments that can tell you exactly what's going on. There's the HC-70 Hole Caliper, DR-74 Electric Logger, GR-74 Gamma Ray Logger. And the SD-62B Water Level Sensor. These and others can help you design and build the best wells possible.



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