

# GNS SCIENCE HALF YEAR REPORT 31 DECEMBER 2016





Our purpose is to deliver  
science for a better  
New Zealand to make  
our nation  
**CLEANER, SAFER and  
MORE PROSPEROUS**

*Mai i te rangi, ki te nuku o te whenua,  
ka puta te ira tangata i te po,  
i te whaiao, i te ao mārama.  
Ko Te Pū Ao mātou.*

*From the sky and the land,  
came people from the night,  
to the old world, to the world of light.  
We are GNS Science.*

## Contents

Directors' report	1
Highlights	1
Statement of Income	4
<hr/>	
Directory	11

## Directors' Report

The Directors are pleased to report on the activities of the Group for the six months ended 31 December 2016.

### Financial Performance

The financial result for the Group for the half year was a net surplus after tax of \$1.198 million. Operating profit was \$1.485 million as compared to \$311,000 for the same period last year. Shareholders Equity currently stands at \$32.6 million. The dividend of \$250,000 declared in June 2016 was paid in August 2016.

The result for the period was heavily influenced by activity associated with the Kaikoura earthquake response. This response effort was supported by additional funding as provided by MBIE to the Natural Hazards Research Platform and reprioritisation of GeoNet funding from EQC.

We were awarded additional research funding from the Endeavour and Marsden Funds in the period, and a Rutherford Scholarship was won by one of our staff members.

The outlook for the second six months is positive.

### Highlights

GNS Science has had some significant achievements in both science and commercial in the period that has allowed us to:

- continue to deliver on our core purpose of science that drives innovation and economic growth in New Zealand's geologically based energy and minerals industries, that develops industrial and environmental applications of nuclear science, that increases New Zealand's resilience to natural hazards, and that enhances understanding of geological and earth-system processes and;
- contribute to outcomes of national significance.

### M7.8 Kaikoura earthquake

The M7.8 Kaikoura earthquake of 14 November 2016 was notable for a number of reasons. Two that stand out were the highly unusual way it ruptured across multiple faults and the large slow-slip event it triggered under the east coast of the North Island. While geologists knew the faults were there, no one could have predicted that more than a dozen of them would rupture nearly simultaneously.

During the rich aftershock sequence, we have had daily contact with numerous agencies to provide a wide range of information. This included the Ministry of Civil Defence & Emergency Management, EQC, the National Crisis Management Centre, Ministers, engineering groups, local government, the NZ Transport Agency, and local communities.

We have received extensive positive feedback from the public, the media, research organisations and industry groups, and government agencies about the way we responded to the earthquake. This highlights the extensive changes and improvements we have made since the Christchurch earthquake of 2011 relating to communication of science to a range of stakeholders.



We have multiple ongoing research initiatives that will provide evidence-based information for policy development and decision-making during what will be an extensive recovery phase. More immediately, we are an integral member of the umbrella rebuild group, North Canterbury Transport Infrastructure Rebuild, which has the major task of restoring road and rail links. Our specialist input includes advice on landslides and aftershock probabilities.

### Honours for climate researcher

A number of our staff received major awards and honours during the period in review. Of note was Antarctic climate researcher Nancy Bertler who won two major awards in 2016. Nancy is employed jointly by GNS Science and Victoria University of Wellington. She won the Science and Technology category of the Wellingtonian of the Year Awards. She also won a Blake Leader Award, named after Sir Peter Blake. They are awarded to mid-career New Zealanders who, like Sir Peter, have demonstrated outstanding leadership and a determination to achieve extraordinary things.



Nancy's work is making a major contribution to understanding climate change in the southern latitudes and she is helping New Zealanders understand the consequences of a warming world. She has led 13 multi-national deployments to Antarctica to collect cores from ice sheets for climate research.

### GeoNet turns 15

The GeoNet project took a moment in 2016 to reflect on its many achievements since it started in 2001.

Fifteen years ago, there were only a handful of monitoring stations that could transmit data in real time. The real-time instrument network has now grown to more than 600 stations. All stations transmit data immediately to GeoNet's data centres. This enables rapid and precise calculations of earthquake magnitudes and locations. And just as important, it enables us to provide rapid information to our many stakeholders.

GeoNet also has an enhanced ability to monitor volcanoes, silent earthquakes, and tsunamis because of its expanded GPS and tide-gauge networks. This has only been possible through the vision, commitment and support of the Earthquake Commission, which currently provides funding of \$12 million-a-year for GeoNet. About 99,000 people have liked GeoNet's Facebook page, it has 60,000 Twitter followers, and its mobile phone app has been downloaded 320,000 times. During the 2016 calendar year, GeoNet recorded 32,800 earthquakes in New Zealand – a new, if somewhat dubious, record.

### Groundwater programme marks 25 years

Our National Groundwater Monitoring Programme marked 25 years in existence in 2016. It keeps track of trends in groundwater quality nationally and shares its data via a web-accessible database. The quality of water in New Zealand's 200 known aquifers is important because about one million New Zealanders use groundwater for their water supplies, and groundwater provides 30% of our total consumptive water requirement. Groundwater also provides about 50% of the water needs of the agriculture and horticulture sectors.



Run in partnership with 15 regional councils, the Programme samples 112 sites throughout the country four times a year. We analyse the samples for 17 parameters to provide a national perspective on groundwater quality. The database that is fed by the programme is one of eight nationally-significant databases operated by GNS Science. As well as providing inputs to the Ministry for the Environment's three yearly report on the status of New Zealand's fresh water, it is also a basis for developing improved management techniques to help safeguard groundwater quality. This is an increasingly important area for New Zealand with opportunities for GNS given our unique capabilities.

Dr Nicola Crauford  
Chairman  
GNS Science

Sarah Haydon  
Deputy Chairman  
GNS Science

**Institute of Geological and Nuclear Sciences Limited**  
Condensed consolidated interim statement of comprehensive income  
For the six months ended 31 December 2016

<i>in thousands of New Zealand dollars</i>	Note	Unaudited 6 Months Dec-16	Unaudited 6 Months Dec-15	Audited 12 Months Jun-16
<b>Revenue</b>				
Research contracts		24,368	21,590	49,452
Commercial		8,871	10,074	20,994
GeoNet		6,320	5,475	11,752
Other income		28	17	45
<b>Total revenue</b>		<b>39,587</b>	37,156	82,243
<b>Expenses</b>				
Employee benefit expense		19,037	18,854	38,071
Operating expenses		14,010	12,378	31,675
GeoNet direct expenses		2,214	2,888	5,576
Depreciation		2,259	2,142	4,349
Amortisation		582	583	1,165
<b>Total expenses</b>		<b>38,102</b>	36,845	80,836
<b>Net profit before interest and tax</b>		<b>1,485</b>	311	1,407
Interest income		179	121	266
<b>Net profit before tax</b>		<b>1,664</b>	432	1,673
Income tax expense		(466)	(121)	(506)
<b>Net profit after tax</b>	3	<b>1,198</b>	311	1,167
Other comprehensive income		-	-	-
<b>Total comprehensive income attributable to owners</b>		<b>1,198</b>	311	1,167

**Institute of Geological and Nuclear Sciences Limited**  
Condensed consolidated interim statement of changes in equity  
For the six months ended 31 December 2016

	Note	Share Capital	Retained Earnings	Total Equity
<i>in thousands of New Zealand dollars</i>				
<b>Balance at 1 July 2015</b>		<b>6,167</b>	<b>24,378</b>	<b>30,545</b>
Total comprehensive income		-	311	311
<b>Balance at 31 December 2015</b>		<b>6,167</b>	<b>24,689</b>	<b>30,856</b>
<b>Balance at 1 July 2015</b>		<b>6,167</b>	<b>24,378</b>	<b>30,545</b>
Total comprehensive income		-	1,167	1,167
Dividend	4	-	(250)	(250)
<b>Balance at 30 June 2016</b>		<b>6,167</b>	<b>25,295</b>	<b>31,462</b>
<b>Balance at 1 July 2016</b>		<b>6,167</b>	<b>25,295</b>	<b>31,462</b>
Total comprehensive income		-	1,198	1,198
<b>Balance at 31 December 2016</b>		<b>6,167</b>	<b>26,493</b>	<b>32,660</b>



# Institute of Geological and Nuclear Sciences Limited

## Condensed consolidated interim balance sheet

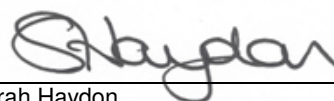
as at 31 December 2016

<i>in thousands of New Zealand dollars</i>	Note	Unaudited Dec-16	Unaudited Dec-15	Audited Jun-16
Share capital		6,167	6,167	6,167
Retained earnings		26,493	24,689	25,295
<b>Total equity</b>		<b>32,660</b>	<b>30,856</b>	<b>31,462</b>
<i>Represented by:</i>				
<b>Non-current assets</b>				
Property, plant and equipment		29,785	30,534	30,324
Intangible assets		3,696	4,100	4,086
Investments		30	30	30
<b>Total non-current assets</b>		<b>33,511</b>	<b>34,664</b>	<b>34,440</b>
<b>Current assets</b>				
Cash and cash equivalents		12,063	7,657	10,047
Trade receivables		4,498	4,036	5,860
Prepayments		1,866	1,874	1,846
Work in progress		2,759	3,405	1,580
Current tax		-	253	-
<b>Total current assets</b>		<b>21,186</b>	<b>17,225</b>	<b>19,333</b>
<b>Total assets</b>		<b>54,697</b>	<b>51,889</b>	<b>53,773</b>
<b>Non-current liabilities</b>				
Deferred tax		542	781	720
Non-current provisions		1,745	1,681	1,777
<b>Total non-current liabilities</b>		<b>2,287</b>	<b>2,462</b>	<b>2,497</b>
<b>Current liabilities</b>				
Trade and other payables		5,950	6,250	7,541
Current provisions		2,715	2,629	2,692
Revenue in advance		10,968	9,692	9,157
Provision for income tax		117	-	174
Provision for dividend	4	-	-	250
<b>Total current liabilities</b>		<b>19,750</b>	<b>18,571</b>	<b>19,814</b>
<b>Total liabilities</b>		<b>22,037</b>	<b>21,033</b>	<b>22,311</b>
<b>Net assets</b>		<b>32,660</b>	<b>30,856</b>	<b>31,462</b>

For and on behalf of the Board:



Dr Nicola Crauford  
Chairman  
28 February 2017



Sarah Haydon  
Deputy Chairman  
28 February 2017

**Institute of Geological and Nuclear Sciences Limited**  
Condensed consolidated interim statement of cash flows  
For the six months ended 31 December 2016

<i>in thousands of New Zealand dollars</i>	Note	Unaudited 6 Months Dec-16	Unaudited 6 Months Dec-15	Audited 12 Months Jun-16
<b>Cash flows from operating activities</b>				
<i>Cash was provided from:</i>				
Receipts from customers		41,582	40,940	85,512
Interest received		179	121	247
		<b>41,761</b>	41,061	85,759
<i>Cash was applied to:</i>				
Payments to suppliers and employees		(36,919)	(36,963)	(76,998)
Income tax paid		(700)	(240)	(259)
		<b>(37,619)</b>	(37,203)	(77,257)
<b>Net cash flows from operating</b>	3	<b>4,142</b>	3,858	8,502
<b>Cash flows from investing activities</b>				
<i>Cash was provided from:</i>				
Sale of property, plant, equipment and intangible assets		28	29	33
		<b>28</b>	29	33
<i>Cash was applied to:</i>				
Purchase of property, plant, equipment and intangible assets		(1,913)	(2,525)	(4,749)
		<b>(1,913)</b>	(2,525)	(4,749)
<b>Net cash flows from investing</b>		<b>(1,885)</b>	(2,496)	(4,716)
<b>Cash flows from financing activities</b>				
<i>Cash was applied to:</i>				
Dividends paid		(250)	(250)	(250)
		<b>(250)</b>	(250)	(250)
<b>Net cash flows from financing</b>		<b>(250)</b>	(250)	(250)
<b>Net increase/(decrease) in cash and cash equivalents</b>		<b>2,007</b>	1,112	3,536
Effect of exchange rate changes on cash held in foreign currency		9	(1)	(35)
<b>Opening cash and cash equivalents</b>		<b>10,047</b>	6,546	6,546
<b>Closing cash and cash equivalents</b>		<b>12,063</b>	7,657	10,047

# **Institute of Geological and Nuclear Sciences Limited**

Notes to and forming part of the condensed consolidated interim financial statements  
For the six months ended 31 December 2016

---

## **1. Reporting entity and activities**

The Institute of Geological and Nuclear Sciences Limited is established under the Crown Research Institutes Act 1992 and the Companies Act 1993. Its subsidiary companies, Isoscan Limited, Isoscan Food Limited, Geological Surveys (New Zealand) Limited, GNS Science International Limited and Geological Risk Limited are established under the Companies Act 1993.

The principal activities of the Company are to undertake geoscience and isotope science research, development and consultancy, predominantly in New Zealand.

These unaudited condensed consolidated interim financial statements are for the six months ended 31 December 2016 and were approved by the Board on 28 February 2017.

## **2. Summary of significant accounting policies**

These unaudited condensed consolidated interim financial statements have been prepared in accordance with section 17 of the Crown Research Institutes Act 1992, the Public Finance Act 1989, the Companies Act 1993, the Crown Entities Act 2004 and generally accepted accounting practice in New Zealand, IAS 34 and NZ IAS 34 Interim Financial Reporting.

These unaudited condensed consolidated interim financial statements for the six months ended 31 December 2016 do not include all the notes of the type normally included in an annual financial report but have been prepared using the same accounting policies and methods of computation as, and should be read in conjunction with, the financial statements and related notes included in the Group's Annual Report for the year ended 30 June 2016.

The same significant judgments, estimates and assumptions included in the notes to the financial statements in the Group's Annual Report for the year ended 30 June 2016 have been applied to these unaudited condensed consolidated interim financial statements.



## Institute of Geological and Nuclear Sciences Limited

Notes to and forming part of the condensed consolidated interim financial statements  
For the six months ended 31 December 2016

### 3. Reconciliation of profit for the period to net cash flows from operating activities

	Unaudited 6 Months Dec-16	Unaudited 6 Months Dec-15	Audited 12 Months Jun-16
<i>in thousands of New Zealand dollars</i>			
<b>Profit after tax</b>	<b>1,198</b>	<b>311</b>	<b>1,167</b>
<i>Add/(less) items classified as investing activities:</i>			
Change in trade payables relating to investing activities	-	-	(354)
Net (gain)/loss on disposal of property, plant and equipment	(27)	(29)	(19)
	(27)	(29)	(373)
<i>Adjust non-cash items:</i>			
Depreciation	2,259	2,142	4,349
Amortisation	582	583	1,165
Bad and doubtful accounts	-	-	18
Net unrealised exchange (gain)/loss	(9)	1	16
(Decrease)/increase in provision for income tax	(57)	1	428
Decrease in deferred tax	(178)	(120)	(181)
(Decrease)/Increase in non-current provisions	(32)	(65)	31
	2,565	2,542	5,826
<i>Add/(less) movements in working capital items:</i>			
Decrease in trade receivables and prepayments	1,342	4,771	2,975
Increase/(decrease) in payables, current provisions, revenue in advance	243	(2,571)	(1,752)
(Increase)/decrease in work in progress	(1,179)	(1,166)	659
	406	1,034	1,882
<b>Net cash flows from operating activities</b>	<b>4,142</b>	<b>3,858</b>	<b>8,502</b>

### 4. Dividend

No dividends were declared by the Group for the six months ended 31 December 2016 (2015 – None).

### 5. Commitments

#### (a) Capital commitments

	Unaudited Dec-16	Unaudited Dec-15	Audited Jun-16
<i>in thousands of New Zealand dollars</i>			
Commitments for future capital expenditure	2,359	2,445	1,321

## Institute of Geological and Nuclear Sciences Limited

Notes to and forming part of the condensed consolidated interim financial statements  
For the six months ended 31 December 2016

### (b) Operating lease commitments

<i>in thousands of New Zealand dollars</i>	Unaudited Dec-16	Unaudited Dec-15	Audited Jun-16
Within one year	121	131	170
Between one and five years	-	109	78
Over five years	-	-	-
	121	240	248

### 6. Contingent liabilities

The Group has no contingent liabilities at 31 December 2016 (2015 - Nil).

### 7. Subsequent events

There were no significant events after 31 December 2016 (2015 – None).

## Directory

### Directors

---

#### Chairman

Dr Nicola Crauford

#### Deputy Chairman

Sarah Haydon

Professor Steve Weaver

Belinda Vernon

Chris Bush

Dr John Sharpe

### Executive

---

#### Chief Executive

Ian Simpson

#### Chief Financial Officer

Graham Clarke

#### Director, Natural Hazards Division

Dr Gill Jolly

#### Director, Geological Resources Division

Dr Kevin Faure

#### Director, Environment and Materials Division

Dr Chris Daughney

#### Director, External Relations and Commercialisation

Dr Neal Wai Poi

### Bankers

---

ANZ Bank NZ Limited

### Auditor

---

Trevor Deed, Deloitte

On behalf of the Auditor-General

### Solicitors

---

Minter Ellison Rudd Watts

### Registered Office

---

1 Fairway Drive

Lower Hutt 5010

PO Box 30368

Lower Hutt 5040

New Zealand

Tel: +64 4 570 1444

Fax: +64 4 570 4600

Email: [Avalon@gns.cri.nz](mailto:Avalon@gns.cri.nz)

**Cover photo:** GNS Science geologist Robert Langridge surveys the fault offset on the main trunk line at Kekerengu in Marlborough following the M7.8 Kaikoura earthquake in November 2016. *Photo: Tim Little, VUW*