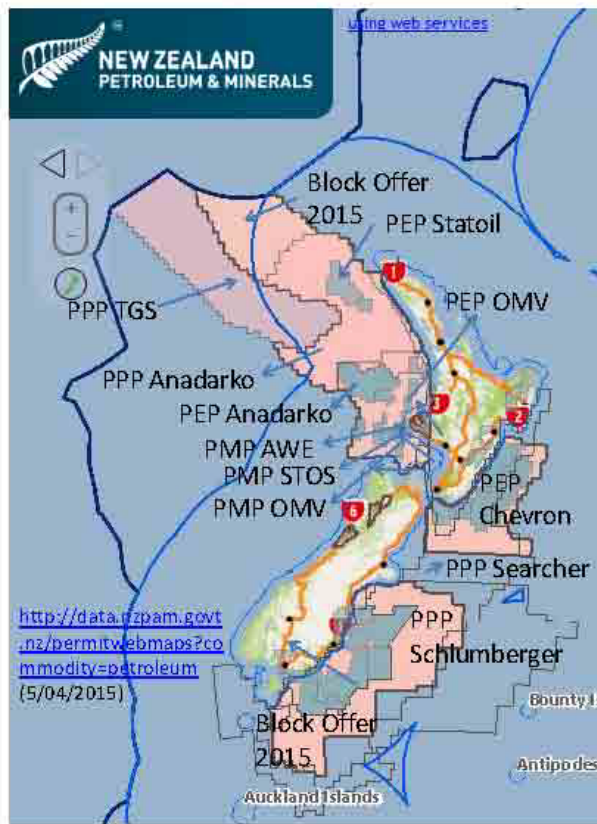


# Notes for Taranaki Oil and Gas Tour

## Background on Taranaki's oil/gas industry

Welcome to New Zealand's energy capital – the Gasland of New Zealand!

Early this month, the Energy and Resource Minister Simon Bridges announced the 2015 block offers, opening the bidding process for petroleum exploration over 430,000 sq.km. (nearly twice of NZ's land area) of NZ's ocean and land. This is in line with the govt's energy strategy for 2011-2021 (MBIE, 2011<sup>1</sup>):



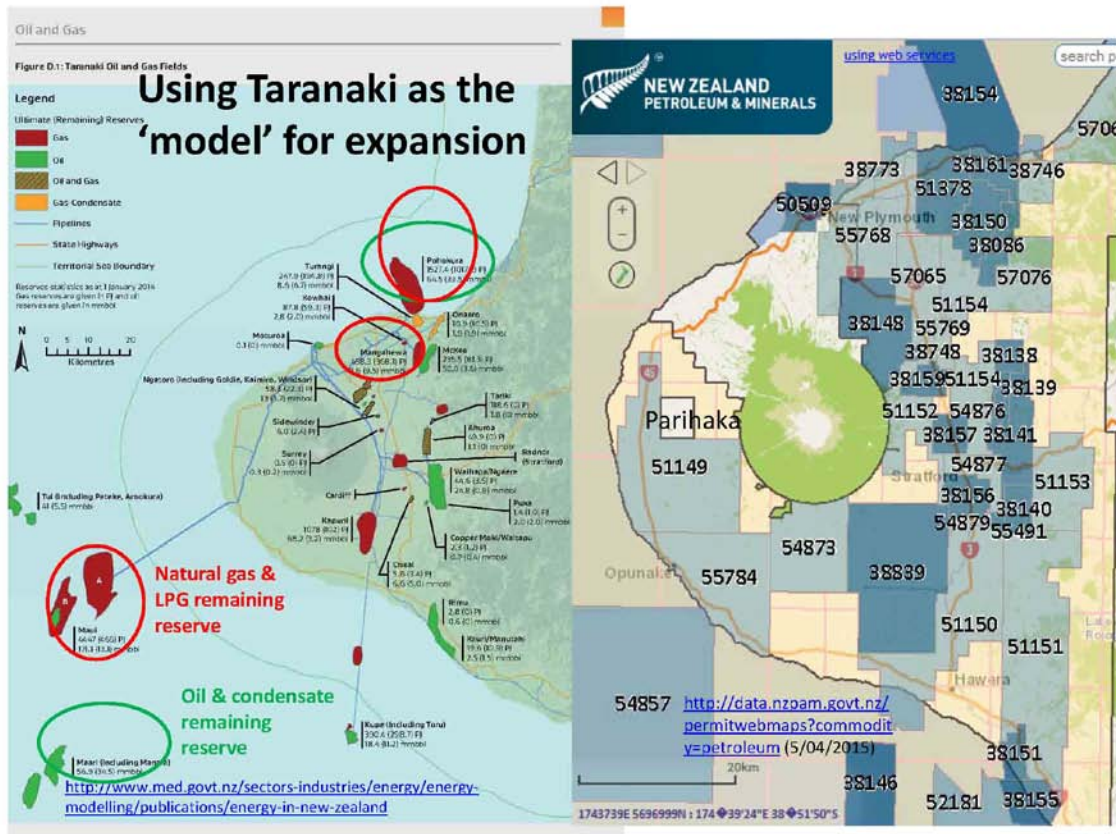
**Government wishes:**  
***“New Zealand’s oil and gas production could be **substantially increased** – potentially to the point where New Zealand becomes a net exporter of oil by 2030.”***

NZ Energy Strategy 2011-2021, Ministry of Economic Development (now MBIE)  
<http://www.med.govt.nz/sectors-industries/energy/strategies>

To do this, the govt is using Taranaki as the model.

Taranaki has more than 20 oil and gas fields, onshore and offshore.

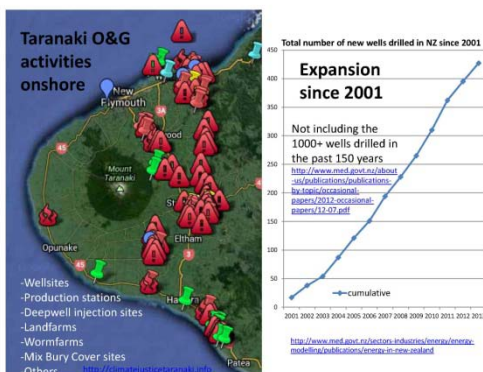
With the **20 known oil and gas fields** and the hope that more may be found, Taranaki is pretty much totally covered in petroleum permits or block offers; other than the national park, Parihaka, the area from Okato to Oakura and Omata, small parts of New Plymouth, and the far inland areas bordering Manawatu-Whanganui and Waikato.



Total number of wells drilled is unclear. An MBIE 2012<sup>ii</sup> report mentioned over 1000 wells have been drilled in the past 150 years. A GNS report (2007)<sup>iii</sup> says there are 349 abandoned onshore oil and gas wells in NZ (140 in Taranaki) with the potential for geothermal energy.

Venture Taranaki Energy Stream website<sup>iv</sup> says: *“Discoveries can be traced pre-1865, when early settlers began complaining that the oily scum on Ngamotu beach, New Plymouth, required them to wipe their boots and lift their dresses when they walked along the sand. Oil was literally flowing off the beach. The Alpha well<sup>v</sup> in Taranaki is considered the first oil well in the Commonwealth and one of the first in the world”.*

There’s been a steep increase in the number of new wells drilled since 2001, from 16 drilled in 2003 to 52 drilled in 2011. Nearly all were drilled in or off Taranaki.



The oil and gas industry is not just about drilling holes in the ground. Along with prospecting and exploration comes seismic survey, exploratory drilling, well testing, fracking, production, and all the infrastructures that come with these processes; e.g. well sites, production stations, high pressure pipelines, tank farms, other hazardous substance storage, landfarms, etc.

At every wellsite and production station, operators hold resource consents granted by the Taranaki Regional Council (TRC) to take water, and to discharge contaminants to air, water/stream and land. They also hold landuse consents from district councils for site establishment, storage of hazardous substances, heavy traffic and noise.

Many locals and other concerned people have been expressing their concerns about the environmental, social, cultural and economic issues relating to the oil and gas industry in Taranaki (and New Zealand). The issues relate to all oil and gas activities including fracking. **Fracking did not require consent until mid-2011** although it had been occurring for many years. Fracking is described as the enabler for the expansion of the oil and gas industry, facilitating access to previously inaccessible or uneconomical reserves.

The Parliamentary Commissioner for the Environment published her final report, **Drilling for Oil and Gas: Environmental Oversight and Regulation**<sup>vi</sup> in June 2014. The report does not give the big green tick for this industry and the Commissioner clearly articulates this. In Taranaki 'on the ground' it confirms the concerns were valid around many issues.

According to the PCE, *"Large volumes of 'produced water' flow out of wells along with oil and gas. This water comes from deep within the earth contains hydrocarbons, salts and heavy metals"* (PCE, 2014, pg.57). *"The most undesirable way of disposing of waste is to discharge it into a stream"* (PCE, 2014, pg.93). Taranaki Regional Council is continuing to grant consents to discharge produced water into our streams and rivers.

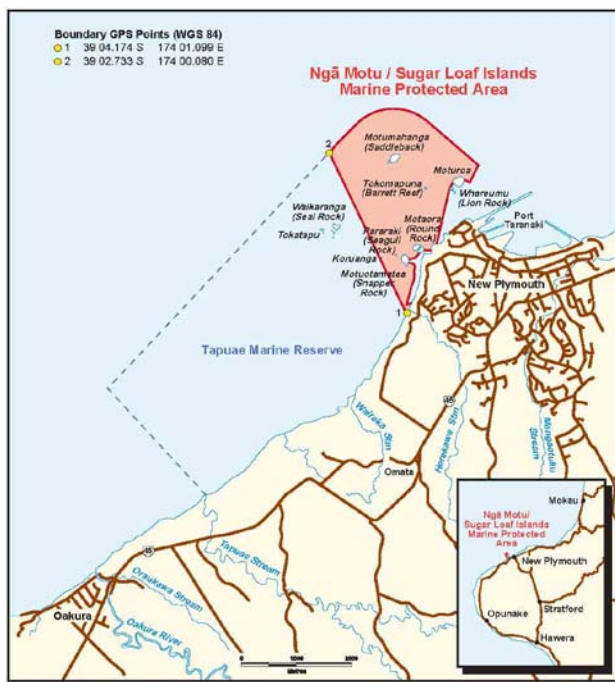
There is very limited involvement for people in Taranaki to have a say or be informed of decisions relating to oil and gas activities beside our homes, schools and communities. The PCE recommended a national policy statement and public involvement in decision-making and proactive provision of information. Neither has occurred.

This field trip will hopefully give you some basic information about the oil and gas industry, the regulatory and monitoring regime which is supposed to protect the environment and what life is like for locals who live next to oil and gas sites.

## **1. Tapuae Marine Reserve & Nga Motu / Sugar Loaf Islands Marine Protected Area**

The Ngā Motu/Sugar Loaf Islands Marine Protected Area (SLIMPA), established in 1986, comprises seabed, foreshore and water around Ngā Motu/Sugar Loaf Islands. It backs onto the northern boundary of the 1404 ha Tapuae Marine Reserve (DOC website<sup>vii</sup>). The MPA is important for 19 species of seabirds, with approximately 10,000 seabirds nesting here. A breeding colony of New Zealand fur seals (*Arctocephalus*

*forsteri*) is there too. Marine reserves are no-take areas. The Sugar Loaf Islands MPA Act 1991 included a prohibition against mining.



## 2. Omata Tank Farm

*“Crude oil from the McKee, Waihapa, Kaimiro, Maui, Ngatoro and Pohokura fields is collected and stored in the STOS storage tanks prior to shipping through Port Taranaki. ... ” ( TRC, Oct 2014<sup>viii</sup>).*

This tank farm discharges stormwater into the **Herekawe Stream** which discharges to the middle of Back Beach. Chevron (4 hydrocarbon tanks), Origin (Kupe Omata tank farm), STOS (3 crude oil tanks; 10,000 and 20,000 m<sup>3</sup>), Methanex, NPDC and Dow AgroSciences all have consent to discharge contaminants into the Herekawe Stream.

*“Shell Todd Oil Services (STOS) hold water discharge permit **1316-3** to discharge up to 3120 cubic metres/day (36 litres/second) of **treated and untreated stormwater** including **bleed-off from tank de-watering and hydrostatic test water from a liquid hydrocarbon storage facility into the Herekawe Stream**, and to discharge untreated stormwater onto and into land during periods of bund construction and maintenance works,” ( TRC, Oct 2014).* Also a condensate storage tank (T-3500) for Pohokura condensate.

In 2012-2014, TRC documented 13 unauthorised incidents, some attributed to natural discolouration of stream due to iron oxide.





Omata Tank Farm and consent holder property boundaries in the Herekawe catchment (TRC, Oct 2014)

### 3. Dow AgroSciences

Dow AgroSciences (formerly Ivon Watkins-Dow or IWD) also discharge stormwater into the Herekawe Stream (TRC, Nov 2013)<sup>ix</sup>. *“Dow AgroSciences prepares a range of agricultural chemicals at this facility. ... There are approximately 36 different active ingredients handled on the site. ... There are **five production plants** on the site, and ... support activities such as laboratories and a **high temperature waste incinerator**. ... 2,4-D is the most common ingredient [in herbicide plant]... Dow AgroSciences has been located at the present site **since 1960**. The manufacturing processes for phenoxy herbicide active ingredients (2,4-D, MCPA and MCPB) and triclopyr were **discontinued in early 1998** and the Phenoxy Plant shut down. These active ingredients were then imported for formulation into herbicide products.”* (TRC, Nov 2013).

Dow provides over 40 agrichemical products for weed and pest control in NZ; e.g. 2,4-DB Herbicide (for pasture), Glyphomax XRT Herbicide (for broadleaf weeds), Cobalt Advanced Insecticide (for aphids), etc. <http://www.dowagro.com/nz/prod/>

Wikipedia says that Dow in New Plymouth<sup>x</sup> was making **Agent Orange** for the US in their war in Vietnam – *“Operation Ranch Hand”*. Over 75 M Litre of chemical herbicides was sprayed in Vietnam, Lao and parts of Cambodia between 1962-1971. Agent Orange is **1:1 mixture of 2,4-dichlorophenoxyacetic acid (2,4-D) and 2,4,5- trichlorophenoxyacetic acid (2,4,5-T)**. 2,4,5-T is contaminated with a dioxin TCDD which has serious health effects on people – *“perhaps the most toxic molecule ever synthesized by man”* (Galston 1979).

*“From 1962 to 1987, IWD manufactured the herbicide, 2,4,5-T, at its Paritutu site. ...”* (Read and Wright, 2005<sup>xi</sup>). Manufacture of 2,4,5-T ceased in 1987, the last in the world<sup>xii</sup>.

*“In 2001 the Ministry of Health contracted the Institute of Environmental Science and Research Ltd (ESR) to investigate non-occupational dioxins exposure among Paritutu residents. **A serum dioxins study carried out by ESR established that selected Paritutu residents were exposed to TCDD at levels statistically significantly above those of the general New Zealand population.** ... Peak production of 2,4,5-T with the highest TCDD contaminant level occurred from 1969 to 1972. ... An 11% excess all cancer incidence, 75% excess NHL [Non-Hodgkin’s Lymphoma] incidence and a 2.5 fold increase in CLL [Chronic Lymphocytic Leukaemia] incidence was found for 1970-1974...” (Read & Wright, 2005).*

*“The results do not suggest an increased cancer risk among the New Plymouth population related to the period of 2,4,5-T manufacture, although the study’s limitations mean the possibility of an undetectable small elevation in cancer risk cannot be excluded” (Read, et al. 2007<sup>xiii</sup>).*

Dow sponsors the “Environmental leadership in land management” award<sup>xiv</sup> TRC runs annually. Dow’s slogan is “Confidence in a Drum”.



Aerial photograph of Dow AgroSciences site (TRC, Nov 2013)

#### 4. STOS Paritutu Tank Farm

On the corner of Paritutu Road and Centennial Drive. Consists of 5 x 11,700 m<sup>3</sup> condensate storage tanks, containing condensate from Kapuni onshore and condensate and naptha from Maui offshore.

Each day, 1500m<sup>3</sup> of condensate and 500m<sup>3</sup> of naptha are piped from Maui to the tank farm.

Eight consents held by 6 companies (STOS, Bulk Storage Terminal, Greymouth deballast facility, Fonterra, Liquigas, NZ Oil Services which stores diesel for others) to discharge contaminants to the Hongihongi Stream which is piped for 500m before exiting at the western end of Ngamotu Beach (TRC, Oct 2014). Contaminants include stormwater, treated waste water, treated tanker deballast water, treated oil contaminated water.

Fonterra has had a coolstore here since 1896. Water used for cooling is discharged to a holding pond on site, which overflows via a stormwater drain onto Ngamotu Beach. **Oily water seeping from a disused oil well** on the site, that was active between 1910 and 1920, is discharged through a separator to the holding pond (TRC, Oct 2014).



Paritutu Tank Farm and consent holder property boundaries in the Hongihongi catchment (TRC, Oct 2014)

As an aside, earlier this year, publicly-owned Waterfront Auckland was ordered to pay Mobil almost \$1 million in court costs for its failed attempt to get the oil company to foot the bill for cleaning up a heavily contaminated area of Wynyard Quarter.

*“Mobil Oil leased two properties in Auckland's waterfront 'tank farm' for more than 50 years. When Mobil's lease for the two sites ended in 2011, it was found the land they were on had been heavily contaminated... other oil companies as previous tenants and neighbouring tenants all contributed [to the contamination] too... Justice Sarah Katz in February last year **decided that Mobil was not contractually obliged** to decontaminate the subsurface of the land” (Judgement of Katz J, 7 Feb 2014<sup>xv</sup>; [NZ Herald, 30 March 2015](#)<sup>xvi</sup>).*



## 5. Port Taranaki and Ngamotu Beach Greymouth Petroleum Moturoa Well Site

### Port Taranaki

The only deep water seaport on NZ's western seaboard (Port Taranaki website<sup>xvii</sup>). Established in 1875, breakwater development since 1881. Now has 9 fully serviced berths for cargoes and vessels. It is the third largest export port by volume behind Tauranga and Lyttleton, and is the sixth largest exporter by value, behind Tauranga, Auckland, Lyttleton, Napier and Dunedin (TRC website<sup>xviii</sup>).

*"The popularity of Ngamotu Beach is testament to Port Taranaki's commitment to safe working practices and regard for the environment"* (Port Taranaki website).

**Vision is "To make a real difference to the Taranaki economy"** (Port Taranaki, 2014<sup>xix</sup>). In 2013-2014, the port reached a new revenue record of **\$55.3 M**, with net profit after tax increased 57%, dividends increased 25%, trade volumes increased 21%... just 1 lost time injury totally 3 days...

Major customers in 2015: Anadarko NZ, AWE, Coastal Oil Logistics, Greymouth Petroleum, Methanex, Fonterra, Forest Owner Marketing Services, Gelncore Grain, Golden Bay Cement, Holcim, Ravensdown...

*"It was the **busiest ever period for offshore oil and gas exploration** with four campaigns running during the year. The port welcomed the Noble Bob Douglas drill ship, the ENSCO 107 jack-up rig, and the Kan Tan IV semi-submersible rig onto the Taranaki coast to join the rig currently operating off the Maui platforms. **Methanol exports ramped up by 35%** during the year, leading to a very busy time and high occupancy on the Newton King Tanker Terminal berths,"* said Chairman John Auld (Port Taranaki, 2014).

**Taranaki Regional Council owns 100% of Port Taranaki Ltd** (TRC website). Port operation contributes \$25.5 M to regional GDP and employs 138 full-time equivalent staff (FTEs).

- *"Being owned by Taranaki Regional Council, the Port has a strong corporate citizenship role and provides an annual dividend to the Council, which supports lower rates.*
- *Looking ahead, the Port will continue to play a valuable role in generating economic activity and in supporting and enabling industry growth, particularly around the oil and gas sector and primary industries"* (TRC website).

It is difficult to imagine a closer tie between a regulator and an industry from which the regulator benefits economically so significantly. There has been controversy in recent years regarding 'conflicts of interest' with oil and gas and Council surfacing again recently with their submission for Shell Todd's Maui application.

<http://www.stuff.co.nz/taranaki-daily-news/news/6558478/TRC-boss-denies-claims-of-conflict> <http://www.stuff.co.nz/taranaki-daily-news/news/67476047/TRC-bias-slammed-in-oil-gas-hearing>



## New Plymouth Power Station

Chimney completed in 1972, tallest manmade structure in NZ at the time, 198 m above ground, 16.400 tons of concrete, 1200 tonnes reinforced steel and almost 1 million bricks.

A 300MW thermal power station commissioned in 1976, decommissioned in 2007. Nikau has begun demolition of turbine hall and boiler house, recovered 25,000 tonnes of scrap iron – largest demolition job in NZ.

Power station replaced by Contact's Taranaki Combined Cycle Power Station in Stratford in 2011.

In 2013, Port Taranaki bought 18 h of site at \$15.5 M to increase storage. Methanex bought a smaller piece at \$8.5 M.

## Greymouth Moturoa well site

New Plymouth is built on the Moturoa oil field. There are a number of well sites on the foreshore and the port area, as well as within the city. On Oceanview Parade near Ngamotu Beach (50m) there is a limited notified (New Plymouth District Council)/non-notified (Taranaki Regional Council) consent for Greymouth Petroleum Limited Moturoa well site.

*"The well site is located on a flat area of the eastern reclamation at Port Taranaki. The land surrounding the land is predominantly industrial; however, there is **residential activity within 240 metres and open space zoning within 50 metres**".*

<http://www.trc.govt.nz/assets/Publications/technical-reports/oil-and-gas-compliance-monitoring-reports/248725.pdf>

Transfield Worsley Hazardous Risk Assessment (2005, pg.16) for the well site states **"the maximum jet fire consequence distance to be expected would be 132.4m. Therefore the public access Ngamotu Beach area, located 130m south east of the wellhead, would only be affected in terms of fatality risk under the worst case scenario...and even then only at the margin"**.

Hazardous Substance and Resource Management Consulting peer-reviewed the Risk Assessment and noted *"there is the possibility of workers and industrial property as well as people within the Open Space Environment in the vicinity being adversely affected, however, the likelihood of such an event (and therefore the risk) is very small"* (2005, pg.2). The public were not consulted or informed.



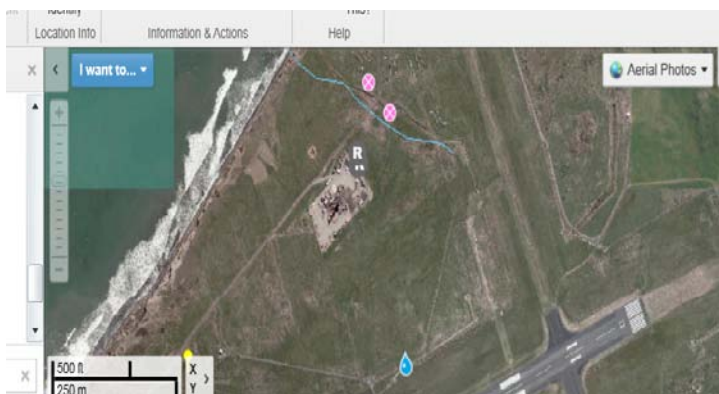
Source: Sarah Roberts

## 6. Wellsites and waste disposal area at Airport

Driving from New Plymouth towards Waitara, Airport Drive is on your left. Both Todd Energy and Greymouth Petroleum have drilled wells (Terrace-A and Waimanu-1) at the airport next to the runway.

The most recent reported operations were in 2009-2010. There are also land farming and mix-bury-cover sites for disposing of oil and gas waste at the airport. The flare pit can still be seen from the airport building. The public were not consulted or informed. The airport is jointly owned by New Plymouth District Council and central government.

<http://www.trc.govt.nz/assets/Publications/technical-reports/oil-and-gas-compliance-monitoring-reports/748082w.pdf>



Source: <http://www.trc.govt.nz/taranaki-regional-xplorer/>

## 7 BTW Brown Road and Wellington landfarms

*“The landfarming process utilised at the Brown Road facility is on a single application basis. This means dedicated spreading areas receive only single applications of waste. Basic steps in the landfarming process include:*

- 1. Waste is transported from wellsites. It may be discharged directly to land or placed in a dedicated storage pit.*
- 2. The required area is prepared by scraping back and stockpiling existing pasture/topsoil and levelling out uneven ground.*
- 3. Waste is transferred to the prepared area by excavator and truck and spread out with a bulldozer. Liquids may be discharged by tanker or a spray system.*
- 4. Waste is allowed to dry sufficiently before being tilled into the soil to the required depth with a tractor and discs.*

5. The disposal area is levelled with chains or harrows.

6. Stockpiled or brought in topsoil/clay is applied to aid stability and assist in grass establishment.

7. Fertiliser may be applied and the area is sown in crop or pasture at a suitable time of year, to re-instate and stabilise the site for future alternative use.

Consent 6867-1 [first granted in April 2006] allows for the disposal of drilling wastes. Oily wastes were added in the changes to the consent on 4 February 2010.

Consent 7884-1 [granted in July 2011] allows for the disposal of drilling wastes, oily wastes, contaminated soil, and production fluids including hydraulic fracturing return fluids.

When disposal is complete, the area will be re-instated and the consents surrendered once proven to be suitable for uses such as grazing, following stabilisation and regrassing.”



Figure 1 Aerial photograph showing the layout of the landfarming facilities on Brown Road, Waitara, and approximate regional location (inset)

Source: <http://www.trc.govt.nz/assets/Publications/technical-reports/oil-and-gas-compliance-monitoring-reports/1413791w2.pdf>

At this landfarm, **benzene has been detected in groundwater since 2012**, with levels consistently exceeding consent limits in at least one test bore. The most recent disposal took place in September 2013. The council says the contamination is of a *“legacy nature”* and *“given the absence of environmental consequences”*, the operation received a ‘good’ performance rating.

How can contamination of groundwater possibly be without environmental consequence? What sort of legacy are we prepared to leave for future generations of farmers and kaitiaki?

<http://www.trc.govt.nz/assets/Uploads/CR0302-public.pdf>

<http://www.trc.govt.nz/assets/Publications/technical-reports/oil-and-gas-compliance-monitoring-reports/1423857w2.pdf>



Photo of steers at BTW landfarm, by Fiona Clark, 1 June 2014

The dumping of petrochemical wastes on agricultural land presents **health and food safety risks**. [https://climatejusticetaranaki.files.wordpress.com/2014/06/mpi\\_report\\_analysis\\_2-athatcher-8sept2014.pdf](https://climatejusticetaranaki.files.wordpress.com/2014/06/mpi_report_analysis_2-athatcher-8sept2014.pdf) The Parliamentary Commissioner for the Environment (PCE) has expressed concern around the disposal of waste. While land farming of solid waste in designated areas may be acceptable, grazing cattle on these areas are not. Mix-bury-cover disposal at the well sites are not encouraged by Taranaki Regional Council however they are still consenting for this.

The PCE recommended *“The Minister of Food Safety and the Minister for the Environment convene a working group, including regional council staff, and agricultural representatives, to: resolve the situation of livestock on land-farmed sites in Taranaki”* (PCE, 2014, pg.82).

The National Environmental Standard for Assessing and Managing Contaminants in Soil (NES-CS) to Protect Human Health (NES-CS 2012) requires clearance by the district councils if there is a change in land use. For example a farmer may have resource consent to land farm (discharge contaminants) from the regional council however if they wish to graze stock or grow crops on the land (change the use) they must apply to the district council for clearance to do so. The NES-CS also applies to other oil and gas activities such as well sites and mix-bury-cover waste disposal. District councils are only now beginning to take note and implement this NES.

<http://www.trc.govt.nz/oil-and-gas-compliance-monitoring-reports>

<http://www.mfe.govt.nz/publications/rma-land-hazards/users-guide-national-environmental-standard-assessing-and-managing>

## 8. Methanex Waitara Valley Plant

On Ngatimaru Road, the Methanol Plant in the Waitara Valley on the right began operating again in Oct 2013.

**Non-energy use of natural gas nationally was up by 25% in 2013**, mostly due to increase in methanol production which uses natural gas as feedstock. Methanol produced in NZ is largely exported for use as a chemical ingredient (e.g. to make plastic, adhesives...).



Methanex is allowed to take and use water; discharge plant effluent into the Tasman Sea; discharge uncontaminated storm-water into the Waitara River; and discharge emissions into the air. A number of issues have been reported by locals, particularly regarding noise.



Source: Sarah Roberts

## 9. Greymouth Kowhai-A, B and C wellsites

In North Taranaki, Tikorangi is inundated by the ‘pepper-potting’ of well sites. Greymouth Petroleum Limited and Todd Energy have drilled numerous wells, many in the last couple of years. There are Todd Energy’s Mangahewa A, B, C, D and E well sites; and Greymouth’s Kowhai A, B and C; and Turangi A, B, C well sites all with multiple wells. These well sites are throughout the Tikorangi community, right next to people’s houses and near the local school. All have discharges of industrial contaminants to land, air and water right in the heart of the community.

Down Ngatimaru Road, travel past **Tikorangi School** (RHS). A few hundred metres past the school is **Greymouth Petroleum Kowhai- B** well site (8 wells) and 3 pumping stations. Kowhai-B was fracked last month. Greymouth holds 7 resource consents for this site:

- to take groundwater;
- to discharge emissions to air associated with exploration activities;
- to discharge stormwater and sediment from earthworks during construction onto and into land;
- to discharge contaminants in associated with hydraulic fracturing activities into land;
- to discharge produced water, well workover fluids, well drilling fluids and contaminated stormwater from hydrocarbon exploration and production into land by deep well injection;
- to discharge emissions to air associated with production activities; and
- to discharge treated stormwater and produce water associated with exploration activities to land.

In Feb 2012, TRC issued a consent for combustion of returned fracking fluids at Kowhai-B wellsite. Material safety data sheets of many fracking chemicals state clearly that they are **hazardous, carcinogenic, and when heated, may release toxic gases. Yet flaring of returned fracking fluids is allowed to occur just 300 m from homes.** Overseas, there have been many cases documented of serious negative health effects to people and animals living close to gas wells (McKenzie et al. 2012;

Bamberger, 2012). <http://www.sciencedirect.com/science/article/pii/S0048969712001933> and <http://www.ncbi.nlm.nih.gov/pubmed/22446060>

*“Owing to the distance of the wellsite to the nearest stream being approximately 30m, the stream was **visually inspected** by an Inspecting Officer on each occasion. Chemical analysis or a bio-monitoring survey were un-necessary as no evidence of effects on the stream environment were observed by the Inspecting Officer”* (TRC, Feb 2014).

<http://www.trc.govt.nz/assets/Publications/technical-reports/oil-and-gas-compliance-monitoring-reports/1231055w2.pdf>

The PCE highlighted concern with regulation and monitoring of oil and gas activities in Taranaki. The report notes *“while regular visual monitoring by council inspectors, and ad hoc sampling in response to incidents or complaints are to be encouraged, they cannot be relied on to detect pollution from a spill or a leak. **The overall lack of systematic monitoring programmes that require baseline sampling and ongoing testing for the lifetime of the well (and beyond) – particularly for indicators of ecological health – is disappointing**”* (2014, pg.56).

Just 1 km away (to the left) and nearer to the school is **Greymouth Petroleum Kowhai-C well site** (8 wells consented). There was no notification as the Councils considered there were no ‘affected’ parties. <http://www.stuff.co.nz/taranaki-daily-news/news/9141168/Community-anger-as-Tikorangi-well-gets-go-ahead>

*“The site was generally neat and tidy, yet significant maintenance was required regarding the ring-drains, as substantial ponding was observed within the ring-drains in two specific areas, which had the **potential to discharge offsite untreated and unauthorised**. This contravened Section 15(1)(b) of the Resource Management Act and special condition 6 of consent 9478-1. Subsequently, **abatement notice** 12164 was issued...*

*Additional non-compliances were addressed during site inspections and are outlined as follows. Chemicals and equipment were found stored outside of the ring-drained area, the initial installation of certain components of the skimmer pits were substandard and did not reflect information submitted, an approximate 30 cm rip was identified in the lining of the first skimmer pit, and a small section of the flare pit liner had become exposed and melted due to heat exposure. All were rectified and repaired ... Greymouth Petroleum Limited nevertheless demonstrated a good level of environmental performance and compliance with the resource consents overall....”* (TRC, Oct 2014) <http://www.trc.govt.nz/assets/Publications/technical-reports/oil-and-gas-compliance-monitoring-reports/1388403w2.pdf>

Further down the road is **Greymouth Petroleum Kowhai-A** (6 wells) well site beside Tikorangi Pa where a “lock the gate” blockade by the hapu protected the pa from being desecrated by the company’s pipeline construction. Otaraua Hapu chair Rawiri Doorbar’s informative account of the event can be found here: <http://www.lockthegate.org.nz/#/>



Source: Fiona Clark

## 10. Todd Mangahewa-C and A wellsites

Heading south on Otaraoa Road Upper, **Todd Energy's Mangahewa-C well site** is on LHS. Todd holds a total of 7 consents, for the activities at the Mangahewa-C well site, which includes discharging produced water into the Waiau Stream and discharging drilling waste from hydrocarbon exploration onto and into land via mix-bury-cover.

The Executive Summary for the Taranaki Regional Council environmental monitoring report published in 2013 for the Mangahewa- C well site states *“owing to the distance of the well site to the nearest stream (190m), the stream was **visually inspected** by an Inspecting Officer, rather than chemical analysis or bio-monitoring survey; no evidence of effects on the stream environment was observed by the Inspecting Officer”*. A more recent report published in October 2014 shows a shift to more comprehensive monitoring however there is now concern with damaged well casings. Many of the Mangahewa wells have been fracked.

<http://www.trc.govt.nz/assets/Publications/technical-reports/oil-and-gas-compliance-monitoring-reports/1214020.pdf>

<http://www.trc.govt.nz/assets/Publications/technical-reports/oil-and-gas-compliance-monitoring-reports/1353272w2.pdf>

## 11. Todd Taranaki McKee Production Station

The winding road goes through many life-style blocks, passes Todd Mangahewa-A wellsite (LHS), the new Mangahewa-G well site and arriving at McKee Production Station. Commissioned in 1984, McKee Production Station receives and processes oil and gas from nearby wellsites. The Mangahewa Production Station, came on-stream in 2001, processes hydrocarbons from the Mangahewa wellsites. Raw product from the wellsites is separated into gas, crude oil and condensate which are transported via either pipeline or road tanker to the Omata tank farm in New Plymouth. Produced water is disposed of by **deep well injection**, the latter has been proved to cause earthquakes in some areas overseas.



Source: Fiona Clark

*“This site includes the **McKee** and adjacent **Mangahewa Production Stations**, and the **McKee Electricity Generation Plant [9.1MW]** commissioned early 2009.... The Company holds a total of twelve resource consents for this site, which include a total of 110 conditions ... All uncontaminated stormwater ... passes through a skimmer pit at the McKee site and **discharges to the Mangahewa Stream**. Treated impounded stormwater is discharged to the **Waitara River**. ...*

*During the previous monitoring period, two of the consents held by the Company were transferred to Bay of Plenty Energy, a Todd Corporation Company. During the 2011-2012 monitoring year, the **LPG plant** was officially opened, and work was underway on the adjacent **Bay of Plenty Energy (BOPE) peaker plant**. ...*

*Water abstraction showed that the **water abstraction limits had been exceeded on nine occasions** during the monitoring period, although associated effects on stream health were unlikely. During the year, the Company demonstrated a good level of environmental performance and compliance with the resource consents overall.” (TRC, July 2013) <http://www.trc.govt.nz/assets/Publications/technical-reports/oil-and-gas-compliance-monitoring-reports/1143821w2.pdf>*

## 12. The Jury Garden

Around 1870, Thomas Jury purchased the family farm at Tikorangi in North Taranaki. This was the start of an amazing garden – a Garden of National Significance. To read about its history, go to <http://jury.co.nz/category/petrochem/> Unfortunately, the garden is now closed due to the many problems caused by the encroaching oil and gas industry. <http://www.stuff.co.nz/taranaki-daily-news/news/9397602/Time-for-a-breather-say-stressed-garden-owners>

## 13. Todd Mangahewa-E wellsite, Greymouth Turangi C, A and B wellsites

Leaving the Jury Gardens (heading south), turn left into Tikorangi East Road , where the latest **Todd Energy Mangahewa-E well site** is located.



Source: Sarah Roberts

Follow Tikorangi East Road until the intersection with Inland North Road; turn left into Inland North Road; then right into Turangi Road (heading north); **Greymouth Petroleum Turangi C, A and B** well sites are on the left. All of these are either situated on or besides operating dairy farms.



In 2013, TRC released a groundwater monitoring report for Turangi-B wellsite (TRC 1073740, 2013<sup>xx</sup>) whereby samples were collected from within 1 km radius of the wellsite during 2011-2013. **Five zones from 3400m to 4100m depth at Turangi-B wellsite were fracked over six events from Nov 2011 to March 2012.** In total 2572m<sup>3</sup> of fracking fluid was pumped into the ground, of which 2047m<sup>3</sup> was recovered, and 372.1 tonne of proppant was pumped into the ground, only 3% of which returned to the surface. There are neighbouring homes within **300m** from the wellsite.

The report revealed **the presence of toluene (a constituent of BTEX) and elevated levels of chloride** in groundwater samples from two of the closest monitoring wells. Council attributed this finding to *“general wellsite activities”*, notably **discharge of returned fracking fluids into the flare pit for combustion**. Although the levels detected are below that of NZ drinking standard, it is worth noting that EPA NZ classifies toluene as *“acutely toxic”*, *“suspected human reproductive or development toxicants”*, *“harmful to human target organs or systems”*, *“slightly harmful in the aquatic environment...”* and *“harmful to terrestrial vertebrates”*. It is a flammable liquid of high hazard. <http://www.epa.govt.nz/search-databases/Pages/ccid-details.aspx?SubstanceID=1651>



Source: Fiona Clark

## 14. Methanex Motunui Plant

Turn left into SH3, heading west, Methanex Motunui Plant is on the right, commissioned in 1986. Methanex produces methanol and gasoline from natural gas. The Motunui facility restarted methanol production in October 2008 after four years of the plant lying idle. The second production train at Motunui restarted in mid 2012. In 2013, Methanex consumed 1/3 of domestic gas supply. Nearly all methanol is exported. Maximum production 2.4 M tonnes of methanol per year.

<https://www.methanex.com/location/new-zealand>

<http://www.med.govt.nz/sectors-industries/energy/energy-modelling/publications/energy-in-new-zealand>

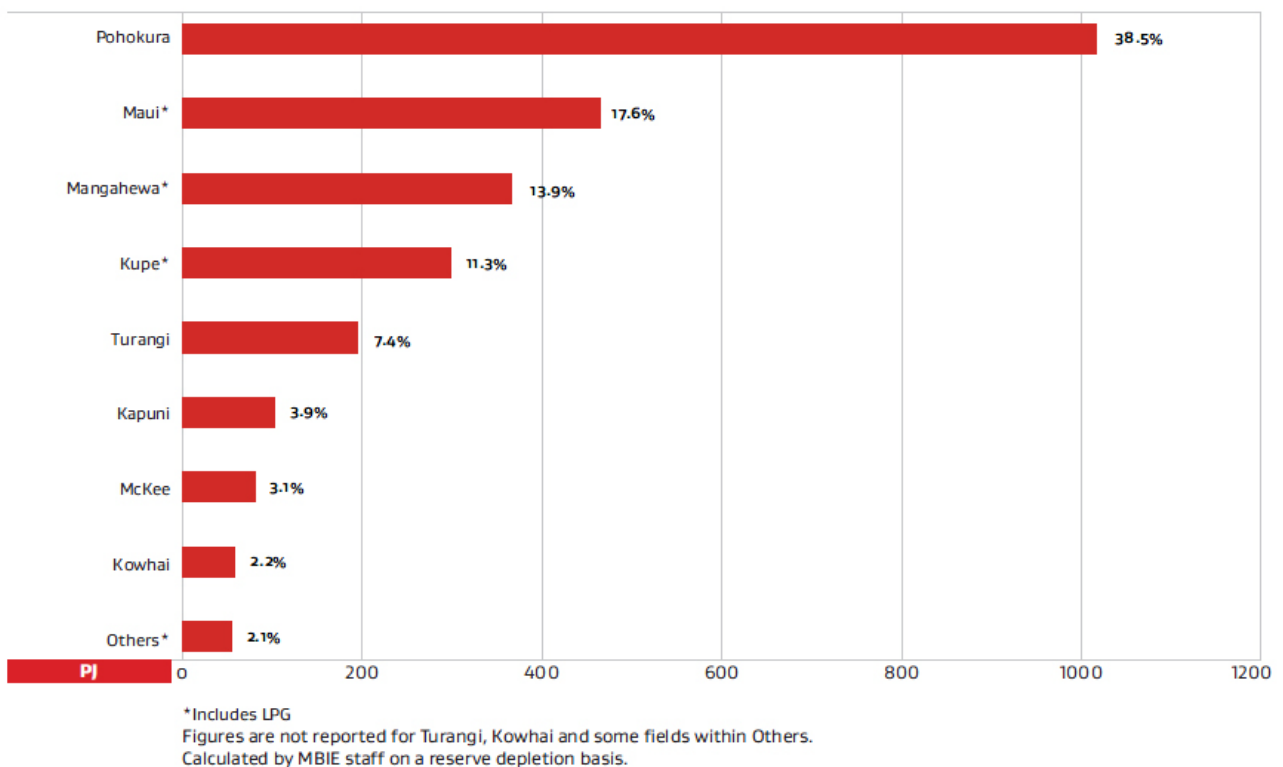
Methanex held a total of six resource consents for the operation of the Motunui plant. *“Consent 0822-1 expired during the monitoring period (12 March 2012) and was renewed as 0822-2 on 29 November 2012 with a number of changes to the conditions. Consent 3400-2 was varied on 18 June 2012 to include a condition allowing an increase in the use of the chemical ‘Spectrus CT1300’ to control Legionella bacteria outbreaks. The Company held one consent to allow it to **take and use***

water [up to 33,600m<sup>3</sup>/day from Waitara River], one consent to discharge plant effluent into the Tasman Sea [12,096m<sup>3</sup>/day], three consents to discharge uncontaminated stormwater into the Waitara River and Waihi and other streams, and one consent to discharge emissions into the air” (TRC, Feb 2014). <http://www.trc.govt.nz/assets/Publications/technical-reports/industry-compliance-monitoring-reports/1282370w3.pdf>

## 15. Shell Exploration NZ Ltd Pohokura Production Station

Shell Pohokura Production Station is situated beside State Highway 3 and immediately adjacent to Methanex. Although the Maui gas field (discovered in 1969) down south had been the most productive and well known, Pohokura has actually surpassed Maui in production since 2007 and it is believed to have the largest amount of remaining gas reserves.

Figure D.2b: Natural Gas and LPG Remaining Reserves (P50)



Source: <http://www.med.govt.nz/sectors-industries/energy/energy-modelling/publications/energy-in-new-zealand>

“Development of the field involved the drilling of **three wells from a land-based site** at Motunui, and **five from an offshore platform located eight kilometres off the coast**. A sub-sea pipeline transfers up to **13 million cubic metres of gas per day** to the onshore production station at Motunui. ... The onshore production station ... processes the high-pressure gas flow from the off and onshore wells. Here the hydrocarbons are separated into natural gas and condensate. The **natural gas is fed into the North Island gas network** and the **condensate is piped to storage tanks at Omata** ... for shipping to refineries. Produced water separated out from the wellstream is disposed of by **deepwell injection** ... In 2012, a **gas reinjection [GRI] facility** was constructed adjacent to the

wellsite to allow for increased production of condensate while the associated gas could be reinjected into the Pohokura formation. ...

Self-monitoring by the Company **found elevated levels of BTEX** at the eastern boundary of the site compared to other monitored sites. Ongoing investigations have indicated **benzene** emissions in this area of the site are due to the periodic emissions from the condensate tank, as well as tank filling.

<http://www.trc.govt.nz/assets/Publications/technical-reports/oil-and-gas-compliance-monitoring-reports/1298412w2.pdf>

Both the rig offshore, and the processing plant on shore, are **unmanned** except for maintenance visits. “Indeed, the dangers of the site (Shell Pohokura) are one of the reasons the facility is operated remotely, **keeping staff out of harm’s way...**” explained Shell Pohokura manager.

<http://www.odt.co.nz/lifestyle/magazine/295158/taranaki-knows-drill>

## 16. Tag Oil Sidewinder A and B wellsites, Norfolk, Inglewood

Turn left at SH3A / Mountain Road for Inglewood. Near Inglewood in the New Plymouth District **Greymouth Petroleum’s Kaimiro and Ngatoro** and **TAG Oil’s Sidewinder multiple well sites** are beside houses and in the midst of life-style blocks and farms.

Since 2010, Tag Oil’s **Sidewinder-A** wellsite on Upper Durham Road has had multiple spills of diesel, drilling mud and cement, and non-compliance in its discharge of contaminants on land. Drilling at Sidewinder-A well site has been discontinued since 2013 due to breaching consent conditions.



Source: Sarah Roberts

### Box 3.1 Not all complaints are trivial

Sometimes complaints by local residents about environmental matters are dismissed as ‘nimbyism’ – ‘not in my back yard’. But companies cannot always be trusted to ‘do the right thing’ and complaints should be taken seriously.

In February 2013, the New Plymouth District Council received complaints about noise from residents in the vicinity of TAG Oil’s Sidewinder Extension Well Site. The council found that the company had “on a number of occasions significantly exceeded the noise limits provided for in its resource consents”, and issued the company with two noise abatement notices. But when the company failed to comply, the council was left with no option but to take the company to the Environment Court. The Court prohibited TAG Oil from recommencing drilling until it had “taken sufficient further mitigation steps” to comply with the noise limit conditions.<sup>54</sup>

Source : <http://www.pce.parliament.nz/assets/Uploads/PCE-OilGas-web.pdf>

There are recent discharge and land use consents granted (20 year duration) for **TAG Oil Sidewinder-B well site near (<700m) Norfolk Primary School** of 140 children. The Maketehinu Stream runs through the wellsite and downstream to the school. The closest dwelling is 190 metres from the wellsite.



Source: <http://norfolk.school.nz/board-of-trustees/tag-oil-information/>

Similarly sized **Ngaere School** near Stratford and **Tikorangi School** in North Taranaki are beside well sites and production stations. The Medical Officer of Health was contacted by the Norfolk School Board of Trustees and members of the public. He wrote directly to New Plymouth District Council stating, based on overseas literature, ***“many commentators would recommend applying a precautionary approach because of the vulnerability of children and the uncertainty of health effects on people living close to a well site”***. There has been no health impact studies conducted in New Zealand. Concern about health impacts was central to the recent New York ban on fracking.

<http://www.huffingtonpost.com/news/new-york-fracking-ban/>

## 17. Ahuroa Underground Gas Storage & Taranaki Combined Cycle Power Station

Throughout Central Taranaki there are multiple historical and operating well sites, production stations, pipelines and associated infrastructures. More recently, we even have the first NZ underground gas storage facility just out of town east of Stratford. The Ahuroa underground gas storage facility and Contact Energy’s Taranaki Combined Cycle Power Station were opened in May 2011. The Ahuroa gas storage facility consists of a near depleted gas reservoir, to which additional wells and compressors have been added. The facility enables Contact to inject gas into the reservoir during periods in which it is not needed, such as in summer when demand for electricity is low, or when renewable energy is abundant. This ability to inject and extract gas enables Contact to operate its gas-fired power stations as they are required in the market and support weather driven renewable generation.

Contact’s Taranaki Combined Cycle Power Station has a 200MW gas-fired peaking power plant with Alstom turbine which burns gas at 1200°C, exhaust heat steam boiler at 640°C. *“The peaker plant will add to New Zealand’s security of supply by balancing weather-dependent renewables such as*



wind and hydro, and adding to supply during periods of peak demand," said Contact Chief Executive, Dennis Barnes. Capable of going from a cold start to full-power and producing enough electricity to power 200,000 homes in ten minutes, the plant offers the flexibility to be able to meet spikes in demand. <http://www.contactenergy.co.nz/aboutus/mediaandpublications/pressreleases/2011/2011-05-31-contactenergyopens400milliondevelopmentintaranaki>

## 18. Tag Oil Cheal A, B, C, D, E and G wellsites and production station

TAG Oil (Cheal Petroleum ) **Cheal A** well site (consented for up to 16 wells), gas processing plant, and production station is situated adjacent to SH3 and near to **Ngaere school** with up to 160 children. Tag Oil was found to have been flaring at Cheal A for 10 months illegally in 2012. <http://www.stuff.co.nz/taranaki-daily-news/news/7981769/Oil-firm-called-to-explain-illegal-flaring>

Nearby are **Cheal D** well site (up to 10 wells; LHS), **Cheal C** well site (up to 10 wells; RHS), **Cheal B** well site (up to 14 wells; LHS); **Cheal E** well site (up to 10 wells; LHS); and **Cheal G** well site (up to 10 wells; RHS) all located within the Ngaere area near Stratford township. Cheal A, B and C wells have been fracked.

TAG Oil's **Gas Release/Spill Contingency Plan** for these sites states "*in the event of a major gas release the greatest hazard to public safety is the possibility of a Gas Cloud drifting across the roads adjacent to the facilities: Cheal Production Station- State Highway 3. If there is a likelihood of this occurring contact the Police and Fire Brigade via the 111 system*". **This plan was provided after the consent was granted** and included hazards not identified in the application for the activity.



Source: Sarah Roberts

## 19. NZ Energy Corporation (Taranaki Ventures) Copper Moki wellsite

Turn left at Ngaere School into Cheal Road, New Zealand Energy Corporation's (Canadian-owned) Copper- Moki well site on Cheal Road is on LHS, near TAG Oil's Cheal-E and other well sites. NZEC was prosecuted for an oil spill into the Ngaere Stream in 2012. This well site is situated on a dairy farm. <http://www.stuff.co.nz/taranaki-daily-news/news/7049651/Oil-spill-fouls-Taranaki-stream>



Source: Sarah Roberts

Further down Cheal Road is Copper-Moki 3 wellsite (RHS). Turn right into Oru Road, at Rawhitiroa School turn right into Rawhitiroa Road. Not far from the school are NZEC's Arakamu wellsite (LHS) and Horoi wellsite (to the south) which local residents object to. <http://www.stuff.co.nz/taranaki-daily-news/news/10246311/Rawhitiroa-residents-object-to-companys-drilling-plans>

## 20. Shell Todd Oil Serves (STOS) Kapuni wellsites and production station

South Taranaki has a long history with the oil and gas industry, with the Kapuni gas field discovered in 1959, and **came into production in 1969**. There are numerous historical and operational well sites, production stations and land farms. E.g. Kapuni KA8/12/15/18, KA4/14 , KA1/7/19/20, all to the left off Palmer Road.

**Table 26** Summary of blow-down pit groundwater monitoring result exceedences

| Wellsite   | Monitoring well | No. of times sampled | Year last sampled | Compounds exceeding MfE criteria |              |             |
|------------|-----------------|----------------------|-------------------|----------------------------------|--------------|-------------|
|            |                 |                      |                   | Potable                          | Irrigation   | Stock water |
| KA-1/7     | PDP2            | 4                    | 2004              | B, X                             | -            | N           |
| KA-4/14    | MWH1            | 1                    | 2007              | B, X                             | -            | N           |
|            | MWH3            |                      |                   | B, X                             | -            | N           |
| KA-5/10    | -               | 1                    | 2007              | -                                | -            | -           |
| KA-6/11    | MWH1            | 2                    | 2007              | B, X                             | -            | N           |
|            | MWH2            |                      |                   | B                                | -            | N           |
|            | MWH3            |                      |                   | -                                | -            | N           |
|            | MWH4            |                      |                   | B                                | -            | N           |
| KA-8/12/15 | MWH1            | 2                    | 2008              | C7-C9, B, E, X, BAP              | B, X, N, BAP | X, N, BAP   |
| KA-13      | PDP2            | 5                    | 2008              | B, E, X                          | B, N         | N           |
|            | PDP3            |                      |                   | B, E, X                          | -            | N           |

B=benzene  
 E=ethylbenzene  
 X=total xylenes  
 N=naphthalene  
 BAP=benzo(a)pyrene  
 C7-C9=petroleum hydrocarbons

Source: <http://www.trc.govt.nz/assets/Publications/technical-reports/oil-and-gas-compliance-monitoring-reports/854309.pdf>

Groundwater and soil contamination has occurred at the well sites throughout the Kapuni gas field. The information was published in Taranaki Regional Council environmental monitoring reports (See table below from TRC doc 854309, 2011). Thousands of tonnes of contaminated soil (e.g. 2684 tonnes from KA3 and 1500 tonnes from KA13) had to be removed, some of it too contaminated for landfarming (URS Kapuni KA3 well site blowdown pit decommissioning & remediation report, Feb 2014). All sites are now being remediated. STOS was not prosecuted.

[http://www.nzherald.co.nz/nz/news/article.cfm?c\\_id=1&objectid=10835262](http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10835262)

South Taranaki District Council (STDC) is responsible for the drinking water supply. Much of South Taranaki's drinking water comes from Kapuni Stream and bores right beside the Kapuni Production Station. Resource consent has been granted by TRC and STDC for fracking to occur at a number of well sites near the water supply. Prior to the notification of the contamination, there was no testing for BTEX chemicals in the drinking water supply. There is now ongoing monitoring of the water supply for these chemicals. <http://www.stuff.co.nz/taranaki-daily-news/features/6591598/Cracks-show-in-fracks>

**STOS Kapuni Production Station** is located approximately in the middle of the Kapuni gas field, and adjacent to the Vector Gas Ltd facility called the **Kapuni Gas Treatment Plant [KGTP]**. *“The function of the Kapuni Production Station... is to gather the gas and condensate from the wellsites. The gas is delivered to KGTP for processing. The condensate gathered at the production station is treated and stabilised for storage and export to the Paritutu Tank Farm. LPG is delivered to the production station from KGTP for storage and export via road and rail tankers.*

*Three flares operate continuous pilots, which burn as yellow flames and are visible at night.... The flares are surrounded by farmland and the nearest dwelling is more than 300 metres from the flare stacks... The Company also holds a further 31 resource consents for production activities at wellsites associated with the Kapuni Production Station”.* There has been no prosecution.

<http://www.trc.govt.nz/assets/Publications/technical-reports/oil-and-gas-compliance-monitoring-reports/1381218w2.pdf>

## 21. Ballace Agri-Nutrients Plant

The Ballance Agri-Nutrients Plant was commissioned in 1982 to **produce ammonia and urea** (as fertilizer) from natural gas. The Company holds resource consents to allow it to take from the Waingongoro River, the Kapuni Stream and from the groundwater; to discharge to land and to the Kapuni Stream; and to discharge emissions into the air. In the 2012-2013 monitoring year, Ballance produced approximately 243,841 tonnes of urea from the Kapuni site. This was an increase of 127% over production in the 2011-2012 year.

There have been **concentrated plumes of ammonia present in the groundwater** on site, and many breaches of ammonia levels in the air. People live in the nearby vicinity. Every published Taranaki Regional Council environmental monitoring report (7 in total since 2005) states *“with regards to emissions to air, an improvement in the Company's performance is desirable”*.

<http://www.trc.govt.nz/assets/Publications/technical-reports/industry-compliance-monitoring-reports/1356507w2.pdf>

## 22. OMV Maari Floating Production, Storage and Offloading Vessel (FPSO)

The Maari oil field is about **70km offshore** from Opunake and 55km north of Farewell Spit. “OMV NZ has been producing petroleum from the Maari field in the South Taranaki Bight since 2009. ... Production levels have naturally declined since production commenced and are currently around one quarter of initial peak production...” (OMV Maari Field Development Drilling Marine Consent Application, June 2014). In Dec last year, OMV got the consent from EPA to continue development drilling at Maari, involving drilling of seven new wells and associated discharges at sea and on land. OMV has had **3 oil spills** from the FPSO in five years, the latest being this Feb.

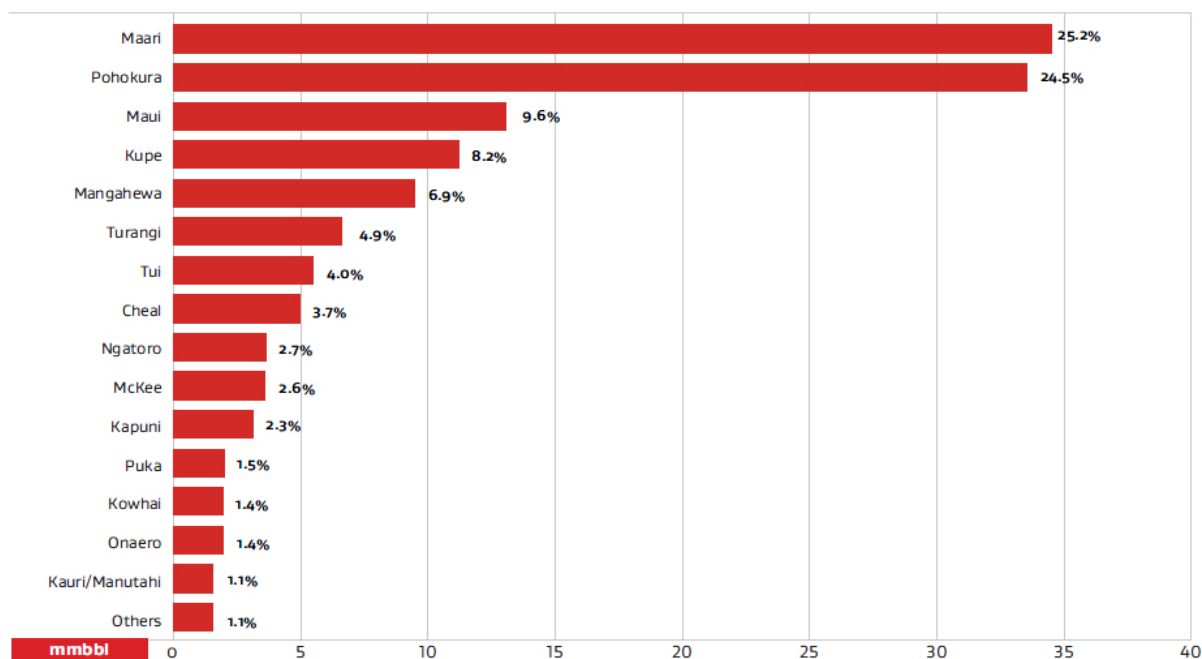
<http://www.stuff.co.nz/environment/66524920/oil-spill-off-taranaki-coast>



Source: <http://www.offshoreenergytoday.com/omv-new-zealand-plans-to-buy-raroa-fps/>

The Maari oil field is believed to have the largest remaining oil and condensate reserve.

Figure D.2a: Oil and Condensate Remaining Reserves (P50)



Figures not reported for Turangi, Ngatoro, Kowhai, Onaero and some fields within Others.  
Calculated by MBIE staff on a reserve depletion basis.

Source: : <http://www.med.govt.nz/sectors-industries/energy/energy-modelling/publications/energy-in-new-zealand>



### 23. STOS Maui Production Station, Oaonui

*“The onshore Maui Production Station at Oaonui was built to process gas and condensate from the offshore Maui Field. Exploration of the Maui field began in 1969, and production commenced in 1979 from the Maui-A platform. Gas and condensate is transported 33 km from the offshore Maui-A platform to the onshore Maui Production Station via submarine pipelines.*

*Another platform, Maui-B, was installed in 1992. Gas and condensate from Maui-B is piped 15 km to Maui-A for initial separation, and then to the production station.*

*The Maui Production Station ... separates the various hydrocarbon components, mainly by distillation. The production station supplies natural gas to the national grid and liquefied petroleum gas [LPG] is transported off-site by road tankers. Condensate is piped to storage tanks at Omata.*

*Facilities at the Maui Production Station include: an administration building and workshop which accommodates the control room on the upper floor; glycol trains and oil heaters located in the north west portion of the site; fractionation trains, gas trains and compressor houses; condensate storage, LPG storage and LPG load out facilities; and a flare compound that contains **a 55 metre high flare stack**, a radio tower, and a flare seal recovery system, located in the south western corner of the site. ...The flare continuously burns fuel gas as a purge to prevent air ingress to the flare system (thus avoiding an explosion risk) and to maintain a pilot flame at the flare tip.*

*The Council is responsible for monitoring the onshore production station and pipelines within the coastal marine area (to 12 nautical miles). Monitoring of the offshore Maui-A and B platforms does not come under the jurisdiction of the Council as they are situated outside the coastal marine area” (TRC, Feb 2015). <http://www.trc.govt.nz/assets/Publications/technical-reports/oil-and-gas-compliance-monitoring-reports/1381218w2.pdf>*



Source: <http://tvnz.co.nz/national-news/urgent-law-change-keep-maui-gas-platform-going-6237068>

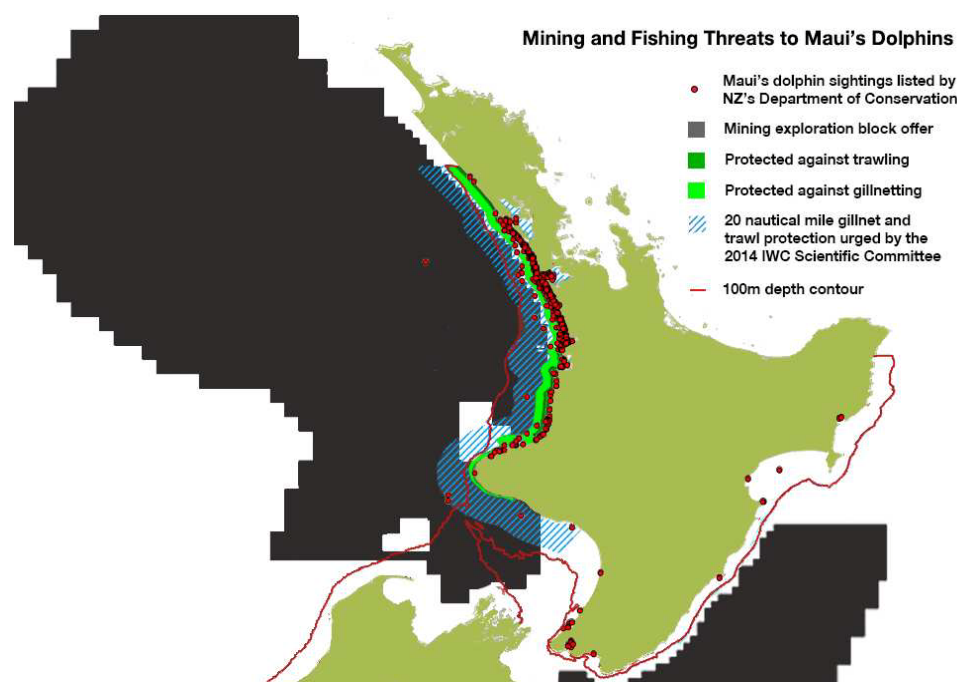
STOS is currently applying for a marine consent under the EEZ Act (Exclusive Economic Zone and Continental Shelf Act 2012) to continue its operations at the Maui A and B platforms offshore, including the drilling of 22 side-tracked wells and the associated production and discharge operations for another 35 years. [http://www.epa.govt.nz/EEZ/stos/Pages/default\\_STOS.aspx](http://www.epa.govt.nz/EEZ/stos/Pages/default_STOS.aspx)

“First gas from the Maui field was in 1979 and the field is now in its **twilight years** having come off plateau production. STOS’ focus has shifted from running and maintaining the asset for maximum reliable production, to **finding new and innovative ways to economically unlock more difficult remaining volumes** from the existing reservoirs by applying evolving technology solutions.” STOS Maui impact assessment, Dec 2014.

[http://www.epa.govt.nz/eez/EEZ000010/EEZ000010\\_MOF0003\\_Maui\\_Impact\\_Assessment\\_15\\_Dec\\_14.pdf](http://www.epa.govt.nz/eez/EEZ000010/EEZ000010_MOF0003_Maui_Impact_Assessment_15_Dec_14.pdf)

Climate Justice Taranaki (CJT), as with nearly all other submitters, are opposed to STOS’ application.

[http://www.epa.govt.nz/EEZ/EEZ000010/EEZ000010\\_Climate\\_Justice\\_Taranaki\\_110891.pdf](http://www.epa.govt.nz/EEZ/EEZ000010/EEZ000010_Climate_Justice_Taranaki_110891.pdf)



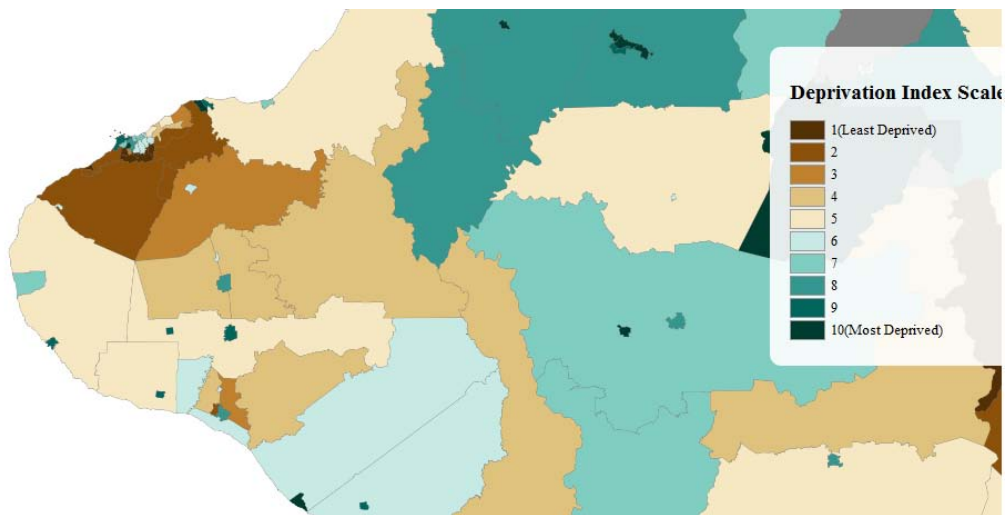
Source: Maas, B. 2014. Facing Extinction: Maui's and Hector's Dolphins: New Zealand's recipe for extinction. NABU International Foundation for Nature.

## The On-Ground Reality – Two-speed economy

What does the economic landscape in Taranaki look like? According to the Ministry of Business, Innovation and Employment on Taranaki: the average **income is below the national average**; the average **employment growth over the last 10 years is below** the national average (even with dairy and oil and gas); and the projected population growth for the next 20 years in Taranaki is 0 compared to a national average of 0.8.

<http://www.mbie.govt.nz/what-we-do/business-growth-agenda/regions/documents-and-image-library/rear-2014.pdf>

Recent census data released from the University of Otago shows high social deprivation levels right across the province, particularly clustered in the towns. These are significant in Stratford, Eltham, Hawera, Opunake, Manaia, Patea and Waverley. These towns are predominantly all 8, 9, and 10 (1 being very good, 10 the worst). [http://www.nzherald.co.nz/nz/news/article.cfm?c\\_id=1&objectid=11254032](http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11254032)

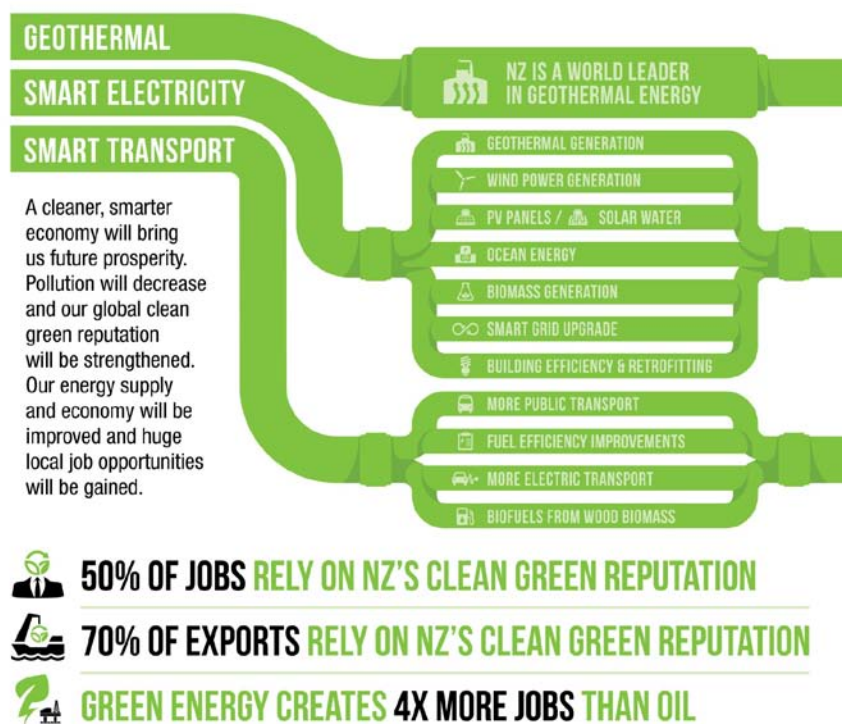


Source: [http://www.nzherald.co.nz/nz/news/article.cfm?c\\_id=1&objectid=11254032](http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11254032)

While mining does provide jobs, the sector accounts for only 3% of the region’s employment. Per dollar earned, oil and gas creates far fewer jobs than most other industries including dairy. Taranaki has the third-lowest share of skilled and highly skilled employment in New Zealand (MBIE, 2014). <http://www.mbie.govt.nz/what-we-do/business-growth-agenda/regions/documents-and-image-library/rear-2014.pdf>

These are the government statistics that are not talked about. This is what it looks like ‘on the ground’ for many people in Taranaki every day and prior to the recent drop in oil and dairy prices. With abundant renewable energy resources and a small population, New Zealand can and should be moving onto a sustainable energy system that does not rely on fossil fuels.

## THE RIGHT ENERGY PATH FOR NZ



Source: <http://www.greenpeace.org/new-zealand/en/campaigns/climate-change/The-Future-is-Here/>

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- <sup>i</sup> Ministry of Economic Development (now MBIE), 2011. NZ Energy Strategy 2011-2021, <http://www.med.govt.nz/sectors-industries/energy/strategies>
- <sup>ii</sup> MBIE, August 2012. Economic contribution and potential of New Zealand's oil and gas industry. Economic Development Group Occasional Paper 12/07. <http://www.med.govt.nz/about-us/publications/publications-by-topic/occasional-papers/2012-occasional-papers/12-07.pdf>
- <sup>iii</sup> Reyes, A.G. 2007. Abandoned oil and gas wells – a reconnaissance study of an unconventional geothermal resource. GNS Science Report 2007/23. July 2007.
- <sup>iv</sup> Venture Taranaki Energy Stream New Zealand's Oil and Gas Industry. <http://www.energystream.co.nz/why-nz/nz-og-history-track-record>
- <sup>v</sup> Puke Ariki website: Moturoa black gold – “the good oil” <http://pukeariki.com/Learning-Research/Taranaki-Research-Centre/Taranaki-Stories/Taranaki-Story/id/371/title/moturoa-black-gold-the-good-oil#>
- <sup>vi</sup> Parliamentary Commissioner for the Environment, June 2014. <http://www.pce.parliament.nz/assets/Uploads/PCE-OilGas-web.pdf>
- <sup>vii</sup> Nga Motu / Sugar Loaf Islands Marine Protected Area. Department of Conservation. <http://www.doc.govt.nz/parks-and-recreation/places-to-go/taranaki/places/nga-motu-sugar-loaf-islands/>
- <sup>viii</sup> Taranaki Regional Council, Oct 2014. Hongihongi and Herekawe Streams Joint Monitoring Programme Biennial Report 2012-2014. Doc 1285711. <http://www.trc.govt.nz/assets/Publications/technical-reports/catchment-compliance-monitoring-reports/1285711w2.pdf>
- <sup>ix</sup> Taranaki Regional Council, Nov 2013. Dow AgroSciences (NZ) Ltd Monitoring Programme Annual Report 2012-2013. Doc 1250275. <http://www.trc.govt.nz/assets/Publications/technical-reports/industry-compliance-monitoring-reports/1250275w2.pdf>
- <sup>x</sup> [http://en.wikipedia.org/wiki/Dow\\_Chemical\\_Company](http://en.wikipedia.org/wiki/Dow_Chemical_Company)
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