



Fuel pipeline rupture in New Zealand causes jet fuel crisis

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Auckland is the largest city in New Zealand and the main gateway for air travellers. More than five million international passengers arrived through Auckland Airport in the twelve months prior to August, 2017.

The importance of critical infrastructure protection was recently highlighted by a major incident 140 kilometres north of Auckland which stopped the flow of fuel.

NZ Refineries is New Zealand's only oil refinery to produce fuel oil products such as petrol, diesel and jet fuel. The only fuel distribution depot for Auckland is sited 5km from the airport and is supplied through a single 10-inch pipeline from the Marsden point oil refinery and spans 170km in length.

On September 14, NZ Refineries' control room detected a loss of pressure in the pipe. Pumping fuel was shut down and a helicopter was immediately dispatched to assess the pipeline route for the potential cause. The rupture was swiftly located near the township of Ruakaka. The site was isolated and environmental clean-up of spilled fuel commenced. By the beginning of the following week the site was safe for exposure and repair of the damaged section of pipe was started.

Upon exposure of the ruptured section, it was found that critical insulation to protect the pipe from corrosion had been damaged

and therefore weakened the section. Score marks on the pipe indicated it had been hit by an external force. The damage was consistent with that of an excavator bucket teeth. It is thought the damaged occurred sometime over the past three years as there were no signs of recent excavation and an internal inspection made in 2014 showing no signs of weakness.

It took ten days to repair the pipe to the point fuel could again be pumped down the pipe at a reduced pressure to the distribution depot in Auckland.

The Consequences:

The impact to industry and the wider community by the loss of this critical piece of infrastructure for a ten day period was extensive.

It was initially reported that the damage was minor and repairs would be immediately commenced. However, on Sunday, September 17, Auckland Airport announced that airlines would only be able to use 30% of their normal fuel allocation.

What had begun as a minor pipeline rupture was now having a global effect as both domestic and long-haul airlines were forced to make refuelling stops at other airport locations in the Pacific region or cancel services altogether.



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At the height of the crisis:

- 110 flights per day were cancelled.
- Trans-Pacific flights to the United States were forced to make a fuel stop in Fiji.
- Some trans-Tasman flights to Australia were refuelling empty planes in Wellington prior to picking up passengers in Auckland.
- Approach flight paths were changed to decrease jet fuel usage causing increased noise pollution over suburban areas.
- Some petrol stations throughout Auckland ran out of fuel.
- 48 additional fuel trucks brought fuel from the refinery to Auckland each day.
- City traffic lights were resynchronised to accommodate the increased number of fuel trucks causing delays for other motorists.
- HMNZ Endeavour navy fuel supply ship was requisitioned to transport diesel fuel from the refinery to Auckland, forcing a scheduled navy exercise with Singapore Navy to be cancelled.
- Public officials were instructed not to travel by air.

The immediate cost in terms of revenue loss to NZ Refineries is estimated to around \$15 million NZD. Societal cost include impact to the airlines concerned, passengers whose flights were cancelled or delayed, implementation of government disaster recovery processes, financial impact to petrol stations with limited access to fuel, and the inconveniences to the general public in and around Auckland whom had to endure increased traffic and noise.

What Could Have Been Done Differently?

While the damaged pipe was included in the national www.beforeUdig.co.nz One Call service, there is little regulation to ensure an excavator uses the service to obtain plans and inform the asset owner prior to commencing works. In this case, had the pipeline owner been informed, they could have immediately contacted the excavator to provide an onsite standover and instruction to the operator.

Once the investigation into this incident is complete, the Minister for Energy will review current regulations to ensure the ongoing protection of New Zealand’s critical infrastructure and prevent a similar incident occurring in the future.

This incident should serve as a reminder to all owners of critical infrastructure - and those excavators planning to work near them - to not only comply with regulations but to also adopt proven methods of best practice to ensure the protection of assets and the health and wellbeing of workers and the community.

Under Investigation:

This incident continues to be under investigation by local authority, central government and asset owner. BeforeUdig has offered assistance and involvement in any governmental review of critical infrastructure damage prevention regulations.



About PelicanCorp

PelicanCorp provides software and services to Utilities, Asset owners and the Before You Dig/One Call industry specifically for the 'Protection of Essential Infrastructure'. Our team has extensive experience working with Utilities, Before You Dig, One Call services and Local Authorities in helping provide efficient end to end software solutions to increase awareness, improve information exchange and to re-engineer processes delivering day to day benefits to the industry as a whole.

Our unique technology platforms are developed through extensive industry knowledge and market experience. We have customers around the world using our platforms, and we use our own PelicanCorp Enterprise (PCE) platform of products to deliver our own services; such as hosted and on-premise Before You Dig ticket and response management systems.

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