

# **Objection to Plaman Resources being granted permission to purchase Sensitive Land in New Zealand**

I assert that joint venture company Plaman Resources Ltd (trading as Plaman Global, aka Plaman Services) and incorporated in New Zealand, should not be granted permission to purchase 400 hectares (or thereabouts) of sensitive land in New Zealand .

I assert this on the basis that there is a lack of transparency, no cohesive plan, no public consultation<sup>1</sup>, and that the economics do not add up. When New Zealand is working towards a low carbon economy, the logistics of mining, transporting, processing and exporting diatomite do not fulfil New Zealand's aspirations or our Paris Agreement climate change obligations.

A Ministerial Directive Letter (28 November 2017) from Minister of Finance Grant Robertson listed directives that be applied to foreign individuals and companies wishing to purchase sensitive land. In the light of these directives, I assert that the overall plan of Plaman Resources to greatly expand their existing mining activities by purchasing the 400 hectare surrounding farm is not in New Zealand's interests, environmentally, socially, economically and culturally, nor do they comply with any of the Ministerial Directives.

11 September, 2018

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<sup>1</sup> With the exception of the *Plaman Project Overview* document given to members of Strath Taieri Community Board

## ENVIRONMENT & TRANSPORT

### **Ministerial directive:**

*that [foreign investment] is environmentally sustainable, minimising adverse impacts on the natural environment, and is likely to create positive and long-lasting environmental benefits.*

### **International importance of Foulden Maar**

The mine site at *Foulden Maar* is of *international importance as a paleontological site* from which it is possible to reconstruct entire ecosystems from the past, and *its layers of strata provide one of the best records of pre-historic climate change in the world.*<sup>2</sup> The lake sediments infilling the crater were deposited very close to the Oligocene–Miocene boundary, a key time in Earth History spanning a period of major deglaciation on Antarctica. No other pre-Quaternary terrestrial deposit in the Southern Hemisphere contains such a high-resolution mid-latitude climate record nor are there other potential sites in New Zealand, or elsewhere that might yield such a record. Accordingly, the *Geoscience Society of New Zealand Geopreservation Index Rating* of the site is being upgraded to A = international importance.<sup>3</sup>

Plaman Resources requires the 400 hectares around their 42 hectare mine site in order to set up mining infrastructure. Without this they claim they will not be able to operate on the scale they intend to and fully exploit the entirety of the diatomite resource in the volcanic maar.

Co-operation between scientists and the mine has been possible under currently permitted small scale quarrying. However Plaman intend to export 500,000 tonnes of processed diatomite (diatomaceous earth) per year. Taking into account that the Foulden Maar diatomite contains 60% water, means that in order to reach their target, an immense amount of earth moving will be happening on site. This, together with the mine operating 24 hours a day, 7 days a week for the next 23-27 years alongside new health and safety regulations, will not allow for scientists to work on the site.<sup>4</sup> The *Geoscience Society of New Zealand* wants to ensure that a proportion of the diatomite in or near the centre of the deposit is preserved in

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<sup>2</sup> *Otago Daily Times*, 2 June 2018 – Simon Hartley

<sup>3</sup> Foulden Maar Geopreservation Status, 27 February 2018

<sup>4</sup> <https://www.odt.co.nz/business/miners-scientists-unlikely-allies>

perpetuity and that access for scientific research continues for the foreseeable future. To preserve the centre of the maar will not be compatible with the demands of Plaman.

**Plaman Resources must not be granted permission to purchase further land which will facilitate the permanent destruction of a New Zealand geological site of international importance.**

### **International environmental impacts**

50.95% shareholders of Plaman Resources is Malaysian based transnational Iris Corporation. Iris's largest shareholder is FELDA whose subsidiary is Felda Global Ventures Holdings (FGVH), the world's largest palm plantation owner, and third largest palm oil producer.<sup>5</sup> They also intend to become South East Asia's largest sugar producer, controlling the entire product chain from source to end use.<sup>6</sup>

When Plaman first applied for Overseas Investment Office permission to purchase the 42 hectare mine site from Featherston Resources in 2014, their plan was to export the product as a component in fertiliser on palm oil plantations.

Felda, together with other palm plantation businesses, is responsible for the destruction of primary rainforests for palm oil production, and for the clearing, burning and draining of peat swamp forest, a third of which has been destroyed. Satellite imagery reveals that deforestation is far greater than the Malaysian government has claimed. It is estimated that in one year (2010), 510,000 hectares of peat lands drained for palm oil production in Malaysia led directly to the release of 20 million tonnes of carbon dioxide<sup>7</sup>. The clearing of peat swamp forests is responsible for about 10 per cent of humankind's greenhouse gas emissions, according to Wetlands International.<sup>8</sup>

As forests are destroyed, so too are the habitats of endangered animals and their food chains. Among them are: the Malaysian tiger, the black shrew, the orangutan,

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<sup>5</sup> <https://www.radionz.co.nz/news/regional/289457/nz-linked-to-destruction-in-se-asia,-greenpeace-says>

<sup>6</sup> <http://www.feldaglobal.com/our-business/sugar/>

<sup>7</sup> <https://www.theguardian.com/environment/2011/feb/02/malaysian-palm-oil-forests>

<sup>8</sup> Ibid

the Borneo pygmy elephant and the Malayan tapir.<sup>9</sup>

**New Zealand must not be complicit in the destruction of rainforest and augment the further development of palm plantations. This is contrary to New Zealand’s climate change obligations, nor does it comply with the Ministerial Directive that overseas investment in NZ is “environmentally sustainable, minimising adverse impacts on the natural environment, and is likely to create positive and long-lasting environmental benefits”**

### **Green-tinted spectacles**

Plaman, sensitive to public condemnation of New Zealand diatomite augmenting the productivity of environmentally destructive palm plantations, came back in March 2017 with a new application for diatomite to divert focus away from palm plantations. Plaman now claim the diatomite mined at Foulden Maar is a globally rare and valuable ‘black’ diatomite, rich in organic content.<sup>10</sup> This is true only in the sense that it is *rare in situ*.<sup>11</sup> This black diatomite is wet diatomite found below the water table. When it is brought to the surface and dries out, it is a white diatomite.<sup>12</sup>

Science and mystique is being spun from the ‘black’ diatomite, trademarked *Black Pearl* in 2017.<sup>13</sup> There had been absolutely no mention of its rarity or ‘blackness’ prior to its new application. Now it is promoted as a green and organic<sup>14</sup> stock feed supplement which will reduce the use of antibiotics on factory farms and feedlots. Rob Aukerman, president of Plaman Animal Nutrition & Health (not a scientist), said they were trying to develop the "clean food movement... it’s the right time for our product. It’s natural, it’s non-antibiotic and it has broad applications."<sup>15</sup> Two short term tests on its use as an animal supplement in the US, are lauded by Aukerman, as “off the charts.”<sup>16</sup>

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<sup>9</sup> [http://www.wwf.org.my/about\\_wwf/what\\_we\\_do/species\\_main/](http://www.wwf.org.my/about_wwf/what_we_do/species_main/)

<sup>10</sup> [www.plamanglobal.com/product/](http://www.plamanglobal.com/product/)

<sup>11</sup> <https://minerals.usgs.gov/minerals/pubs/commodity/diatomite/250400.pdf> pg1

<sup>12</sup> From conversation with Assoc. Prof. of Geology, Dr. Andrew Gorman, Otago University, 8 August 2018

<sup>13</sup> IP#1063006, IP#1074889, IP#1079014

<sup>14</sup> *Plaman Project Overview – Summary Black Diatomaceous Earth Project*, pg.4, June 2018

<sup>15</sup> Since November 2015, and with the one exception of the above referenced article, no Plaman Resources media releases or the *Plaman Project Overview* document (June 2018) make any mention of diatomite as a fertiliser or fertiliser component for use on palm plantations, yet *Black Pearl* was trademarked as a fertiliser in March 2017. (IP#1063006)

<sup>16</sup> Animal Pharm – Agribusiness Intelligence – Joseph Harvey

This is however disputed by Simon M. Shane, Adjunct Professor of Poultry Science at the College of Veterinary Medicine, North Carolina State University, who says, “Absent data and any details of the diets fed and housing of stock, [make] it not possible to evaluate any claims by Plaman Global. There is no published data in the peer-reviewed literature to support a claim that diatomaceous earth can serve as a growth promoter or enhance feed conversion efficiency in monogastric animals.”<sup>17</sup> He further adds, “Why diatomaceous earth taken from the ground in Otago, New Zealand, should have growth promoting properties, has yet to be explained. Plaman Global should not only demonstrate efficacy and safety of *Black Pearl*, but also the biological basis on which benefits, if demonstrated, are obtained.”

The claims Plaman is making in New Zealand about *Black Pearl* as a stock feed additive, (among them, that it increases average body weight gain and improves carcass yield and meat quality<sup>18</sup>) contravenes the ACM Act (*Agricultural Compounds and Veterinary Medicines legislation*). It means they can sell the product in NZ, but cannot promote its so-called benefits, making it unlikely to be available to NZ farmers. They have stated it will be trialling in large companies in the USA, Brazil, Mexico and Argentina.<sup>19</sup>

Plaman have announced they have secured seed funding of NZ\$28.5 million from Goldman Sachs. In response to this, Professor Shane states, “Investment should have been based on rigorous data, using appropriate experimental procedures with controls and statistical analysis of results. If the enterprise is based on assumptions, extrapolations and spreadsheets, Goldman may not see a return on their investment.”<sup>20</sup>

When Plaman reach their intended export quantities of 500,000 tonnes of non-calcined diatomaceous earth per year (from 2025), they will be increasing current world production by a massive 15%.<sup>21</sup> There are already sufficient reserves of diatomite to fulfil world demands for several hundred years.<sup>22</sup> Adding this much product to a market that has remained stable in terms of both production and

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<sup>17</sup> [http://www.chick-news.com/View\\_Single\\_Post.aspx?Site\\_Copy\\_ID=73941](http://www.chick-news.com/View_Single_Post.aspx?Site_Copy_ID=73941), June 2018

<sup>18</sup> *Plaman Project Overview – Summary Black Diatomaceous Earth Project*, Pg.4, June 2018

<sup>19</sup> *Otago Daily Times*, 18 June 2018

<sup>20</sup> [http://www.chick-news.com/View\\_Single\\_Post.aspx?Site\\_Copy\\_ID=73941](http://www.chick-news.com/View_Single_Post.aspx?Site_Copy_ID=73941)

<sup>21</sup> <https://www.statista.com/statistics/264935/global-diatomite-production/>

<sup>22</sup> *Minerals Yearbook Metals and Minerals, Vol 1, 2010*

demand is nonsensical. Is the annual production all destined to be a component/supplement of stock-feed? Can the stock feed industry absorb this output?

It must not be forgotten that in 2015, Iris Corporation (majority shareholder of Plaman Resources at 50.95%) said the rationale for the mine purchase was that Malaysia had 5 million hectares of oil palm plantations, and they hoped to sell the diatomite there, as well as in its other operations [Felda] in more than 20 countries in Africa and Asia.<sup>23</sup>

Plaman, as a public relations exercise, are promoting the sustainable and green credentials of *Black Pearl*,<sup>24</sup> whilst knowing that they have an immense and guaranteed market for the product on palm plantations in South East Asia. In the meantime, the use of NZ diatomaceous earth on palm plantations has slipped quietly off the radar, but the logical conclusion is that most of Plaman's *Black Pearl* will be quietly used in bulk application fertiliser on the palm plantations of Iris Corporation's shareholder company, FELDA.

## **Transport**

Most diatomite mines process on site. However because of insufficient water at Foulden Maar, processing will be happening (according to Plaman document) at Awarua, near Bluff.<sup>25</sup> This is a distance of 263 kilometres. Plaman plan to purchase 50 new purpose-built dedicated bulk truck and trailers.<sup>26</sup> Mine manager and spokesman Craig Pilcher told the Strath Taieri Community Board, that parts of these units will be manufactured in Timaru.<sup>27</sup> This seems highly unlikely given that Plaman director Rozabil Rahman is also director and shareholder (22%) of *Destini*, a Malaysian corporation which builds trains, airplanes, ships and trucks.<sup>28</sup>

## **Carbon emissions**

When the mine reaches optimum output (expected in 2025), 50 trucks will be leaving the mine site at the rate of 4.5 per hour, 24 hours a day, 7 days a week for

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<sup>23</sup> <https://www.odt.co.nz/business/otago-fertiliser-bolster-oil-palm-plantations>

<sup>24</sup> <https://www.odt.co.nz/business/funding-secured-diatomite-mine-firm>

<sup>25</sup> *Plaman Project Overview – Summary Black Diatomaceous Earth Project*, June 2018

<sup>26</sup> *Ibid*

<sup>27</sup> July 5, 2018, said but not minuted

<sup>28</sup> <http://www.destinigroup.com/>

23 years loaded with raw diatomite. They will travel 264 km to Awarua, deposit the loads, and then make the return trip. This amounts to **216 truck movements per day to and from the mine; that is one truck every 6.5 minutes.**

A conservative estimate of total CO2 emissions from 108 truck movements per round trip of 528km (calculated at approximately 300 litres diesel per 50 tonne gross weight truck and trailer, loaded in one direction, empty on the way back) is **91.80 tonnes per day, 642.60 tonnes per week, 33,415.20 tonnes per year, and 768,549.60 tonnes** for the 23 years of maximum output. This is calculated from the EECA Business CO2 emissions calculator. This does not take into account CO2 emissions from the mine works itself, nor the coal burnt at the processing plant, as there is no information available. Yet Plaman Global on their website state that: “Black Pearl® reduces greenhouse gas emissions, *both directly and indirectly.*”<sup>29</sup> (my italics)

**This is at a time when New Zealand is working to become a low carbon economy and has obligations under the Paris Agreement to reduce carbon and greenhouse emissions. To permit Plaman Resources to purchase further sensitive land in order to mine is against our obligations on climate change. There are economic costs associated with high-carbon emissive industries, and these must be taken into account. Nor does it comply with the Ministerial Directive that overseas investment is “environmentally sustainable, minimise[s] adverse impacts on the natural environment, and is likely to create positive and long-lasting environmental benefits”.**

## **OTHER ENVIRONMENTAL & ECONOMIC COSTS**

### ***Ministerial directive:***

*that it provides economic, environmental, social and cultural benefits to regional communities*

### **The cost of road infrastructure**

To woo Middlemarch residents, Plaman Resources have assured the local community that in order to bypass the Middlemarch township, their trucks will

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<sup>29</sup> <https://www.plamanglobal.com/sustainability/>

travel along Mt. Stoker, Murrays, Chester and Kent roads, all currently single-lane gravel roads. It was stated by mine manager Craig Pilcher to a member of the Strath Taieri Community Board on August 20, 2018, that Plaman Resources want these gravel roads widened, tarsealed and double-laned to accommodate their trucks. The planned rebuild of the Sutton Bridge (*not* on a state highway) and crucial to bypass plans, has had its weight limit increased beyond secondary road specs to State Highway specs of 65 tonnes in order to accommodate the mine trucks.<sup>30</sup>

An example which highlights the damage to roads caused by heavy trucking, is the Taieri Mouth Road between Dunedin and Taieri Mouth (in this case logging trucks). Roadworks resulting in detours or single lane have been almost continuous in certain areas over a period of 6 months. Particular stretches of road are repeatedly repaired, only to be damaged again within days or weeks.

Plaman Resources recently moved approximately 500 tonnes of diatomite to a warehouse in Timaru for drying. The road near the entrance to the mine site is, since these trucking movements, severely damaged and potholed, and has warning signs for motorists.

2017 figures show that traffic on State Highway 87 stand at 549 vehicles per day.<sup>31</sup> Adding 216 heavy truck movements daily, increases this by 40%. We can expect increased damage to roads and substructure, more delays, detours and single lane sections, the cost of which will be carried by the New Zealand public.

**The people of New Zealand via rates and taxes will be footing the bill of increasing road maintenance, repairs and upgrading, as well as the building of the Sutton Bridge to specs beyond requirement. The economic cost of this must be taken into account.**

### **Health and safety**

State Highway 87 between Middlemarch and Mosgiel (64 km), is winding and steep. It contains only one passing lane. The road in winter is icy and visibility is often very low. People commute regularly between Middlemarch and Dunedin. The planned number of trucks on the route will drastically increase the time people take

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<sup>30</sup> Strath Taieri Community Board Minutes, July 5, pg.2

<sup>31</sup> <https://www.odt.co.nz/regions/queenstown/huge-spike-traffic-some-otagos-busiest-highways>



to commute. Increasing frustration from being stuck behind a fleet of slow moving trucks is a recipe for disaster. Accidents are not infrequent on this road due in particular to icy winter conditions, and increasing the traffic volume by 40%, will increase the number of accidents.

**The people of New Zealand will pick up the bill for road accidents, medical care, hospital stays and both short and long term rehabilitation. The economic cost of this must be taken into account.**

### **Impact of trucking on existing businesses and residents**

People who live and work on the eastern side of the Taieri River (ie. the Middlemarch 'bypass' route) will no longer have proper and safe use of the bridge and surrounding roads. The ability of these people to successfully carry out their businesses will be severely hampered. Farmers will not be able to move stock by foot. B&B accommodation on this route will become redundant. Movement of local residents, heritage tours, school bus, rural post and emergency services will be dangerously compromised. Cycling is out of the question, and further development of the Otago Rail Trail towards Sutton is no longer viable. Property prices, especially houses on the route, will drop, making it difficult for people to afford relocating elsewhere. Owing to the volume of trucks on the road, Middlemarch will no longer be a feasible destination for one day visits. The promotion of State Highway 87 as an alternative scenic route to Queenstown will be unviable and the burgeoning tourist industry will be severely curtailed.

### **Noise - physical impact on residents**

Traffic noise from 216 trucks 24/7 will have a dramatic and unwelcome impact in this quiet rural environment. It will also impact on the health and well-being of residents along the entire route from the mine site in Moonlight Road to Awarua, Bluff. Already several houses located close to the road on the Middlemarch 'bypass' vibrate when sheep trucks pass. This has however been tolerated to date as such truck movements are infrequent.

The noise level of a passing diesel truck is between 80-85 decibels. This is the noise equivalent of over 32 automobiles or 300 times greater than that of ambient street

noise.<sup>32</sup> It is louder than a ringing phone, a whistling kettle, a food processor or a noisy restaurant. Long term exposure to this level of noise can cause hearing loss.

It has already been stated that Plaman Resources require the 'bypass' road from the mine site to where it joins State Highway 87 to be widened, sealed and double-laned (an 'altered road'<sup>33</sup>) to accommodate their 216 trucking movements per day, 24/7 for 23+ years. This dramatic increase in road-traffic noise on previously quiet rural roads, puts it well above noise thresholds as defined by the NZS 6806.<sup>34</sup>

### **Impacts on health**

Noise is not a 'non-quantifiable' emission and its effects can no longer be regarded as 'indeterminate'. It is a misconception that people can adjust to noise by ignoring it or 'getting used to it'. Unlike the eye, the ear never closes and continues to respond to sound even during sleep.

In addition to hearing loss, long term exposure to noise has been demonstrated to cause a rise in blood pressure (hypertension). There is a correlation between noise exposure and adverse cardiovascular effects. It has also been linked to gastrointestinal changes and an increase in the use of antacids, hypnotics and sedatives. It is responsible for sleep disturbances and has been shown to affect mental health. Even at low levels, noise has been shown to make people tense and angry.

**The costs of dealing with the impact of noise on health and well-being must be included in the economic equation. None of these impacts comply with the Ministerial Directive. Rather than providing economic, environmental, social or cultural benefit to the regional community, it does the opposite, impacting severely on the quality of life of the specific Strath Taieri area , the broader regional community, and all people living on the trucking route.**

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<sup>32</sup> <http://www.trolleycoalition.org/noise.html>

<sup>33</sup> <https://www.nzta.govt.nz/roads-and-rail/highways-information-portal/technical-disciplines/noise-and-vibration/assessment/nzs-6806/>

<sup>34</sup> Ibid

## **The promise of jobs**

Plaman Resources have said the mine site will provide 20-40 jobs (best case scenario). The processing plant in Awarua will employ up to 90<sup>35</sup> (probably minimum wage production-line shift work). In addition to this, there will be truck drivers delivering the raw diatomite to the site. There is an increasing move towards automation on mines to reduce labour costs, and the neighbouring Oceana Gold mine is now using automated (non-manned) trucks on their Macraes site.

The world over, mining companies arrive in regions struggling economically, and woo politicians and local communities with the promise of jobs and economic development. Mining however, "... generates far fewer jobs, and less wages and salaries, per dollar of final output, than other sectors."<sup>36</sup> It has not been a growth-leading sector, and its economic contribution is far more unstable (volatile) than national output, consistent with the sector being more boom-and-bust than the average.<sup>37</sup>

Mining companies pay relatively little tax. Royalty revenues run well below 1% of total output by value, and company tax is minimised by generous depreciation and the ability to carry tax losses forward. Solid Energy stands out as paying 33% of its profits in tax, whereas the much lauded transnational Oceana Gold and New Zealand Steel Mining (both overseas owned) paid no company tax at all between 2004-2009.<sup>38</sup>

Excluding oil and gas, all other mining activities – collectively labelled ‘mining and quarrying’ – account for around 0.4% of the GDP. Due to the tourism industry’s large weight in the NZ GDP, the impact on GDP resulting from loss of brand image could easily outweigh the narrowly measured gains from a mining project.<sup>39</sup> Any potential economic gains through employment will be counteracted by both public and private expenditure as a result of allowing the mine to go ahead (roading infrastructure, health and safety, negative impact on already existing businesses, tourism and farming).

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<sup>35</sup> <https://www.odt.co.nz/news/dunedin/potential-create-100-jobs>

<sup>36</sup> *Mining Economics and the Conservation Estate*, Geoff Bertram, September 2010

<sup>37</sup> *Ibid*

<sup>38</sup> *Ibid*

<sup>39</sup> *Ibid*

The mine at Foulden Maar has an estimated life of 27 years (2048). There are significant costs associated with closing a mine, and whether those impacts are even known 27 years before the event, or can be monetised, is debateable. What is Plaman Global provisioning financially to cover those long-term future, and importantly, unpredictable and unknowable costs?

### **Smoke and mirrors in Plaman's economic strategies**

A 15% increase on current (2017) total world production of diatomite would make New Zealand the second largest producer in the world, just behind the USA.<sup>40</sup> On the world market, diatomite is a low value product already in plentiful supply. United States Geological Survey *Mineral Commodity Summaries 2016*, states diatomite prices per tonne vary from US\$100 to more than US\$400 for *speciality markets* including art supplies, cosmetics and DNA extraction<sup>41</sup>. However Plaman Global are claiming that as a *fertiliser*, it is worth US\$320 to US\$400 per tonne, and significantly more as a stock feed supplement<sup>42</sup> and they expect to earn “billions” from it over the next three decades. <sup>43</sup>

Nor do the economics of 50 diesel trucks, each doing two 260km return trips, 7 days a week for 23 years, stack up. It has already been said that processing on site, as most diatomite mines do, is not possible at Foulden Maar due to insufficient access to water. The diatomite mined at Foulden Hills has a 60% moisture content.<sup>44</sup> So the trucks will be carrying mostly water.

Why Plaman choose to locate their processing plant in Awarua, Southland, and truck the diatomite a distance of 264km is very hazy. They are clearly requiring a port from which to ship the diatomaceous earth. However, there are significantly closer ports than Bluff's Southport. Port of Otago is 80km distant, Timaru's Primeport – 220km.

The only rationale for the Awarua Southland site, is that large amounts of energy will be required to dry the diatomite prior to crushing. While Plaman have made no

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<sup>40</sup> <https://www.statista.com/statistics/264935/global-diatomite-production/>

<sup>41</sup> <https://minerals.usgs.gov/minerals/pubs/commodity/diatomite/mcs-2013-diato.pdf> pg58

<sup>42</sup> <https://www.odt.co.nz/news/dunedin/potential-create-100-jobs> (May 2018)

<sup>43</sup> <https://quarryingandminingmag.co.nz/q-m/mining/mining-black-pearl/>

<sup>44</sup> <https://www.odt.co.nz/news/dunedin/potential-create-100-jobs>

mention of the energy source to be used in their processing plant, it is most likely to be coal given that “...there is no practical alternative to coal as a source of affordable, industrial process heat...especially in the South Island which has no online gas.”<sup>45</sup> Trucking the diatomite to Southland for processing brings it close to a ready source, the Bathurst Takitimu coal mine.

In 1999, diatomite reserves were estimated by the Ministry of Economic Development to be 5-6 million tonnes and considered “...of too low a quality for many markets”.<sup>46</sup> Since Plaman purchased the mine site from liquidated company Featherston Resources, the estimated tonnage has been steadily increasing; 28 million, then 31 million, then 33 million<sup>47</sup>, and it has just been reported in *Quarry and Mining* magazine as being between 50 and 100 million tonnes.<sup>48</sup> There has been no independent verification of these claims.

**What can be categorically stated, is that the combination of the companies involved in the enterprise, alongside the green-washing and spin, the lack of facts and consultation with the public, the economic and the environmental impact, Plaman Resources (trading as Plaman Global aka Plaman Services Ltd) should not be granted permission to purchase further land (400 ha) which will facilitate them to destroy a geological site of international importance.**

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<sup>45</sup> <https://www.letstalkaboutcoal.co.nz/coal-in-nz/>

<sup>46</sup> Arnold, J.C 1999, Ministry of Economic Development unpublished mineral report MR3738, Featherston Resources, 58p

<sup>47</sup> <https://www.plamanglobal.com/news-media/>

<sup>48</sup> <https://quarryingandminingmag.co.nz/q-m/mining/mining-black-pearl/>