

## Nine-Squared Pty Ltd

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Paul Coomer Director Fortinbras Results Pty Ltd 22 Flametree St Bridgeman Downs QLD 4035

Dear Mr Coomer

NineSquared has been commissioned by to undertake an assessment of the potential benefits of the collapsible fuel bladder system that has been developed by Fortinbras Results Pty Ltd (Fortinbras). NineSquared has also considered other possible uses for this unique liquid commodity transportation concept.

The collapsible fuel bladder system is an apparatus for storing and transporting flowable materials or other materials, such as diesel fuel. We have been requested to assess, at a high-level, the potential for financial and other broader benefits from the usage of this technology through improving the efficiency of existing transport systems.

The most immediate market for consideration is bulk commodity mining, where diesel fuel is mostly transported by fuel trucks from port to mine site. In Queensland, NSW and Western Australia this offers considerable potential for coal and iron ore miners to save on fuel delivery costs.

We have found that the extent of the financial benefits will depend on several factors unique to each mine: fuel usage at the mine, the distance to transport the fuel, and the operational configuration of the mine.

It follows that the greater the fuel consumption - related to the mine's output - and the greater the distance from the port, then the greater the potential financial benefits, presuming costs of integration with existing mine and port operations are not excessive.

For some mines, such as iron ore mines in Western Australia, the fuel bladder concept could free up rail paths – which are currently used to transport fuel to the mines – allowing greater volumes of the mineral to be transported from mine to port, increasing efficiency of the supply chain and mine profitability.

Further, in relation to rail usage of the bladder concept, the financial benefits could extend beyond operational cost savings, by also increasing fuel supply chain reliability, particularly if seasonal disruptions to road networks through flooding is reduced and, instead, the fuel is delivered to the mine on the same rail network that transports the mine output to the port.



The analysis also suggests that the technology may have considerable financial benefits for fuel transport operators in the mining sector, where the cost savings are proportionately greater than for many mines. In these instances, where transport operators are contracted – or are seeking to be contracted – to mining companies for this service, the bladder technology is an innovative and environmentally-positive option that could assist in the gaining and retaining of fuel delivery contracts involving bulk commodity mining companies.

The introduction of the collapsible bladder method of fuel transport could also generate nonfinancial benefits, especially environmental benefits (e.g. carbon reduction) and social benefits (e.g. less heavy vehicles on the roads and reduction in traffic accidents).

Our work also identified that the technology has market potential across a range of non-mining sectors. This includes emergency services, defence and agriculture and these may require further investigation.

Our analysis concludes that the collapsible fuel bladder system offers financial, as well as nonfinancial, benefits to the mining sector, particularly in Queensland (coal), NSW (coal) and Western Australia (iron ore) where large volumes are mined in locations distant from the ports through which the commodities are exported and the diesel fuel is in the main imported (or at least nearby).

In terms of prioritising mining sector participants to approach in the first instance, our high-level analysis suggests a focus on the Queensland and NSW coal and Western Australian iron ore sectors, including:

- Transport companies servicing the mines, particularly those further than 200km from port;
- Iron ore companies where diesel is currently transported by rail to the mine site and use of the collapsible fuel bladders could provide capacity on the rail network for more loaded iron ore trains;
- Mining companies which control all of their supply chain, including fuel delivery; and
- Other mining companies which have unique locational or logistical features suited to the collapsible fuel bladder concept.

Our transport logistics analysis that underpinned our work also found that there is also merit in Fortinbras considering opportunities beyond the mining sector.

In conclusion, NineSquared found the technology to have a range of financial and non-financial benefits which merits approaching the market to identify companies which would be prepared to further develop and implement this innovative concept.

We wish Fortinbras every success in its endeavours.

Yours faithfully

T. W. Front

Tom Frost Director