

2019

Lenore Drive, Erskine Park Hot Spot Assessment December, 2019

Prepared by:

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Executive Summary

At the request of Penrith Council, a further inspection was carried out on the subject land to confirm that a “hot spot” of hydrocarbon contamination had been fully identified and appropriately dealt with.

The site was attended on the 27th December 2019.

A visual examination of the area previously identified as BH10A and B, and having elevated readings of hydrocarbons synonymous with a spill of Diesel Fuel, but within limits for industrial use, showed complete re-growth of natural vegetation, including scotch thistles, an indication of fertile soil.

Unlike Motor Spirit with additives, distillate will biodegrade given time and in this case, as expected, the diesel fuel spill has bio-degraded to a level capable of supporting plant growth and no longer poses any concern.

Further, as the site will be entirely covered by a concrete capping the area will be totally isolated with regard to any possible pathways to affect human health.

The second area of concern, adjacent to the entry point to the land off Lenore Drive had not degraded so appropriate action was taken as detailed in this Report.

The areas will be monitored over the coming months however no further action is anticipated.

The following Report details the actions taken and what will ensue as the development progresses.

If there are any queries or if any points need further clarification, please contact the writer.

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Site Assessment and Actions Taken.

BH10A and 10 B



The site was attended on December 27th 2019.

The area previously sampled and identified as BH10A and BH10B on Site Sample Location Plan Number 11839-002 (see Appendix 1) has since been completely overgrown by natural vegetation including the emergence of scotch thistles, an accepted indication of fertile soils. As expected, the small spill of diesel fuel, when the earthmoving machine was being refuelled, has bio-degraded and been digested into the soils and no longer poses a risk. Although Diesel spills are to be avoided wherever possible, the amount spilled in this case was minimal and as natural attenuation has occurred it is not expected to cause any ongoing concern.

Recommendations:-

There are no recommendations for this event. As the development progresses it is anticipated that soil will be moved, repositioned, compacted and eventually concreted over. There are no sources of contamination remaining which would affect human health.

Area identified as BH10A



Kikuyu grass and thistle varieties indicate no detrimental effects from the diesel refuelling spillage. No further treatment is considered necessary.

Hydrocarbon Hot Spots at entrance to Property



The earthmoving equipment was parked in this position, adjacent to the entrance to the property and obviously had some issues with spillage or oil leaks from the motor or the hydraulic system.

When the proposed development is approved, all future earthmoving equipment will be subject to strict mechanical checks prior to being engaged. Machinery left on site will be positioned over spill trays and environmental absorption pads.

There were two options flagged for the treatment of these hot spots:-

- a) To remove the soil in Heavy Duty Contaminated Waste plastic bags to a registered EPA treatment Depot...or
- b) Treat and remediate the contaminated soil in-situ.

Option a) would require a SEPP 55 Application, an EPA Registered Waste Transport vehicle, tracking and Waste weighbridge receipts, all involving manual handling, moving, risks.

Option b)..., for the small amount of contaminated soil involved, on-site remediation was simple, expedient and cost effective with no associated risk.

Option b) was adopted.



The two contamination hot spots consist of areas measuring approximately 700 mm in diameter. One spill/leak is situated on the tarmac and the other is off the edge of the tar on a gravel/dirt area.



The two hot spots areas have been delineated by a yellow line marked on the ground.

Area one is situated on a tar base and has not penetrated beyond the tarmac. Onsite remediation will be almost immediate.

Bio-Remediation Process



Area One was disturbed with the 5 tyne pitchfork to a depth of 10 mm, to refusal on the tarmac. The area was then liberally broadcast with a quantity of crumbled “Dynamic Lifter” a product high in nitrogen content and recognised as a fast breakdown into bacteria producing hydrocarbon digestive.

Area Two was on a gravel and soil area and possible deeper contamination may have occurred, the lighter colouring indicating some absorption into the soil may have taken place.

The area was disturbed by the pitchfork method to a depth of 100 mm and was then liberally broadcast with Dynamic Lifter.



Each of the areas was then sprayed to runoff with EN 2000 at 30:1, a proprietary product which is an environmentally friendly, biodegradable water-based hydrocarbon emulsifier.

The mix of nitrogen rich fertiliser and EN2000 will emulsify the hydrocarbon chains allowing the natural biodegradation process to occur through naturally occurring bacteria. There should be no need to take soil samples.

Vigorous re-growth of vegetation is generally sufficient indication of successful treatment.

In this case where the contamination on Area One is on the tar access road, regrowth is not to be expected. In three to four weeks the soil will be nitrogen rich with no after-effects of the hydrocarbon spill. Prior to the tar being broken up and removed the soil can be put aside for future use in garden landscaping areas.

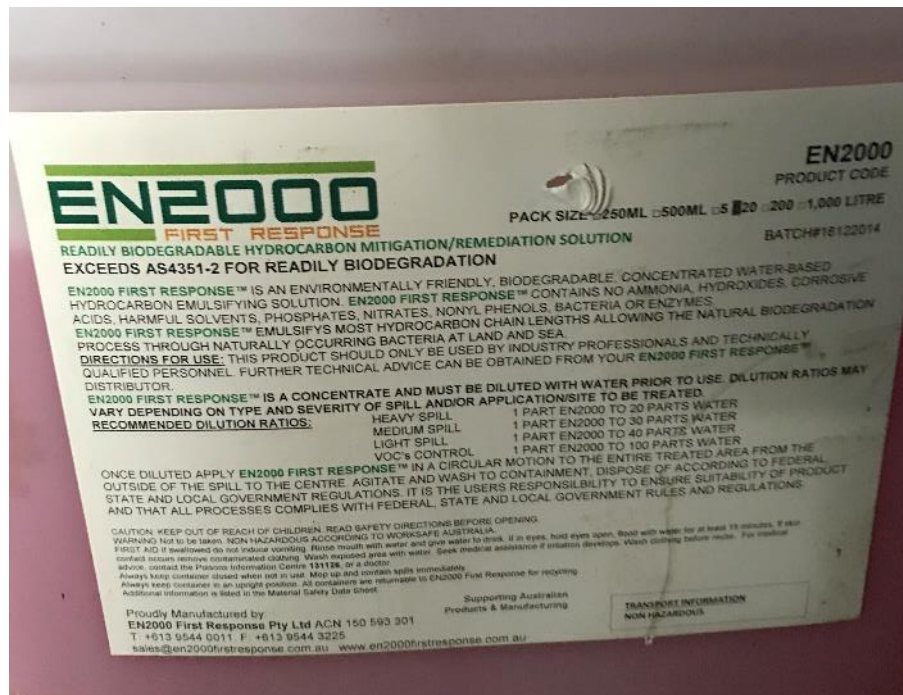


EN 2000 is sprayed from centre outwards to runoff to ensure complete treatment of the soil in addition to accelerating the breakdown of the dynamic lifter bacteria.



The positioning of the two remaining hotspots are easily identifiable on approach to the entrance to the site off Lenore Drive, by the yellow marker paint, however, for accuracy the hotspots are 6200 mm west and 2500 mm south of intersection of the site boundaries to Lenore Drive.

Notes:



EN 2000 has been widely used and is a successful method of hydrocarbon mitigation on small manageable areas.

Conclusion:-

The Hot Spot identified at BH 10A/B has self-attenuated. Vigorous growth of vegetation indicates no harmful effects exist.

Two other Hot Spots, identified as hydrocarbon spills/leaks from earthmoving machinery have been bio-remediated in-situ. On-site remediation with hydrocarbon digestives has been carried out in accordance with Manufacturers Instructions. The treated areas are expected to be completely remediated back to fertile soil within three weeks.

No further action is necessary.

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