Stage 1 Environmental Site Assessment, Deception Bay State High School, Queensland

December 2008

Department of Education Training and the Arts

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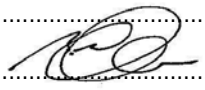
Signed:  .....

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Glossary of terms

ADWG

Australian Drinking Water Guidelines

ESA

Environmental Site Assessment

DETA

Department of Education, Training and the Arts

NATA

National Association of Testing Authorities

NEPM

National Environment Protection Measure

NHMRC

National Health and Medical Research Council

NOHSC

National Occupational Health and Safety Commission

TPH

Total petroleum hydrocarbons

PAH

Polycyclic aromatic hydrocarbon

ppm

Parts per million

WHO

World Health Organisation

VOC

Volatile organic compounds (VOCs) are organic chemical compounds that have high enough vapour pressures under normal conditions to significantly vaporize and enter the atmosphere. VOCs, such as the chemicals xylene, benzene, and toluene, are found in many household products, including paints, varnishes, paint stripping products, and adhesives.

Executive summary

The project

Parsons Brinckerhoff Australia (PB) was commissioned by Department of Education, Training and The Arts (DETA) to carry out an Environmental Site Assessment (ESA) of Deception Bay State High School (SHS) located at 19 Phillip Parade, Deception Bay. It is understood that some staff members of Deception Bay SHS have workplace health concerns and therefore DETA have requested that a Stage 1 ESA be undertaken at the site to review and identify potential contamination that may affect human health at the site.

No one section or part of a section, of this report should be taken as giving an overall idea of this report. Each section must be read in conjunction with the whole of this report, including its appendices and attachments. Nothing contained within this report may be considered to alter or modify guidelines as set down in the Queensland Workplace Health and Safety Regulation 1997 or the requirements laid down under all relevant Queensland or National Legislation.

Scope of works

The Stage 1 ESA comprised of the following:

- a desktop review of the site history
- a site inspection
- a limited soil sampling and analysis program
- a limited water quality sampling and analysis program
- a limited air quality assessment at Deception Bay SHS and a control site
- a radiological screening survey comprising:
  - magnetic field survey
  - gamma radiation measurements
- preparation of a Stage 1 ESA report detailing the results, conclusions and recommendations as required.

Works were undertaken on the 24 September 2008 whilst the school was closed for the holiday period, subsequent testing was undertaken on the 15 October 2008 during school hours. Weather conditions on both days were generally fine and warm.

The site

Deception Bay SHS is located approximately 35km north of Brisbane, approximately 1km from Moreton Bay, and is located at 19 Phillip Parade, Deception Bay. Deception Bay SHS comprises one property lot which covers an area of 13.9ha, the property lot is described as Lot 21 on CP853330. School infrastructure lies predominately in the eastern portion of the site with the main entrance to the site fronting Phillip Parade. Access to the school is also available from Government Street which lies adjacent

to the eastern boundary. The remaining western portion of the site contains the school's sporting fields and basketball/tennis courts.

Site activities generally involve the operation and maintenance of an educational facility and the proposed future land use of the site is assumed to remain as an educational facility.

Conclusions and recommendations

Based on the results of the works undertaken the following conclusions are made:

- The only past activity carried out on the site with the potential to contaminate the site was Pine Forest Plantation for paper manufacture which possibly required the use of pesticides and herbicides.
- Current activities carried out on the site with the potential to contaminate the site include the minor storage of petroleum hydrocarbons, paints, thinners and cleaning products or chemicals used as part of teaching purposes (i.e. manual arts and chemistry).
- Laboratory results for the analysis of all soil samples reported concentrations of potential contaminants either below the level of reporting or below the respective adopted assessment criteria. Levels of total phosphorous were below the adopted criteria and therefore did not require further investigation.
- Laboratory results for the analysis of all water samples reported concentrations of potential contaminant analytes either below the level of reporting or below the respective adopted assessment criteria with the exception of sample WS1A which marginally exceeded the criteria for nickel. The concentration is not considered to be a health issue as it is within the range of typical Australian reticulated drinking water supply levels for nickel as specified in the Australian Drinking Water Guidelines (ADWG).
- Results for the analysis of microbiological analytes reported concentrations below the laboratory's limit of reporting (LOR) with the exception of an elevated concentration of heterotrophic plate count (HPC). In accordance with the Australian Drinking Water Guidelines (ADWG) the concentrations of HPC can only be used as an indicator for system cleanliness, on this basis the results are not considered likely to cause adverse health effects.
- Results for the analysis of air quality samples reported concentrations of potential contaminants either below the sampling equipment detection limit or below the respective adopted assessment criteria with the exception of the janitors room which detected concentrations of volatile organic compounds (VOC's) above the respective adopted criteria.
- Volatile organic compounds (VOC's) detected in the Maths Block room GS102 on 24 September 2008 were likely to be caused by general cleaning and/or maintenance undertaken during the school holidays as a second air quality sampling event undertaken on 15 October 2008 during school hours did not result in detection of VOC's.
- In the absence of guidelines to provide ambient background concentrations for the air monitored during this investigation, a control site has been used as a guide to background concentrations. Local data collected from a comparable school within South East Queensland where staff do not have concerns regarding the health impact of their work environment has been used as the control site. The levels of all air quality analytes tested were found to be similar at the control site and Deception Bay SHS.

Based on the above it is unlikely that the two elevated water sample results represent a concern for health. However it is recommended that additional water samples be collected and analysed to clarify these results and determine whether they represent anomalies. A single additional sample will be required to investigate the nickel result reported for WS1A and a further two water samples should be collected from WS2A, the water fountain associated with the elevated heterotrophic plate count.

It is recommended that the janitors room should have a natural ventilation system installed to reduce the accumulation of volatile organic compounds.

Based on these findings, it is considered that the site is unremarkable for the parameters tested, and on this basis poses no greater risk to the school occupants' than that of normal background levels.