ENVIROEQUIP RENTALS

Your Friend in the Field

Equipment Report – Solinst Model 122 Interface Meter

This Meter has been performance checked / calibrated* as follows:

Cleaned/Tested	**Pass?**
Probe	☑
Tape/Reel	☑

☑ Performance Test & Battery Voltage Check (9 v) 8.0v minimum

Date: 14/08/2008 Checked by: MILENKO

Signed: _____

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Received	Returned	Item
✓	☐	☐	Interface meter: 30 m
✓	☐	☐	Plastic Box / Bag
✓	☐	☐	Spare 9V Battery Qty _____
X	☐	☐	Probe Cleaning Brush
X	☐	☐	Decon
✓	☐	☐	Instruction leaflet
☐	☐	☐	
☐	☐	☐	

Processors Signature/ Initials MS

EE Quote Reference	RTO11426.	Condition on return
Customer Ref		
Equipment ID	S/122305E	
Equipment serial no.	122005800-1	
Return Date	/ /	
Return Time		

Sydney – Unit 1, 28 Barcoo Street, Chatswood, NSW 2067 Australia
Telephone: +61-2-9417-1513 FreeCall (interstate): 1-800-675-756
Fax: +61-2-9417-7669 Head Office Fax: +61-3-9646-4195
Email: rentals.syd@enviroequip.com Internet: www.rentals.enviroequip.com

ENVIROEQUIP RENTALS

Your Friend in the Field

EQUIPMENT CERTIFICATION REPORT

RAE SYSTEMS MINIRAE 2000 PID

This PID has been performance checked / calibrated as follows:

☑ Calibrate 0.0 ppm — Reading 0.0 ppm

☑ Calibrate 99.8 ppm Isobutylene — Reading 99.5 ppm

☑ Charged — ☑ Lamp Check 10.6eV

☑ Filter Check

Date: 14/08/2006

Checked by: MILENKO

Signature: [signature]

Please check that the following items are received and all items are returned. Please clean equipment before returning. A $20 service/repair charge applies to any unclean or damaged items.

Sent	Received	Returned	Description
☑	☐	☐	MiniRae 2000 PID
☑	☐	☐	Protective Yellow Rubber Boot
☑	☐	☐	Inlet Probe (Attached to PID).
☑	☐	☐	Charger 240 V to 12V, 500mA
☑	☐	☐	Instruction Manual
☑	☐	☐	Quick Reference Guide
☑	☐	☐	Water Trap Filter
☑	☐	☐	Carry case
☑	☐	☐	Spare Water Trap Filter
☑	☐	☐	Alkaline Battery Adapter
☐	☐	☐	_____

QUOTE NO.: RTO11426

ID: PIDMINSZ

SERIAL NO: 110-010011

ENVIROEQUIP Rentals & Sales Pty Ltd
Unit 1 / 28 Barcoo St
Chatswood NSW 2067
Tel: (02) 9417 1513 Fax: (02) 9417 7669
Email: sydney@enviroequip.com www.enviroequip.com

ENVIROEQUIP RENTALS

Your Friend in the Field

EQUIPMENT CERTIFICATION REPORT

RAE SYSTEMS MINIRAE 2000 PID

This PID has been performance checked / calibrated as follows:

☑ Calibrate 0.0 ppm — Reading 0.0 ppm

☑ Calibrate 99.8 ppm Isobutylene — Reading 98.6 ppm

☑ Charged — ☑ Lamp Check

☑ Filter Check

Date: 14/08/2006

Checked by: MILENKO

Signature: [signature]

Please check that the following items are received and all items are returned. Please clean equipment before returning. A $20 service/repair charge applies to any unclean or damaged items.

Sent	Received	Returned	Description
☑	☐	☐	MiniRae 2000 PID
☑	☐	☐	Protective Yellow Rubber Boot
☑	☐	☐	Inlet Probe (Attached to PID).
☑	☐	☐	Charger 240 V to 12V, 500mA
☑	☐	☐	Instruction Manual
☑	☐	☐	Quick Reference Guide
☑	☐	☐	Water Trap Filter
☑	☐	☐	Carry case
☑	☐	☐	Spare Water Trap Filter
☑	☐	☐	Alkaline Battery Adapter
☑	☐	☐	Regulator 713

QUOTE NO.: R7011426

ID: PIDMINSR

SERIAL NO: 110-007362

ENVIROEQUIP Rentals & Sales Pty Ltd
16 / 380 Eastern Valley Way
Chatswood NSW 2067
Tel: (02) 9417 1513 Fax: (02) 9417 7669
Email: sydney@enviroequip.com www.enviroequip.com

ENVIROEQUIP RENTALS

Your Friend in the Field

Equipment Report - MINIRAE 2000 PID

This PID has been performance checked / calibrated* as follows:

Calibration	Actual Value	Reading	Pass?		
Zero – fresh air	0.0 ppm	0.0 ppm	☑		
Span – Isobutylene	96.9 ppm	96.9 ppm	☑		
Operations Check					
☑ Performance Check (pump, lamp, sensor & battery voltage check)					
☑ Battery Charged	☑ Filters Check	☑ Spare battery Voltage (5.0v minimum) 5.4 V			

* Calibration gas traceability information is available upon request.

Date: 13/10/2006 Checked by: MILENKO

Signed: _____

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Received	Returned	Item
☑	☐	☐	MiniRae 2000 PID / Operational Check, plus Battery Voltage @ 5.3 V
☑	☐	☐	Protective yellow rubber boot
☑	☐	☐	Inlet probe (attached to PID)
☑	☐	☐	Water trap filter.
☑	☐	☐	Spare water trap filter(s) Qty 1 @ $_____+GST / filter if opened.
☑	☐	☐	Charger 240V to 12V 500mA
☑	☐	☐	Instruction Manual behind foam on the lid of case "
☑	☐	☐	Quick Guide Sheet behind foam on the lid of case "
☑	☐	☐	Spare Alkaline Battery Compartment with/without batteries
☑	☐	☐	Carry Case
☑	☐	☐	Calibration regulator & tubing (optional)
☐	☐	☐	
☐	☐	☐	

Processors Signature/ Initials J.L

EE Quote Reference	QTO 11898	Condition on return
Customer Ref		
Equipment ID	PIDMINISAF	
Equipment serial no.	110900781	
Return Date	/ /	
Return Time		

Melbourne | **Sydney** | **Brisbane** | **Perth** | **Auckland** | **Kuala Lumpur**

Melbourne - 13A Rocklea Drive, Port Melbourne VIC 3207 Australia
Telephone: +61-3-9646-4190 FreeCall (interstate): 1-800-675-756
Rentals Direct Fax: +61-3-9681-9251 Head Office Fax: +61-3-9646-4195
Email: rentals.melb@enviroequip.com Internet: www.rentals.enviroequip.com

Appendix F
Remedial Options Screening

Long-List Remedial Options				
Remedial Approach	**Remedial Option**	**Brief Description**	**Remedial Application (Potential, Keep, Reject)**	**Fatal Flaw Limitation**
No action	No Action	No remedial action taken at the site.	Reject: Does not address SRoH, not aligned with future land use aspirations, human health and ecological risks.	Reject.
Institutional Controls	Health and safety program (i.e. SMP)	Implement a health and safety program for site users designed to minimise exposure pathways.	Keep: This strategy could be applicable as a component of the remedial strategy applied to areas of the former Manufactured Gas Plant (MGP) where there may be ongoing exposure risks after remediation. This may include capped areas, impacted ground water and can involve ongoing monitoring, especially of groundwater.	Keep.
	Site access restrictions	Limit access to impacted areas with security fencing to minimise exposure pathways to contamination.	Keep: Applicable for ongoing rail use, restricting public access & implementation of the SMP.	Keep.
Insitu Biological Treatment	Bioventing	Oxygen is delivered to insitu contaminated unsaturated soils by forced air movement to increase oxygen concentrations and stimulate biodegradation.	Potential: This technique is at experimental stage, however is applicable to MGP wastes such as VOCs and SVOCs.	Reject: This technology has limited application based on specific Site conditions including: • deep soil impacts, • shallow groundwater, • saturated soil layers, • low permeable clay/weathered shale • specific microbes used in the natural biodegradation process may not be present in the soil. Biodegradation is likely to take a number of years, which does not align with proposed Site uses given time and area required. Field testing would also be required. Operation and Maintenance (O & M) and capital investment required.

Long-List Remedial Options				
Remedial Approach	**Remedial Option**	**Brief Description**	**Remedial Application (Potential, Keep, Reject)**	**Fatal Flaw Limitation**
Insitu Biological Treatment	Enhanced Bioremediation	Naturally occurring microbes are stimulated by circulating water-based solutions through contaminated soils to enhance in situ biological degradation of organic contaminants or immobilization of inorganic contaminants.	Potential: This technique is applicable to VOCs and SVOCs. It may be applied as a soil remediation strategy that has a secondary benefit to groundwater remediation.	Reject: This technology has limited application based on specific Site conditions including: • minimal circulation of water–based solutions given low permeable natural clay and weathered shale with vertical fracturing and heterogeneous fill. • specific microbes used in the natural biodegradation process may not be present in the soil. Biodegradation is likely to take a number of years, which does not align with proposed site uses given time and area required. Field trials would also be required. Impacts have been identified in the shallow and deep groundwater systems; therefore extraction of injected solutions in the deep groundwater would not be feasible because solutions cannot be captured and contained above an impermeable clay layer. Risk of mobilising soil contaminants to groundwater and a higher degree of off site migration. Extraction of groundwater may require treatment prior to re-injection. O & M and capital investment required.
	Phytoremediation	A process using plants to remove, transfer, stabilize, and destroy contaminants in soil and sediment.	Reject: This technique is not applicable to MGP waste contaminants. Does not align with future land use aspirations.	Reject.

Long-List Remedial Options				
Remedial Approach	**Remedial Option**	**Brief Description**	**Remedial Application (Potential, Keep, Reject)**	**Fatal Flaw Limitation**
Insitu Physical / Chemical Treatment	Chemical Oxidation / Reduction	Chemically converts hazardous contaminants to compounds that are more stable, less mobile, and/or inert.	Potential: Specific technology for aromatic compounds (e.g. benzene) using Peroxide, Ozone or Permanganate ($KMnO_4$) as oxidizing agents. Can be a rapid remedial approach under the right conditions.	Keep: This technology would only be suitable for application after removal of source materials and applied at the limit of excavation depth or injected at base of Sth Gasholder (to remain as a heritage item) to treat leaching BTEX. This technology promotes mass reduction in the source area as well as groundwater plume treatment over the long term. Effectiveness may well be impeded by other sources of oxidant-consuming material such as organic matter, in the form of coke and coaly material often associated with MGP sites that may limit reaction process and/or make the process less effective by consuming large quantities of the oxidant.
	Electrokinetic Separation	Removes metals and organic contaminants from low permeability soil, mud, sludge, and marine dredging. Uses electrochemical and electrokinetic processes to desorb, and then remove, metals and polar organics.	Reject: Very limited previous application or performance data and not a proven technology for MGP wastes. Highly dependent on consistent soil moisture. High costs.	Reject.
	Fracturing Enhancement	Cracks developed by fracturing beneath the surface in low permeability soil and over-consolidated material to increase effectiveness of many other insitu processes.	Potential: Applicable given the geological condition of weathered shales and stiff clay. Can be used in conjunction with insitu chemical oxidation after excavation and source removal or at base of Sth Gasholder to promote treatment of leaching BTEX.	Reject: Commercial availability is very limited and costly. Fracturing may promote unstable ground around the Sth Gasholder, and promote migration of any residual contamination.

Long-List Remedial Options				
Remedial Approach	**Remedial Option**	**Brief Description**	**Remedial Application (Potential, Keep, Reject)**	**Fatal Flaw Limitation**
Insitu Physical / Chemical Treatment	Soil Flushing - Leaching and groundwater extraction	Water and an additive is applied to the soil or injected into the ground water. Contaminants are leached into the ground water, which is then extracted and treated.	Reject: Typically applied to metal contaminants and not a proven technology for MGP wastes. Not conducive to Site conditions (i.e. low permeable clays & heterogeneous fill). Still a developing technology with limited commercial success. High risk of additional contamination of groundwater. Requires field trials.	Reject.
	Soil Vapour Extraction (SVE)	Gas-phase volatiles are removed from soil through extraction wells applying a vacuum.	Potential: Technically feasible for VOC (BTEX) contaminants at varied depths, while SVOCs have limited treatability. Soil conditions (i.e. low permeable clays & heterogeneous fill) may hinder extraction process, which may be controlled by enhanced fracturing.	Keep: This technology would only be technically feasible for application after removal of source materials or at the base of the Sth Gasholder (to remain as a heritage item). Applicable where the volatile CoCs such as benzene are present and potentially present a human health risk from vapours within future or existing enclosures erected on the site. Benzene would be the target contaminant in the vadose zone in shale fractures above the bedrock aquifer. Pilot tests are recommended and application has O&M requirements (i.e. off gas capture and treatment, long term), and capital, however system can be integrated into Site redevelopment.
	Solidification / Stabilisation	Contaminants are physically bound or enclosed within a stabilised mass (solidification), or chemical reactions are induced between the stabilising agent and contaminants to reduce their mobility.	Reject: Application and additive methods would be very limited at depth given Site conditions (i.e. low permeable clays & heterogeneous fill). Insitu Vitrification that may be applicable to organic contaminants has very limited commercial availability (if at all in Australia).	Reject.

Long-List Remedial Options				
Remedial Approach	**Remedial Option**	**Brief Description**	**Remedial Application (Potential, Keep, Reject)**	**Fatal Flaw Limitation**
Insitu Thermal Treatment	Thermal Treatment	Increase volatilisation rate of semi-volatiles to facilitate extraction using steam/hot air, electrical resistance/electromagnetic/fiber optic/radio frequency heating.	Potential: Typically used as an enhanced soil vapour extraction (SVE) strategy and applicable to MGP wastes (VOCs & SVOCs). May aid secondary biodegradation.	Keep: Potentially suitable for application in combination with SVE after source removal on soils/fractured shale at limit of excavation depth or in the vicinity of retained Sth Gasholder, particularly for extracting BTEX. Groundwater level may impact the effectiveness of this technology

Long-List Remedial Options				
Remedial Approach	**Remedial Option**	**Brief Description**	**Remedial Application (Potential, Keep, Reject)**	**Fatal Flaw Limitation**
Exsitu Biological Treatment	Biopiles	Excavated soils are mixed with soil amendments and placed in aboveground enclosures or constructed bioremediation cells to achieve an aerated static pile composting process in which compost is formed into piles and aerated with blowers or vacuum pumps.	Potential: Can be applied for treating VOCs with some effectiveness on SVOCs. Treatment area required, which may not align with future Site redevelopment.	Keep, but unlikely to be effective except for low level impacted material: This technology may be technically feasible but probably of limited application at this site. Historically it has not been particularly effective in reducing the multi-ring (4 and greater) PAHs such as benzo(a) pyrene to acceptable human health levels, but can be effective in reducing the more volatile constituents such as naphthalene and co contaminants such as BTEX where reduction of these volatile constituents is a valid objective for onsite re-use at depth. Treatment will need to be off site considering restricted available land for the treatment process, sensitivity and proximity of the adjoining residential neighbourhood although off gases that are produced can be treated and odours minimised. The process is not suitable for grossly impacted materials such as where free tar is evident. Pre-treatment is usually required to improve handling and transport of the materials. Lower effectiveness on SVOCs (i.e. B(a)P) which may not meet regulatory requirements and needing further treatment and longer treatment periods (years). Treatment trials are recommended to assess effectiveness.
	Composting	Contaminated soil is excavated and mixed with bulking agents and organic amendments, such as wood chips, hay, manure, and vegetative wastes. Proper amendment selection to ensure adequate porosity and provides a balance of carbon and nitrogen to promote thermophilic, microbial activity.	Potential: Can be applied for treating VOCs, with some effectiveness on SVOCs. Treatment area required, which may not align with future Site redevelopment.	Keep: High fugitive emissions without control, especially VOC (Benzene), presenting potential health risks. Bulking agents substantially increase material volume, requiring large treatment area. Treatment will need to be off site or undertaken within a controlled atmosphere structure considering sensitivity of the adjoining residential neighbourhood and off gases that are produced. SVOCs would take a substantial time to degrade. The issues of fugitive emissions, sensitive receptors and timing can be addressed by using a secondary / off-site treatment area with appropriate controls, in a less sensitive environment.

Long-List Remedial Options				
Remedial Approach	**Remedial Option**	**Brief Description**	**Remedial Application (Potential, Keep, Reject)**	**Fatal Flaw Limitation**
Exsitu Biological Treatment	Landfarming	Contaminated soil, sediment, or sludge is excavated, applied into lined beds, and periodically turned over or tilled to aerate the waste.	Potential: Can be applied for treating VOCs with some effectiveness on SVOCs. Treatment area required, which may not align with future Site redevelopment	Keep: High fugitive emissions without control, especially VOC (Benzene), presenting potential health risks. Requires a large treatment area. Treatment will need to be off site considering sensitivity of the adjoining residential neighbourhood and off gases that are produced. SVOCs would take a substantial time to biodegrade. The issues of fugitive emissions, sensitive receptors and timing can be addressed by using a secondary / off-site treatment area with appropriate controls, in a less sensitive environment.
	Sulfur Oxidising/Reducing Bacteria	Anaerobic bacteria used to treat metal sulfides/sulfates to increase metal solubility and facilitate metal extraction.	Reject: Used to treat inorganic contaminants.	Reject.
	Slurry phase biotreatment	An aqueous slurry is created by combining soil, sediment, or sludge with water and other additives. The slurry is mixed to keep solids suspended and micro-organisms in contact with the soil contaminants. Upon completion of the process, the slurry is dewatered and the treated soil is disposed.	Potential: Enhanced exsitu biodegradation process applied to materials with VOC and SVOC impacts, similar to MGP waste products. A treatment trial is recommended.	Reject: Soil conditions (i.e. low permeable clay, heterogeneous fill) and existing free tar materials would exclude this option as technically feasible.

Long-List Remedial Options				
Remedial Approach	**Remedial Option**	**Brief Description**	**Remedial Application (Potential, Keep, Reject)**	**Fatal Flaw Limitation**
Exsitu Physical / Chemical Treatment	Solidification / Stabilisation/ Immobilisation	Contaminants are physically bound or enclosed within a stabilised mass (solidification), or chemical reactions are induced between the stabilising agent and contaminants to reduce their mobility.	Keep: Organic stabilisation of material containing high tar and moderate concentrations and potentially free tar (gross contaminants). Enables off site disposal of source and high PAH concentration materials, classified on TCLP alone. Stabilisation is usually undertaken by mixing with an appropriate amount of Portland cement, flyash and activated carbon to address the organic and metal contaminants. Treatability trials are required to determine the effectiveness of this method for treating say industrial waste classified material to solid waste classification. Where the PAH contamination can be demonstrated to be present and immobile without treatment within ash and coke then it may qualify for general immobilisation approval from the DEC. This treatment also has the potential to be applicable to ash/coke impacted material that may be retained on site in combination with a physical separation barrier (clay cap or integrated into redevelopment design under concrete slabs/paving) and a long term management plan.	Keep.
	Chemical Extraction	Waste contaminated soil and extractant are mixed, thereby dissolving the contaminants. The extracted solution is then placed in a separator, where the contaminants and extractant are separated for treatment and further use.	Potential: Solvent extraction applicable to coal tar wastes.	Keep: This technology may only be suitable for old service lines and pipes associated with the gasworks operation that contains residual tar. Physical separation to grade soil materials would be very difficult and high clay content would increase time. Introduces potentially toxic solvents to the waste material. Least effective on very high molecular weight organics. This technology is more economically suitable on larger sites with a greater volume of material requiring treatment.

Long-List Remedial Options				
Remedial Approach	**Remedial Option**	**Brief Description**	**Remedial Application (Potential, Keep, Reject)**	**Fatal Flaw Limitation**
Exsitu Physical / Chemical Treatment	Chemical Reduction / Oxidation	Reduction/oxidation chemically converts hazardous contaminants to non-hazardous or less toxic compounds that are more stable, less mobile, and/or inert. The oxidising agents most commonly used are ozone, hydrogen peroxide, hypochlorites, chlorine, and chlorine dioxide.	Reject: Additives are non-specific therefore the costs to treat source materials (free tar, ash/coke fill) would not be economically viable. This technology commonly used for inorganic contaminants but has been successful for organics in low TOC material.	Reject.
	Dehalogenation	Reagents are added to soils contaminated with halogenated organics. The dehalogenation process is achieved by either the replacement of the halogen molecules or the decomposition and partial volatilization of the contaminants.	Reject: Applicable to halogenated SVOCs and pesticides.	Reject.

Long-List Remedial Options				
Remedial Approach	**Remedial Option**	**Brief Description**	**Remedial Application (Potential, Keep, Reject)**	**Fatal Flaw Limitation**
Exsitu Physical / Chemical Treatment	Segregation	Segregation techniques concentrate contaminated solids through physical and chemical means. These processes seek to detach contaminants from the soil, sand, and/or binding material.	Potential: Can be applied to SVOC impacted material with limited applicability to VOCs. Off site treatment required.	Keep: This technology may be applied preceding additional treatment. For example retaining oversize materials in general fill such as bricks, footings, concrete, pipe work, and other building rubble (i.e. fibro cement sheeting). This technique reduces treatment volumes.
	Soil Washing	Contaminants sorbed onto fine soil particles are separated from bulk soil in an aqueous-based system on the basis of particle size. The wash water may be augmented with a basic leaching agent, surfactant, pH adjustment, or chelating agent to help remove organics and heavy metals.	Potential: Can be applied to SVOC impacted material with limited applicability to VOCs. Off site treatment required.	Reject: Stiff clays and heterogeneous fill would prove difficult to remove adsorbed organic compounds and increase treatment time and costs. Treatment will need to be off site considering sensitivity of the adjoining residential neighbourhood. High content of free tar would also introduce a high degree of difficulty removing adsorbed compounds.

Long-List Remedial Options				
Remedial Approach	**Remedial Option**	**Brief Description**	**Remedial Application (Potential, Keep, Reject)**	**Fatal Flaw Limitation**
Exsitu Thermal Treatment	Hot Gas Decontamination	The process involves raising the temperature of the contaminated material for a specified period of time. The gas effluent from the material is treated in an afterburner system to destroy all volatilised contaminants.	Reject: Typically used to decontaminate machinery and equipment, not impacted soil material.	Reject.
	Incineration and co-burning	High temperatures, 870-1,200 °C (1,600-2,200 °F), are used to combust (in the presence of oxygen) organic constituents in hazardous wastes.	Potential: Technology that is used for a broad range organic contaminants from a number of different industries.	Keep: However issues include gaining regulatory approval and limited available facilities other than through co-burning at a power station or cement kiln. This technology is applicable for high organic content materials such as free tar wastes. Materials can be treated to improve handling and transport (i.e. fly ash additive) or stabilised (i.e. quicklime) or other off site treatment technologies to reduce the mass of soil material or oversize materials (segregation). An example of this technology is co-burning with other feedstock at a power plant, where high calorific tarry material is mixed with coal feed to the power station or where in liquid tar form can be injected directly into the furnace. This has been previously undertaken in NSW but stopped due to regulatory / community concerns.

Long-List Remedial Options				
Remedial Approach	**Remedial Option**	**Brief Description**	**Remedial Application (Potential, Keep, Reject)**	**Fatal Flaw Limitation**
Exsitu Thermal Treatment	Pyrolysis	Chemical decomposition is induced in organic materials by heat in the absence of oxygen. Organic materials are transformed into gaseous components and a solid residue (coke) containing fixed carbon and ash.	Potential: Applicable to coal tar wastes. Technology may be used as a precursor to incineration.	Reject: The commercial availability of this technology is very limited and costly.
	Thermal Desorption	Wastes are heated to volatilise water and organic contaminants. A carrier gas or vacuum system transports volatilised water and organics to the gas treatment system.	Potential: This is a proven technology in treating organic contaminants, particularly High Temperature Thermal Desorption (HTTD) for VOCs and SVOCs.	Keep: Off site treatment is required given the sensitivity of the adjoining residential neighbourhood. This technology can have issues with high energy tarry materials and be relatively costly for small volumes where site mobilisation and establishment is required. No currently approved offsite thermal desorption facility available and onsite treatment with a portable plant would present logistic problems and regulatory and community issues.

Long-List Remedial Options				
Remedial Approach	**Remedial Option**	**Brief Description**	**Remedial Application (Potential, Keep, Reject)**	**Fatal Flaw Limitation**
Containment	Insitu Capping	The purpose of capping contaminated soil in-situ is to prevent the exposure of site users to the contaminated material and to reduce contaminant migration associated with infiltration and leaching by surface waters. Capping layers can range from a one-layer system of either soil, clay, concrete or synthetic liner, to complex multi-layer systems of soils and geosynthetic fabrics.	Keep: Considering the Site conditions and potential redevelopment aspirations, particular areas of the Site and associated impacted fill would enable this option to be feasible. Relatively shallow impacts of non leaching material are the likely scenario for this option to be applied. The capping may also be in the form of a physical separation barrier, such as sealed concrete areas or paving as part of the future redevelopment. This option would be implemented in combination with a pretreatment to stabilise leaching materials. A long term management plan would also be required.	Keep.
	Capping in Prescribed Containment Area Onsite	This option is similar to capping in-situ, except that contaminated soil on the site would be consolidated and capped in one area of the site.	Keep: Similar to the above, this technology could be implemented in combination with stabilisation of leaching materials.	Keep.
	Complete Encapsulation/Cap and contain	This option involves the complete encapsulation of contaminated soil and waste material on the site in a fully lined containment cell.	Reject: This technology is not technically feasible given the limited space on the Site and future land use aspiration. Cap and contain using vertical barrier (such as HDPE or soil bentonite cut off wall)	Reject. Cap and contain may have some application subsequent to gross contaminant removal where residual groundwater contamination poses a continued significant risk of harm and containment is required to mitigate this risk. However, Site specific issues are the fractured shale aquifer with no impermeable founding layer present potentially requiring deep grouting and continued hydraulic control and associated groundwater treatment, with O & M.

Long-List Remedial Options				
Remedial Approach	**Remedial Option**	**Brief Description**	**Remedial Application (Potential, Keep, Reject)**	**Fatal Flaw Limitation**
Excavation of Contaminated Material and Off-Site Disposal	Disposal to an Existing Off-site Facility	Contaminated material is removed and transported to an existing, appropriately licensed off-site disposal facility. Pre-treatment may be required.	Keep: This technology is technically feasible in combination with other technologies such as stabilisation / immobilisation. Alone this technique would be substantially high in costs given the concentrations of compounds in the MGP wastes. A facilty is unlikely to accept the waste in its given condition. Materials may be pretreated to lower the materials propensity to leach particular compounds, however not necessarily reduce the total concentrations. Pretreatment may involve stabilisation, (to achieve TCLP landfill criteria) biopiling (to reduce total concentrations to landfill acceptance criteria) and chemical extraction (pipe work only).	Keep.
Reuse and Recycling	Removal off-site for reuse and recycling by other appropriate facilities or retained on site and reused.	These materials have some value to other processing plants and may be able to be sold and removed from site for reuse.	Keep: This technology may only be used for oversize materials and fill materials meeting land use criteria. For example, demolition waste may be screened and removed off site to a recycling facility, or fill materials may be used to backfill excavated sections of the Site.	Keep.

Appendix G
Laboratory Analytical Reports and
Chain of Custody Forms

CUSTOMER CENTRIC - ANALYTICAL CHEMISTS

No. 13542.

Accredited for compliance with ISO/IEC 17025. The results of tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the APLAC mutual recognition arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports.

AUSTRALIAN QUARANTINE AND INSPECTION SERVICE

SYDNEY License No. N0356.

Quarantine Approved premises criteria 5.1 for quarantine containment level 1 (QCI) facilities. Class five criteria cover premises utilised for research, analysis,and/or testing of biological material, soil, animal, plant and human products.

FINAL CERTIFICATE OF ANALYSIS - ENVIRONMENTAL DIVISION

Laboratory Report No:	E028016
Client Name:	CH2M HILL Australia Pty. Ltd
Client Reference:	Macdonaldtown Gasworks
Contact Name:	Adam Sullivan
Chain of Custody No:	na
Sample Matrix:	SOIL

Cover Page 1 of 4
plus Sample Results

Date Received: 18/08/2006
Date Reported: 29/08/2006

This Final Certificate of Analysis consists of sample results, DQI's, method descriptions, laboratory definitions, and internationally recognised NATA accreditation and endorsement. The DQO compliance relates specifically to QA/QC results as performed as part of the sample analysis, and may provide an indication of sample result quality. Transfer of report ownership from Labmark to the client shall only occur once full & final payment has been settled and verified. All report copies may be retracted where full payment has not occured within the agreed settlement period.

QUALITY ASSURANCE CRITERIA

Accuracy:	matrix spike:	1 in first 5-20, then 1 every 20 samples
	lcs, crm, method:	1 per analytical batch
	surrogate spike:	addition per target organic method
Precision:	laboratory duplicate:	1 in first 5-10, then 1 every 10 samples
	laboratory triplicate:	re-extracted & reported when duplicate RPD values exceed acceptance criteria
Holding Times:	soils, waters:	Refer to LabMark Preservation & THT table VOC's 14 days water / soil VAC's 7 days water or 14 days acidified VAC's 14 days soil SVOC's 7 days water, 14 days soil Pesticides 7 days water, 14 days soil Metals 6 months general elements Mercury 28 days
Confirmation:	target organic analysis:	GC/MS, or confirmatory column
Sensitivity:	EQL:	Typically 2-5 x Method Detection Limit (MDL)

QUALITY CONTROL GLOBAL ACCEPTANCE CRITERIA (GAC)

Accuracy:	spike, lcs, crm surrogate:	general analytes 70% - 130% recovery phenol analytes 50% - 130% recovery organophosphorous pesticide analytes 60% - 130% recovery phenoxy acid herbicides 50% - 130% recovery
	anion/cation bal:	+/- 10% (0-3 meq/l), +/- 5% (>3 meq/l)
Precision:	method blank:	not detected >95% of the reported EQL
	duplicate lab RPD (metals):	0-30% (>10xEQL), 0-75% (5-10xEQL) 0-100% (<5xEQL)
	duplicate lab RPD:	0-50% (>10xEQL), 0-75% (5-10xEQL) 0-100% (<5xEQL)

QUALITY CONTROL ANALYTE SPECIFIC ACCEPTANCE CRITERIA (ASAC)

Accuracy:	spike, lcs, crm surrogate:	analyte specific recovery data <3xsd of historical mean
Uncertainty:	spike, lcs:	measurement calculated from historical analyte specific control charts

RESULT ANNOTATION

DQO:	Data Quality Objective	s:	matrix spike recovery	p:	pending
DQI:	Data Quality Indicator	d:	laboratory duplicate	lcs:	laboratory control sample
EQL:	Estimated Quantitation Limit	t:	laboratory triplicate	crm:	certified reference material
- - :	not applicable	r:	RPD relative % difference	mb:	method blank

Ivan Povolny
Quality Control (Report signatory)
ivan.povolny@labmark.com.au

Geoff Weir
Authorising Chemist (NATA signatory)
geoff.weir@labmark.com.au

Simon Mills
Authorising Chemist (NATA signatory)
simon.mills@labmark.com.au

This document is issued in accordance with NATA's accreditation requirements.

NEPC GUIDELINE COMPLIANCE - DQO

1. GENERAL

A. Results relate specifically to samples as received. Sample results are not corrected for matrix spike, lcs, or surrogate recovery data.

B. EQL's are matrix dependant and may be increased due to sample dilution or matrix interference.

C. Laboratory QA/QC samples are specific to this project.

D. Inter-laboratory proficiency results are available upon request. NATA accreditation details available at www.nata.asn.au.

E. VOC spikes & surrogates added to samples during extraction, SVOC spikes & surrogates added prior to extraction.

F. Recovery data outside GAC limits shall be investigated and compared to ASAC (historical mean +/- 3sd). If recovery data <20%, then the relevant results for that compound are considered not reliable.

G. Recovery data (ms, surrogate, crm, lcs) outside ASAC limits shall initiate an investigative action. Anomolous QC data is examined in conjunction with other QC samples and a final decision whether to accept or reject results is provided by the professional judgement of the senior analyst. The USEPA-CLP National Functional Guidelines are referred to for specific recommendations.

H. Extraction (preparation) date refers to the date that sample preparation was initiated. Note that certain methods not requiring sample preparation (eg. VOCs in water, etc) may report a common extraction and analysis date.

I. LabMark shall maintain an official copy of this Certificate of Analysis for all tracable reference purposes.

2. CHAIN OF CUSTODY (COC) & SAMPLE RECEIPT NOTICE (SRN) REQUIREMENTS

A. SRN issued to client upon sample receipt & login verification.

B. Preservation & sampling date details specified on COC and SRN, unless noted.

C. Sample Integrity & Validated Time of Sample Receipt (VTSR) Holding Times verified (preservation may extend holding time, refer to preservation chart).

3. NATA ACCREDITED METHODS

A. NATA accreditation held for each method and sample matrix type reported, unless noted below.

B. NATA accredited in-house laboratory methods are referenced from NEPC, ASTM, modified USEPA / APHA documents. Corporate Accreditation No. 13542.

C. Subcontracted analyses: Refer to Sample Receipt Notice and additional DQO comments.

LabMark PTY LTD ABN 27 079 798 397
* SYDNEY: Unit 1, 8 Leighton Place Asquith NSW 2077 * MELBOURNE: 116 Moray Street, South Melbourne VIC 3205
* Telephone: (02) 9476 6533 * Fax: (02) 9476 8219 * Telephone: (03) 9686 8344 * Fax: (03) 9686 7344

4. QA/QC FREQUENCY COMPLIANCE TABLE SPECIFIC TO THIS REPORT

Matrix: **SOIL**

Page:	Method:	Totals:	#d	%d-ratio	#t	#s	%s-ratio
1	BTEX by P&T	3	0	0%	0	0	0%
1	Volatile TPH by P&T (vTPH)	3	0	0%	0	0	0%
2	Petroleum Hydrocarbons (TPH)	3	0	0%	0	0	0%
3	Polyaromatic Hydrocarbons (PAH)	2	0	0%	0	0	0%
4	Phenols by GC/MS	1	0	0%	0	0	0%
5	Acid extractable metals (M7)	2	0	0%	0	0	0%
6	Acid extractable mercury	2	0	0%	0	0	0%
7	Moisture	3	--	--	--	--	--

GLOSSARY:

#d	number of discrete duplicate extractions/analyses performed.
%d-ratio	NEPC guideline for laboratory duplicates is 1 in 10 samples (min 10%).
#t	number of triplicate extractions/analyses performed.
#s	number of spiked samples analysed.
%s-ratio	USEPA guideline for laboratory matrix spikes is 1 in 20 samples (min 5%).

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5. THERE ARE NO ADDITIONAL COMMENTS SPECIFIC TO THIS REPORT

A. All tests were conducted by LabMark Environmental Sydney, NATA accreditation No. 13542, Corporate Site No. 13535., unless indicated below.

Laboratory QA/QC data shall relate specifically to this report, and may provide an indication of site specific sample result quality. LabMark DOES NOT report NON-RELEVANT BATCH QA/QC data. Acceptance of this self assessment certificate does not preclude any requirement for a QA/QC review by a accredited contaminated site EPA auditor, when and wherever necessary. Laboratory QA/QC self assessment references available upon request.

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* SYDNEY: Unit 1, 8 Leighton Place Asquith NSW 2077 * MELBOURNE: 116 Moray Street, South Melbourne VIC 3205
* Telephone: (02) 9476 6533 * Fax: (02) 9476 8219 * Telephone: (03) 9686 8344 * Fax: (03) 9686 7344

Laboratory Report No: E028016
Client Name: CH2M HILL Australia Pty. Ltd
Contact Name: Adam Sullivan
Client Reference Macdonaldtown Gasworks 347496

Page: 1 of 7
plus cover page
Date: 29/08/06
This report supercedes reports issued on: N/A

Final
Certificate
of Analysis

Laboratory Identification			**41278**	**41279**	**41280**	**lcs**	**mb**					
Sample Identification			DUP06	DUP07	QC02	QC	QC					
Depth (m)			--	--	--	--	--					
Sampling Date recorded on COC			16/8/06	16/8/06	16/8/06	--	--					
Laboratory Extraction (Preparation) Date			24/8/06	24/8/06	24/8/06	24/8/06	24/8/06					
Laboratory Analysis Date			26/8/06	26/8/06	26/8/06	25/8/06	25/8/06					
Method	**BTEX by P&T**	**EQL**										
E002.2	Benzene	0.2	<0.2	<0.2	<0.2	98%	<0.2					
	Toluene	0.5	<0.5	<0.5	<0.5	101%	<0.5					
	Ethylbenzene	0.5	<0.5	<0.5	<0.5	99%	<0.5					
	meta- and para-Xylene	1	<1	<1	<1	104%	<1					
	ortho-Xylene	0.5	<0.5	<0.5	<0.5	101%	<0.5					
	Total Xylene	--	--	--	--	--	--					
	CDFB (Surr @ 10mg/kg)	--	*72%*	*75%*	*75%*	*102%*	*100%*					
Method	**Volatile TPH by P&T (vTPH)**	**EQL**										
E003.2	C6 - C9 Fraction	10	<10	<10	<10	97%	<10					

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E002.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/PID/MSD.
E003.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/FID.

Laboratory Identification			**41278**	**41279**	**41280**	**lcs**	**mb**					
Sample Identification			DUP06	DUP07	QC02	QC	QC					
Depth (m)			--	--	--	--	--					
Sampling Date recorded on COC			16/8/06	16/8/06	16/8/06	--	--					
Laboratory Extraction (Preparation) Date			24/8/06	24/8/06	24/8/06	24/8/06	24/8/06					
Laboratory Analysis Date			26/8/06	26/8/06	26/8/06	26/8/06	26/8/06					
Method	**Petroleum Hydrocarbons (TPH)**	**EQL**										
E006.2	C10 - C14 Fraction	50	<50	<50	130	--	<50					
	C15 - C28 Fraction	100	<100	<100	2680	93%	<100					
	C29 - C36 Fraction	100	<100	<100	1320	--	<100					
	Sum of TPH C10 - C36	--	--	--	4130	--	--					

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E006.2: 8-10g soil extracted with 20ml DCM/Acetone (8:2). Analysis by GC/FID.

Laboratory Identification			**41278**	**41279**	**lcs**	**mb**						
Sample Identification			DUP06	DUP07	QC	QC						
Depth (m)			--	--	--	--						
Sampling Date recorded on COC			16/8/06	16/8/06	--	--						
Laboratory Extraction (Preparation) Date			24/8/06	24/8/06	24/8/06	24/8/06						
Laboratory Analysis Date			27/8/06	28/8/06	26/8/06	27/8/06						
Method	**Polyaromatic Hydrocarbons (PAH)**	**EQL**										
E007.2	Naphthalene	0.5	<0.5	<0.5	103%	<0.5						
	Acenaphthylene	0.5	<0.5	<0.5	106%	<0.5						
	Acenaphthene	0.5	<0.5	<0.5	103%	<0.5						
	Fluorene	0.5	<0.5	<0.5	108%	<0.5						
	Phenanthrene	0.5	<0.5	<0.5	109%	<0.5						
	Anthracene	0.5	<0.5	<0.5	103%	<0.5						
	Fluoranthene	0.5	<0.5	<0.5	105%	<0.5						
	Pyrene	0.5	<0.5	<0.5	102%	<0.5						
	Benz(a)anthracene	0.5	<0.5	<0.5	101%	<0.5						
	Chrysene	0.5	<0.5	<0.5	106%	<0.5						
	Benzo(b)&(k)fluoranthene	1	<1	<1	101%	<1						
	Benzo(a) pyrene	0.5	<0.5	<0.5	108%	<0.5						
	Indeno(1,2,3-c,d)pyrene	0.5	<0.5	<0.5	88%	<0.5						
	Dibenz(a,h)anthracene	0.5	<0.5	<0.5	91%	<0.5						
	Benzo(g,h,i)perylene	0.5	<0.5	<0.5	81%	<0.5						
	Sum of reported PAHs	--	--	--	--	--						
	2-FBP (Surr @ 5mg/kg)	--	*90%*	*92%*	*100%*	*103%*						
	TP-d14 (Surr @ 5mg/kg)	--	*93%*	*91%*	*97%*	*100%*						

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E007.2: 8-10g soil extracted with 20ml DCM/acetone (8:2). Analysis by GC/MS.

Laboratory Identification			**41279**	**lcs**	**mb**							
Sample Identification			DUP07	QC	QC							
Depth (m)			--	--	--							
Sampling Date recorded on COC			16/8/06	--	--							
Laboratory Extraction (Preparation) Date			24/8/06	24/8/06	24/8/06							
Laboratory Analysis Date			28/8/06	28/8/06	26/8/06							
Method	**Phenols by GC/MS**	**EQL**										
E008.2	Phenol	0.5	<0.5	79%	<0.5							
	2-chlorophenol	0.5	<0.5	82%	<0.5							
	2-methylphenol	0.5	<0.5	82%	<0.5							
	4-methylphenol	0.5	<0.5	90%	<0.5							
	2-nitrophenol	0.5	<0.5	85%	<0.5							
	2,4-dimethylphenol	0.5	<0.5	79%	<0.5							
	2,4-dichlorophenol	0.5	<0.5	85%	<0.5							
	4-chloro-3-methylphenol	0.5	<0.5	95%	<0.5							
	2,4,6-trichlorophenol	0.5	<0.5	81%	<0.5							
	2,4,5-trichlorophenol	0.5	<0.5	91%	<0.5							
	Pentachlorophenol	1	<1	60%	<1							
	Sum of reported phenols	--	--	--	--							
	2-FP (Surr @ 5mg/kg)	--	*90%*	*80%*	*74%*							
	Phenol-d5 (Surr @ 5mg/kg)	--	*91%*	*75%*	*77%*							
	2,4,6-TBP (Surr @ 5mg/kg)	--	*85%*	*79%*	*88%*							

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E008.2: 8-10g soil extracted with 20ml DCM/acetone (8:2). Analysis by GC/MS.

Laboratory Identification			**41279**	**41280**	**crm**	**lcs**	**mb**					
Sample Identification			DUP07	QC02	QC	QC	QC					
Depth (m)			--	--	--	--	--					
Sampling Date recorded on COC			16/8/06	16/8/06	--	--	--					
Laboratory Extraction (Preparation) Date			25/8/06	25/8/06	25/8/06	25/8/06	25/8/06					
Laboratory Analysis Date			26/8/06	26/8/06	26/8/06	26/8/06	26/8/06					
Method	**Acid extractable metals (M7)**	**EQL**										
E022.2	Arsenic	1	10	8	102%	94%	<1					
	Cadmium	0.1	<0.1	0.8	92%	92%	<0.1					
	Chromium	1	30	18	94%	89%	<1					
	Copper	2	2	93	95%	90%	<2					
	Nickel	1	<1	29	96%	93%	<1					
	Lead	2	16	340	89%	94%	<2					
	Zinc	5	9	400	90%	101%	<5					

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E022.2: 0.5g digested in nitric/hydrochloric acid. Analysis by ICP-MS.

Laboratory Identification			**41279**	**41280**	**crm**	**lcs**	**mb**					
Sample Identification			DUP07	QC02	QC	QC	QC					
Depth (m)			--	--	--	--	--					
Sampling Date recorded on COC			16/8/06	16/8/06	--	--	--					
Laboratory Extraction (Preparation) Date			25/8/06	25/8/06	25/8/06	25/8/06	25/8/06					
Laboratory Analysis Date			25/8/06	25/8/06	25/8/06	25/8/06	25/8/06					
Method	**Acid extractable mercury**	**EQL**										
E026.2	Mercury	0.05	<0.05	1.6	118%	110%	<0.05					

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E026.2: 0.5g digested with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS.

Laboratory Identification			**41278**	**41279**	**41280**							
Sample Identification			DUP06	DUP07	QC02							
Depth (m)			--	--	--							
Sampling Date recorded on COC			16/8/06	16/8/06	16/8/06							
Laboratory Extraction (Preparation) Date			24/8/06	24/8/06	24/8/06							
Laboratory Analysis Date			25/8/06	25/8/06	25/8/06							
Method	**Moisture**	**EQL**										
E005.2	Moisture	--	16	22	14							

Results expressed in % w/w unless otherwise specified

Comments:

E005.2: Moisture by gravimetric analysis. Results are in % w/w.

Quality, Service, Support

Report Date : 22/08/2006
Report Time : 2:19:15PM

Sample **Receipt** Notice (SRN) for **E028016**

Client Details		Laboratory Reference Information	
Client Name:	CH2M HILL Australia Pty. Ltd	**Please have this information ready when contacting Labmark.**	
Client Phone:	02 9950 0200		
Client Fax:	02 9950 0600	**Laboratory Report:**	**E028016**
Contact Name:	Adam Sullivan	**Quotation Number:**	- Not provided, standard prices apply
Contact Email:	Adam.Sullivan@ch2m.com.au	**Laboratory Address:**	Unit 1, 8 Leighton Pl. Asquith NSW 2077
Client Address:	P O Box 5392 Chatswood NSW 2067	**Phone:**	61 2 9476 6533
		Fax:	61 2 9476 8219
Project Name:	Macdonaldtown Gasworks	**Sample Receipt Contact:**	Jakleen El Galada
Project Number:	347496	**Email:**	jakleen.galada@labmark.com.au
CoC Number:	- Not provided -	**Reporting Contact:**	Jyothi Lal
Purchase Order:	- Not provided -	**Email:**	jyothi.lal@labmark.com.au
Surcharge:	No surcharge applied (results by 6:30pm on due date)		
Sample Matrix:	SOIL		
Date Sampled (earliest date):	16/08/2006	**NATA Accreditation:**	13542
Date Samples Received:	18/08/2006	**TGA GMP License:**	185-336 (Sydney)
Date Sample Receipt Notice issued:	22/08/2006	**APVMA License:**	6105 (Sydney)
Date Preliminary Report Due:	29/08/2006	**AQIS Approval:**	NO356 (Sydney)
		AQIS Entry Permit:	200409998 (Sydney)

Sample Condition:
COC received with samples. Report number and lab ID's defined on COC.
Samples received in good order .
Samples received with cooling media: Crushed ice .
Samples received chilled.
Security seals intact .
Sample container & sample integrity suitable .

Comments:

Holding Times:
Date received allows for sufficient time to meet Technical Holding Times.

Preservation:
Chemical preservation of samples satisfactory for requested analytes.

Important Notes:
Sample disposal of environmental samples shall be 31 days (water) and 3 months (soil, HN03 preserved samples) after laboratory receipt, unless otherwise requested in writing by the client. Samples requested to be held in non-refrigerated storage shall incur $5.00/ sample/ 3 months. Additional refrigerated storage shall incur $20/ sample/ 3 months. Combination prices apply only if requested. Transfer of report ownership from LabMark to the client shall occur once full and final payment has been settled and verified. All report copies may be retracted where full payment does not occur within the agreed settlement period.

Analysis comments:

Subcontracted Analyses:

Thank you for choosing Labmark to analyse your project samples.
Additional information on www.labmark.com.au

Report Date : 22/08/2006
Report Time : 2:19:15PM

Quality, Service, Support

Sample **Receipt** Notice (SRN) for **E028016**

The table below represents LabMark's understanding and interpretation of the customer supplied sample COC request. Please confirm that your COC request has been entered correctly. Due to THT and TAT requirements, testing shall commence immediately as per this table, unless the customer intervenes with a correction prior to testing.

GRID REVIEW TABLE

No.	Date	Depth	Client Sample ID	Requested Analysis: BTEX by P&T	Acid extractable mercury	Acid extractable metals (M7)	Moisture	Polyaromatic Hydrocarbons (PAH)	Phenols by GC/MS	PREP Not Reported	Petroleum Hydrocarbons (TPH)	Volatile TPH by P&T (vTPH)											
41278	16/08		DUP06	●			●	●		●	●	●											
41279	16/08		DUP07	●	●	●	●	●	●	●	●	●											
41280	16/08		QC02	●	●	●	●			●	●	●											
			Totals:	3	2	2	3	2	1	3	3	3											

Thank you for choosing Labmark to analyse your project samples.
Additional information on www.labmark.com.au

LabMark

Quality, Service, Support

Report Date : 22/08/2006
Report Time : 2:19:15PM

Sample **Receipt** Notice (SRN) for **E028016**

No.	Date	Depth	Client Sample ID	Requested Analysis: M8 - M7-T_S																			
41279	16/08		DUP07	●																			
41280	16/08		QC02	●																			
			Totals:	2																			

Thank you for choosing Labmark to analyse your project samples.
Additional information on www.labmark.com.au

Laboratory Quotation #

5/5

Job Ref: E029016.

CH2MHILL ACN 050 070 892

CHAIN OF CUSTODY RECORD

Level 7, 9 Help Street, Chatswood, NSW 2067 Australia Tel (61 2) 9950 0200 Fax (61 2) 9950 0600

COC # [redacted]

Project # 347496	~~Purchase Order #~~ SY/148/06
Project Name Macdonaldtown Gasworks	
Company Name ALS	
Project Manager or Contact & Phone # Adam Sullivan 0400 500 264	**Report Copy to:** →
Requested Completion Date: standard TAT	**Site ID** Macdonaldtown
Sample Disposal: Dispose ☑ Return ☐	

TOTAL # OF CONTAINERS

Requested Analytical Method #

Sampling Date	Sampling Time	Type	Matrix	CLIENT SAMPLE ID (9 CHARACTERS)	LAB QC	S-12	S-4	S-7	S-12	S-14A	S-19	E1026	Asbestos	HOLD
				TP14/1.0		X	X			X				X
				TP14/1.5		X		X				X		
				RP/2.0							X			
				RP/Pipe							X			
				DUP06	41278			X						
				DUP07	41279	X	X			X				
				QC02	41280	X	X							
				WO4							X			

Please send to Labmark for analysis

Preservative

QA REQUIREMENTS

Matrix Spike	☐ Yes	☐ No
Matrix Duplicate	☐ Yes	☐ No
Laboratory Duplicate	☐ Yes	☐ No
Lab Blank	☐ Yes	☐ No
Surrogate Spike	☐ Yes	☐ No
RPDs	☐ Yes	☐ No
Spike Recovery Data	☐ Yes	☐ No

LAB USE ONLY

Custody Seals	☐ Yes	☐ No
ICE	☐ Yes	☐ No

Comments	Lab ID

Sampled By and Title A. Sullivan	(Please sign and print name)	**Date/Time**	**Relinquished By** A. Sullivan	(Please sign and print name)	**Date/Time**
Received by	(Please sign and print name)	**Date/Time**	**Relinquished By**	(Please sign and print name)	**Date/Time** 18/7/16 1:15pm Sydney
Received by	(Please sign and print name)	**Date/Time** 18/7/16	**Shipped Via**		**Shipping #**

Special Instructions:

Relinquished by ALS 18-7-16 1:15pm.

Received 18/8 5:45

DISTRIBUTION: Original - LAB, Yellow - LAB, Pink - CH2MHILL

Quality, Service, Support

Report Date : 22/08/2006
Report Time : 2:19:15PM

Sample **Receipt** Notice (SRN) for **E028016**

Client Details		Laboratory Reference Information	
Client Name:	CH2M HILL Australia Pty. Ltd	**Please have this information ready when contacting Labmark.**	
Client Phone:	02 9950 0200		
Client Fax:	02 9950 0600	**Laboratory Report:**	**E028016**
Contact Name:	Adam Sullivan	**Quotation Number:**	- Not provided, standard prices apply
Contact Email:	Adam.Sullivan@ch2m.com.au	**Laboratory Address:**	Unit 1, 8 Leighton Pl. Asquith NSW 2077
Client Address:	P O Box 5392 Chatswood NSW 2067	**Phone:**	61 2 9476 6533
		Fax:	61 2 9476 8219
Project Name:	Macdonaldtown Gasworks	**Sample Receipt Contact:**	Jakleen El Galada
Project Number:	347496	**Email:**	jakleen.galada@labmark.com.au
CoC Number:	- Not provided -	**Reporting Contact:**	Jyothi Lal
Purchase Order:	- Not provided -	**Email:**	jyothi.lal@labmark.com.au
Surcharge:	No surcharge applied (results by 6:30pm on due date)		
Sample Matrix:	SOIL		
Date Sampled (earliest date):	16/08/2006	**NATA Accreditation:**	13542
Date Samples Received:	18/08/2006	**TGA GMP License:**	185-336 (Sydney)
Date Sample Receipt Notice issued:	22/08/2006	**APVMA License:**	6105 (Sydney)
Date Preliminary Report Due:	29/08/2006	**AQIS Approval:**	NO356 (Sydney)
		AQIS Entry Permit:	200409998 (Sydney)

Sample Condition:
COC received with samples. Report number and lab ID's defined on COC.
Samples received in good order .
Samples received with cooling media: Crushed ice .
Samples received chilled.
Security seals intact .
Sample container & sample integrity suitable .

Comments:

Holding Times:
Date received allows for sufficient time to meet Technical Holding Times.

Preservation:
Chemical preservation of samples satisfactory for requested analytes.

Important Notes:
Sample disposal of environmental samples shall be 31 days (water) and 3 months (soil, HN03 preserved samples) after laboratory receipt, unless otherwise requested in writing by the client. Samples requested to be held in non-refrigerated storage shall incur $5.00/ sample/ 3 months. Additional refrigerated storage shall incur $20/ sample/ 3 months. Combination prices apply only if requested. Transfer of report ownership from LabMark to the client shall occur once full and final payment has been settled and verified. All report copies may be retracted where full payment does not occur within the agreed settlement period.

Analysis comments:

Subcontracted Analyses:

Thank you for choosing Labmark to analyse your project samples.
Additional information on www.labmark.com.au

Report Date : 22/08/2006
Report Time : 2:19:15PM

Quality, Service, Support

Sample **Receipt** Notice (SRN) for **E028016**

The table below represents LabMark's understanding and interpretation of the customer supplied sample COC request. Please confirm that your COC request has been entered correctly. Due to THT and TAT requirements, testing shall commence immediately as per this table, unless the customer intervenes with a correction prior to testing.

GRID REVIEW TABLE

No.	Date	Depth	Client Sample ID	Requested Analysis: BTEX by P&T	Acid extractable mercury	Acid extractable metals (M7)	Moisture	Polyaromatic Hydrocarbons (PAH)	Phenols by GC/MS	PREP Not Reported	Petroleum Hydrocarbons (TPH)	Volatile TPH by P&T (vTPH)											
41278	16/08		DUP06	●			●	●		●	●	●											
41279	16/08		DUP07	●	●	●	●	●	●	●	●	●											
41280	16/08		QC02	●	●	●	●			●	●	●											
			Totals:	3	2	2	3	2	1	3	3	3											

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