

24 November 2015

Brian Boyd
Payce Consolidated Ltd
Level 37, Chifley Tower
2 Chifley Square
Sydney NSW 2000

Dear Brian,

Re: Technical Advice Support | Remediation Strategy 44 Wharf Road, 44a Wharf Road and 38-42 Wharf Road, Melrose Park, New South Wales 2114

1. Introduction

Senversa Pty Ltd (Senversa) was engaged by Addisons Lawyers on behalf of various Payce Consolidated Ltd (Payce) related entities to develop a remediation strategy for the following properties recently purchased by Payce (together, referred to as the Site):

- 38 – 42 Wharf Road, Melrose Park;
- 44 Wharf Road, Melrose Park; and
- 44a Wharf Road Melrose Park.

Site identification details of each property are detailed within the table below.

Site	Site Identification Details
38-42 Wharf Road	Formerly owned by Pfizer (Australia) Pty Ltd Legal Identifier: Lot 10 DP 1102001 Area: approximately 10 hectares Current Zoning: Employment 4, IN1 General Industrial (Parramatta Council LEP, 2011)
44 Wharf Road	Formerly owned by Reckitt Benckiser (Australia) Pty Ltd. Legal Identifier: Lot 1 DP 127769, Lot 2 DP 128544, Lot 6 DP 232929 and Lot 11 DP787611. Area: Approximately 14 hectares. Current Zoning: Employment 4, IN1 General Industrial (Parramatta Council LEP, 2011)
44a Wharf Road	Formerly owned by Big Sister Foods Pty Ltd Legal Identifier: Lot 12 DP787611 Area: Approximately 2 hectares. Current Zoning: Employment 4, IN1 General Industrial (Parramatta Council LEP, 2011)



2. Previous Investigations

In developing this remediation strategy, Senversa undertook a review of the following previous investigations and correspondence relating to site contamination investigation and remediation works previously undertaken within the Site:

- DJ Douglas and Partners Pty Ltd (Douglas), 1992. Preliminary Soil and Soil Gas Sampling, 44 Wharf Road, Ermington, NSW, DJ Douglas and Partners Pty Ltd, October 1992
- Arrington Pty Ltd (1993); Contractors Certificate, Inflammable Liquid Act 1915 Underground Tanks (Arrington 1993)
- Pfizer Pty Ltd (1994); Letter to NSW WorkCover Authority (Pfizer 1994)
- Groundwater Technology Australia Pty Ltd (1994); Underground Storage Tank Removal and Abandonment, Pfizer Pty Ltd, Wharf Road West Ryde, NSW, 2114 (Groundwater Technology 1994)
- Douglas Partners (1996); UST Preliminary Contamination Assessment (Douglas Partners 1996)
- Fluor Daniel GTI (Australia) Pty Limited (GTI), 1998. Environmental Site Assessment, Reckitt and Coleman Aerosols Factory, 44 Wharf Road Ermington. August 1998.
- Golder Associates (1998); Phase 2 Environmental Assessment 12 Wharf Road, Ermington NSW (Golder 1998)
- Douglas Partners (1998); Report on Tankpit Validation Assessment, Reckitt and Coleman 12 Wharf Road, West Ryde (Douglas Partners 1998)
- IT Environmental (Australia) Pty Ltd (IT), 1999a. Sampling of Tankpit Excavation, Wharf Road, Ermington, NSW, IT Environmental (Australia) Pty Ltd, July 1999
- Golder Associates (1999); Soil Sampling and Analysis, 12 Wharf Road Ermington, NSW (Golder 1999)
- IT, 2000a. Groundwater Sampling, Aerosols Plant, IT Environmental (Australia) Pty Ltd, May 2000
- IT, 2000b. Results for Tank Pit Sampling at Reckitt Benckiser Site, West Ryde. IT Environmental (Australia) Pty Ltd , November 2000
- CH2MHILL Australia Pty Ltd (2002); Non Statutory Audit of Investigation and Remediation at 12 Wharf Road (CH2MHILL 2002)
- Parramatta City Council (2005); Development Application Notice of Determination (Parramatta City Council 2005)
- Golder Associates Pty Ltd (2007); Qualitative Ecological Risk Assessment of Sertraline Diphenoin and Praziquantel,(Golder 2007)
- Golder Associates (2008); Assessment of Sertraline Release from Pfizer Australia Manufacturing Plant, 38-42 Wharf Road, West Ryde New South Wales (Golder 2008)
- Noel Arnold and Associates (2013); Hazardous Materials Survey Report, Pfizer Australia Pty Ltd, 38 – 42 Wharf Road, West Ryde, NSW, 2144 (Noel Arnold 2013)
- WorkCover Authority (2013); Abandoning of Underground Tanks Premises 38-42 Wharf Road, West Ryde 2144 (WorkCover 2013)
- NSW EPA (2013); Pfizer Australia Pty Ltd at 38-42 Wharf Road, West Ryde (NSW EPA 2013)
- ERM (2014); Divestment Environmental Site Assessment, East Section (Administration and Commercial Operations) 38-42 Wharf Road, West Ryde, NSW Australia (ERM 2014)



- ERM (2014); Divestment Environmental Site Assessment, West Section (Administration and Commercial Operations) 38-42 Wharf Road, West Ryde, NSW Australia (ERM 2014a)
- ERM (2015); Limited Phase II Environmental Site Assessment (ERM 2015)
- ERM (2015); 38-42 Wharf Road: S60 Contaminated Land Management Act 1997 Notification
- Addisons (2015); Constant 21 Pty Ltd purchase from Pfizer ESP Pty Ltd: 38-42 Wharf Road, Melrose Park, Bore Licence No 10BL605685 (Addisons 2015)
- Pfizer (undated); Re DECC Report reference number: 100269, POEO licence number: 2838
- EnRiskS (2015): Human Health and Ecological Risk Assessment – Residential SSTL Report 6 February 2015.
- Trace Environmental (2015); Detailed Site Investigation, 44A Wharf Road, Melrose Park, NSW
- Senversa Pty Ltd (2015) *Technical Advice Support | Review of Previous Investigations, 38-42 Wharf Road (Pfizer), West Ryde, NSW*, issued 29 October 2015.
- AECOM, 2012 Phase 3 Environmental Site Assessment (ESA), 44 Wharf Road West Ryde, NSW. 12 November 2012 (AECOM2012)
- AECOM, 2013. Underground and Aboveground Storage Tank Remedial Action Plan (UST/AST RAP) 44 Wharf Road, West Ryde, NSW, 10 October 2013
- AECOM, 2013. Data Gap Investigation Sampling Analysis and Quality Plan DGI SAQP, 44 Wharf Road, West Ryde, NSW, 3 August 2014
- AECOM, 2014. Data Gap Investigation 44 Wharf Road, West Ryde, NSW – Issued 3 Jun 2014
- AECOM Selected Underground and Above ground Storage Tank – Factual Characterisation Report. AECOM 18 March 2014
- AECOM Australia Pty Ltd (2015) *Remedial Action Plan: Reckitt Benckiser Former Aerosols Factory and Pfizer Car Park*, issued 16 October 2015

3. Background

Previous investigations undertaken within the Site identified the presence of the following known and potential contamination associated with historical land use practices undertaken within the Site and surrounding properties.

Media	Identified Contamination
Soil	<ul style="list-style-type: none">• Pharmaceuticals (sertraline, diphentoin and praziquantel) within surface soils related to historical industrial leaks / spills.<ul style="list-style-type: none">▪ Senversa notes that previous investigations identified offsite migration of pharmaceutical products to the adjacent Archer Creek.• Total recoverable hydrocarbons (TRH) associated with former ASTs / USTs within the Site.• Fill material of unknown origin located within backfilled tank pits and underlying building structures.<ul style="list-style-type: none">▪ Senversa notes that non analysed rubble was sourced from within the site boundary and utilised as backfill within UST tank pits following excavation and removal of tanks• Potential biological, nutrient and chemical contamination associated with the onsite trade waste and effluent treatment system.• Potential for chemical contamination (sulphur dioxide, treatment oils, ethanol etc.) associated with onsite USTs and ASTs



Media	Identified Contamination
Groundwater	<ul style="list-style-type: none"> Total recoverable hydrocarbons (TRH) associated with former ASTs / USTs within the Site, including a limited amount of light non-aqueous phase liquid (LNAPL). Chlorinated solvents and potential dense non-aqueous phase liquid (DNAPL) associated with former industrial processes on adjacent properties. Potential contamination associated with onsite trade waste effluent treatment.
Building Structures	<ul style="list-style-type: none"> Hazardous materials (asbestos, PCBs etc) associated with building construction materials.

Figure 1 presents the summary of identified contamination and areas of concern across the entire Site.

A summary of previous investigations and identified data gaps was undertaken by Senversa (October 2015) and is presented within Attachment A.

A more detailed Conceptual Site Model (CSM) will be developed during preparation of the Sampling and Analysis Quality Plan (SAQP) and refined / updated during subsequent phases of the investigation, to aid in the development of this remediation strategy a preliminary CSM is presented below.

Consideration	Detail
Potential On-site Sources of Contamination	<p>Potential on-site sources of contamination include:</p> <ul style="list-style-type: none"> Total recoverable hydrocarbons (TRH) associated with former ASTs / USTs within the Site, including a limited amount of light non-aqueous phase liquid (LNAPL). Chemical contamination of groundwater from onsite storage of various chemicals (ethanol, treatment oils etc.). Pharmaceuticals (sertraline, diphenoin and praziquantel) within surface soils related to historical industrial leaks / spills. Fill material of unknown origin located within backfilled tank pits and underlying building structures. Potential biological, nutrient and chemical contamination associated with the onsite trade waste and effluent treatment system. Potential for chemical contamination (sulphur dioxide) associated with storage tanks located within 44A Wharf Road. Potential surface contamination of hazardous materials (asbestos, PCBs etc.) associated with building construction materials. Potential contamination associated with the use of pesticides / herbicides within adjacent ornamental planting areas.
Potential off-site Sources of Contamination	<p>Potential off-site sources of contamination include:</p> <ul style="list-style-type: none"> Chlorinated solvents and potential dense non-aqueous phase liquid (DNAPL) within groundwater associated with former industrial processes on adjacent properties. Potential hydrocarbon contamination within groundwater from fuel storage within adjacent properties Potential surface contamination associated with run off from trade waste / effluent treatment within adjacent properties Potential surface contamination associated with surface run-off of chemicals stored on adjacent properties.



Consideration**Detail**

Potential Contaminants of Concern

- The Contaminants of Potential Concern include:
- Chlorinated hydrocarbons (CHCs).
 - Total petroleum hydrocarbons (TPH).
 - Benzene, toluene, ethylbenzene and xylenes (BTEX).
 - Polycyclic aromatic hydrocarbons (PAH).
 - Volatile Organic Compounds (VOCs).
 - Semi Volatile Organic Compounds (SVOCs).
 - Heavy metals.
 - Organochlorine pesticides (OCP).
 - Organophosphate pesticides (OPP).
 - Asbestos.
 - Pharmaceutical products (sertraline, diphenoin and praziquantel).
 - Hazardous building materials (asbestos, PCBs etc.).

Potential Transport Mechanisms and Exposure Pathways for Contaminants

- The potential transport mechanisms include:
- Inhalation and incidental ingestion of airborne contaminated dust and asbestos fibres.
 - Dermal contact with contaminated soils.
 - Transport of contamination through surface water flows.
 - Transport of contamination to underlying groundwater aquifers.
 - Transport of contaminants through mechanical transport.

Potential Receptors of Contamination

- The potential receptors identified include:
- Adjacent environmental receptors.
 - Human receptors within adjacent residential and commercial properties.
 - Commercial workers and other site users.
 - Workers carrying out installation or maintenance works within the Site.
 - Future construction workers during site redevelopment

Qualitative Risk

Based on the review of previous reports and in consideration of the nature and extent of potential contamination within the Site and the proposal to redevelop the site to a more sensitive land use, Senversa considers that the Site poses a medium risk to human and environmental receptors. As such additional investigation works and site remediation are required to facilitate development.

Recommendations

It is the opinion of Senversa that, from a chemical contamination perspective the Site can be made suitable for the proposed land use. However, remediation of identified contamination and further investigation of areas containing data gaps should be undertaken

During demolition of building structures, a Construction Environmental Management Plan (CEMP) containing the requirements for any further remediation / investigation underlying building structures and an expected and unexpected finds protocol should be developed to manage environmental risk during demolition.



It is the understanding of Senversa that Payce are seeking to redevelop the site to a commercial / high density residential mixed use. As such potential / identified contamination at the site requires investigation, management and remediation to facilitate development and ensure risks to human health and / or the environment are acceptable.

Senversa has therefore prepared this remediation strategy to provide Payce with an overview of the required remedial process to remediate / manage onsite contamination to facilitate development.

4. Objectives

The objective of this remediation strategy is to provide a high level outline of the requirements for future investigation and remedial works to render the site suitable for mixed-use residential land use and to support an application to rezone the area to that use. The works are intended to comply with section 4 of NSW EPA (1998) Managing Land Contamination, Planning Guidelines SEPP 55 - Remediation of Land..

- It should be noted that prior to the commencement of remedial works within the Site a detailed Remediation Action Plan (RAP) should be prepared as outlined within Section 5.0.
- Senversa notes that a RAP has been prepared and endorsed for the identified chlorinated solvent plume located within part of the whole site that is RB's former aerosols plant and a small section of the adjacent car park to render that area suitable for commercial / industrial land use. It is the opinion of Senversa that this RAP requires update / modification to reflect the additional remediation potentially required for residential land use and CoPCs not associated with the identified contaminated groundwater plume.

5. Remediation Strategy

The following sections summarise the strategy for managing contamination within the Site. In preparing this remediation strategy Senversa considered the following key attributes:

- Likely vertical and lateral extent of known and potential contamination.
- Potential effectiveness on the reduction of contamination.
- Overall potential protection of human health and the environment.
- Compliance with regulations/Australian standards and potential community acceptance, including the requirement, in due course, for a NSW EPA accredited contaminated sites auditor to provide a Section A Site Audit Statement, in line with the Contaminated Land Management Act 1997 (the CLM), certifying the site as suitable for a mixed use development.
- Evaluation of short term effectiveness.
- Evaluation of long term effectiveness.
- Implementability (including assessment of potential constraints).
- Cost.

It is also noted that certain stages of investigation and / or site remediation may be undertaken during demolition of the Site and therefore managed under a Construction Environmental Management Plan (CEMP). The specific details relating to the CEMP are detailed below.

It is understood that Payce has commissioned NSW EPA accredited contaminated sites auditor Mr Andrew Kohlrusch (the Auditor) to audit the Site in line with the CLM.



Hazardous Materials Survey

Prior to the demolition of onsite building structures a hazardous materials survey should be undertaken to identify and record the location and extent of hazardous building materials (asbestos, PCBs etc.) that may require specific consideration / management during demolition works.

The hazardous materials survey should be undertaken by a suitably qualified occupational hygienist and include the following:

- Review of available registers of hazardous materials.
- Intrusive inspection of onsite building materials.
- Sample collection of potential hazardous materials for subsequent laboratory analysis.
- Collection of photographs and GPS co-ordinates of all potential identified hazardous materials.
- Preparation of a report detailing the specific location, extent and management requirements for identified hazardous materials.

The outcomes of the hazardous materials survey should also be included within the CEMP (detailed below) and be used to inform potential requirements for remediation and / or additional investigation (where necessary).

Additional Investigation

Following a review of previous investigations it is the opinion of Senversa that additional investigation is required to inform the requirements for site remediation and meet the requirements of NSW EPA guidelines.

While the specific analytical suite and depth / location of sampling should be documented within SAQP approved by the Auditor, the following additional investigation should be considered:

- Installation of 3 – 6 groundwater wells to a depth of 15 m bgl targeting groundwater contamination adjacent to the identified chlorinated solvent plume within the western portion of the Site (Figure 1) Groundwater wells should be installed to target groundwater within the underlying sandstone so that the full extent of the plume can be delineated.
- Surface soil sampling within the former Pfizer site targeting areas of historical leaks / spills of pharmaceutical products within the north eastern portion of the Site and analytical testing appropriate to those compounds.
- Targeted soil bores / groundwater wells targeting point source contamination within the vicinity of the existing and former USTs/ ASTs, trade waste and effluent treatment areas as illustrated within Figure 1.
- Shallow soil bores across the site in a grid based approach to meet NSW sampling density guidelines. Shallow soil bores should be excavated to a minimum depth of 0.5 m past the occurrence of natural soil materials to ensure onsite fill materials are suitably characterised.

It is the opinion of Senversa that additional investigation works such as the excavation of soil bores underlying building structures may be undertaken during site demolition and should be incorporated into a CEMP.

While Senversa has prepared a preliminary CSM (above) the CSM should be further refined within the SAQP and upon completion of additional investigation works. This will outline the identified source, pathways and receptors within the Site to assist with assessing potential risks to human health and the environment in and development of the site wide RAP.

AECOM (2015) states that Phase 1 of its remediation of the RB impacts would be a more detailed source delineation investigation exercise. Senversa agrees with this approach and suggests that an SAQP be produced for Auditor approval.



Preparation of a Remedial Action Plan

Prior to the commencement of any remediation works above and beyond that in AECOM (2015) a detailed Remedial Action Plan (RAP) specifying the specific processes, procedures, management targets and remediation end points to be adopted should be prepared by a suitably qualified environmental professional and endorsed by the Auditor.

- It should be noted that where additional investigation is required to inform identified data gaps, specific site investigation requirements may be detailed within the RAP.

The RAP would be prepared in accordance with guidelines made or endorsed by the NSW EPA and would comprise the following:

- Site Background:
 - site details;
 - future land-use;
 - potential areas of environmental concern;
 - contaminants of potential concern; and
 - remediation Acceptance Criteria (RAC);
- feasibility Study;
- remediation / additional investigation methodology;
- remediation effectiveness;
- validation requirements and reporting;
- stockpile management and sampling requirements;
- QA/QC procedures
- environmental management plan (if required);
- health and safety; and
- risk communication requirements.

As outlined above a RAP has been prepared and endorsed by a NSW EPA accredited site auditor for the identified chlorinated solvent plume located within the adjacent property to render the site suitable for commercial / industrial land use.

- It is the understanding of Senversa that the approved remedial approach involves the bulk excavation of over burden impacted soil material and underlying natural materials. The RAP states that excavated materials will either be treated for onsite beneficial re-use or disposed of off-site at a suitably licenced receiving facility.

Senversa notes that the RAP has been prepared for a small portion of the Site and that pending further investigations to close data gaps, additional RAPs may be necessary to allow site audit statement(s) to be issued declaring suitability for residential land use. It is the opinion of Senversa that additional remediation may be required on top of that proposed within the RAP to facilitate the more sensitive mixed use / residential land use and CoPCs not associated with the identified contaminated groundwater plume.



Remediation of Soil and Groundwater

While the specific requirements for site remediation will be specified within the RAP and CEMP (where necessary), following a review of previous investigations, Senversa considers that the following site remediation works will be required at the Site:

- Agreement of risk-based site specific target levels (SSTLs) as remedial criteria for the Site. These will either be as per EnRiskS (2015) or other to be determined Auditor approved SSTLs.
- Potential dense non-aqueous phase liquid (DNAPL) requires removal at source in order to prevent ongoing contribution to dissolved phase contamination. The likely remediation approach will be as outlined in AECOM (2015) and will involve the excavation of overburden soil material and underlying sandstone within the portion of the Site identified as “the RB former aerosols building and the Pfizer carpark and a combination of off-Site disposal of gross contamination and the on-Site treatment of this material via *ex-situ* remediation within the site boundary. This area is shown on Figure 1.
- Rebound and back-diffusion potential should be protected against by including:
 - organic material (bark chips) for contaminant partitioning;
 - zero valent iron for *in-situ* reduction of residual chlorinated solvents; and
 - emulsified vegetable oil (EVO) and potentially bio-augmenting with appropriate bacteria to enhance biological degradation of residual chlorinated solvents.
- Dissolved phase contamination within groundwater and outside the ‘source area’ excavation may be remediated via a combination of *in-situ* remediation techniques such as *in-situ* reduction / bioremediation or *in-situ* chemical oxidation (ISCO) to achieve Auditor approved risk based criteria.
- Contaminated fill material within the site (trade waste, effluent treatment, former UST tank pits etc.) can be excavated and disposed of off-Site to a suitably licenced receiving facility.
- Fill material identified to contain concentrations of CoPCs that pose a low risk of harm to human health or the environment may also be considered for beneficial re-use within the site in areas such as under internal roadways, public open spaces etc. (if appropriate) subject to preparation and approval of a management plan.

Preparation of a Construction Environmental Management Plan

Prior to the commencement of demolition and development works, a CEMP should be prepared and approved by the Auditor to manage the key environmental risks and document the requirements for remaining remediation / investigation and validation during each stage of the works.

Based on our understanding of the works, the works will likely involve three construction management stages (CMS) during each phase of development works, as follows:

- Work site establishment: including the establishment of temporary fencing, installation of erosion and sediment controls, and temporary signage.
- Development area works: including all works associated with the preparation of the developable portions of the Site (including demolition of existing building structures).
- Non-developable area works: including internal roadways, open spaces and easements and boundary areas.



The CEMP for the project will include the following key information:

- Detailed descriptions of work methodologies (to be developed in consultation with the engaged contractor), for each CMS.
- Specific requirements for additional investigation within areas such as underlying building footprints etc.
- Details on the “Responsibilities and Authorities of Project Personnel”.
- Competence, training and awareness, including details on the site inductions, site specific training (e.g. for works associated with CMS 2 and CMS 3).
- Communications and complaint management protocols.
- Specific methodologies for soil /sediment management and unexpected finds protocols.
- Specific details on the “Inspection, Auditing, Monitoring and Document Review”.
- Details on practical operational control including hold points and emergency and spill management protocols.
- Details on the requirements for management of asbestos removal from the Site.

The CEMP excludes work to be conducted by AECOM (such as chlorinated solvent source delineation) as this likely to precede it by some way, the outcomes however, will be taken account and incorporated where necessary into the management requirements specified within the CEMP.

6. Validation

The outcome of all investigation, demolition and remediation activities will be documented in a Remediation Validation Report for Auditor approval. At this stage this may be separated into two elements:

1. a demolition and bulk earthworks validation report provided on completion of all elements of excavation and remediation stages, or at stages thereof, for Auditor approval; and
2. a medium term groundwater validation exercise comprising the monitoring of groundwater quality for a period after completion of physical remedial works to confirm that the Auditor approved risk based criteria have been met and to assess the potential for on-going natural attenuation. If low and acceptable concentrations of chlorinated solvents remain in groundwater that preclude beneficial re-use for abstraction then a groundwater exclusion zone will be determined using an Auditor approved methodology likely to comprise an element of fate and transport modelling.



7. Closure

As outlined above, it is the understanding of Senversa that Payce is seeking to develop the Site to a commercial / residential mixed use development.

Whilst we note that a number of areas within the Site require additional investigation and remediation to enable this development, Senversa considers that the above strategy will enable the development to proceed and a Section A Site Audit Statement to be produced by the Auditor certifying the site as suitable for mixed use development.

If you have any comments or questions, please to contact the undersigned at Jason.clay@aecom.com or via mobile on 0410 431 674

Yours sincerely,
On Behalf of **Senversa Pty Ltd**

Jason Clay
Senior Principal

PL/JC

Technical Limitations and Uncertainty –

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Figure



Path: Y:\16_GIS\Jobs\S11520_MELROSE-PAYCE_TECH_SUPPORT\MXDs\11_Working\MXD\S11520_XX_F001_Site Plan.mxd

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Address: Ground Floor, 51 Clarke Street,
Southbank VIC 3006
Phone: (03) 9606 0070
Fax: (03) 9606 0074
Website: www.senversa.com.au

- Legend**
- Former Site Boundary
 - Melrose Park Site
 - Hazardous Building Material
 - Soil Remediation
 - Groundwater Remediation

Notes:
Cadastre and road data sourced from land.vic.gov.au (DEPI)
Aerial imagery sourced from Neemap Pty Ltd

Designed:	P. Limage	Date:	18/11/2015
Drawn:	M. Byrne	Revision:	0
Checked:	.	Scale:	1:3,000 (A3)
File:	S11520_XX_F001_Site Plan		

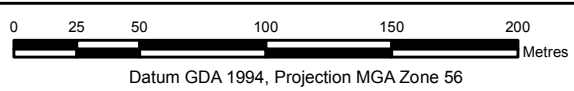


Figure No:	1
Title:	Remediation Strategy
Project:	Project
Location:	Wharf Road, Melrose Park NSW
Client:	Payce Limited



Attachment A – Review of Previous Investigations

29 October 2015

Brian Boyd
 Payce Consolidated Ltd
 Level 37, Chifley Tower
 2 Chifley Square
 Sydney NSW 2000

Dear Brian,

Re: Technical Advice Support | Review of Previous Investigations
38-42 Wharf Road (Pfizer), West Ryde, NSW – Subject to Legal and Professional Privilege

1. Introduction

Senversa Pty Ltd (Senversa) was engaged by Addisons on behalf of various Payce related entities to undertake a review of previous investigations undertaken within the former Pfizer Australia Pty Ltd (Pfizer) 38-42 Wharf Road property, located in Melrose Park, New South Wales (NSW). The reports are listed in Schedule A and the review of these documents is provided in Schedule B.

2. Recommendations

Following a review of previous investigations undertaken within the Site and adjacent properties and subsequently identified data gaps it is the opinion of Senversa that the following works should be undertaken prior to development works being undertaken within the Site.

The below recommendations have been separated into works that are required immediately to close off data gaps that may have a material effect on site development and investigation works that may be completed at a later stage during site development.

Timing	Recommended Scope
Immediate Investigation Requirements	<p>A review of previous investigation indicates that groundwater monitoring wells installed as part of the ERM (2015) assessment works targeting potential contamination from the adjacent site are located outside the potential groundwater plume area.</p> <p>As such there is the potential for contamination to be present within the Site boundary that may affect the suitability of the Site for the potential development and / or require remediation prior to development works occurring.</p> <p>As such it is the opinion of Senversa that additional groundwater wells are required to fully delineate the lateral extent of the plume in the sandstone and meet the expressed data requirements of Christina Low at the EPA. These should comprise:</p> <ul style="list-style-type: none"> 3-6 groundwater wells installed to a depth of 15 m bgl targeting groundwater contamination within underlying sandstone material.



Timing**Recommended Scope**

Subsequent investigations prior to re-zoning / development

Prior to re-zoning / development of the Site, additional assessment works will be required within the Site to meet relevant NSW regulatory guidelines.

Following a review of previous investigations, it is the opinion of Senversa that a number of areas within the Site (i.e. beneath existing building structures) have not been investigated and the general site area has not been investigated at a density that meets relevant sampling design criteria for a residential setting. Senversa also notes that previous investigations undertaken within the Site have not analysed samples for the full range of CoPCs identified from historical land use practices etc. (pharmaceuticals etc.).

A Detailed Site Investigation (DSI) should be undertaken within the Site including the following:

- A review of previous investigations undertaken within the Site to determine relevant CoPCs and areas requiring additional investigation to meet NSW sampling design guidelines.
 - Preparation and site auditor approval of a Sampling, Analysis Quality Plan (SAQP) detailing the specific requirements for the investigation works.
 - Excavation of soil bores/ test pits and groundwater wells targeting areas identified to have not been assessed and a general grid based approach to provide appropriate site coverage.
 - Preparation and site auditor approval of a DSI report specifying (where possible) that the Site is suitable for the proposed development.
 - Preparation and site auditor approval of a remedial action plan (RAP) to render the Site suitable for the proposed development. This should include a Construction Environmental Management Plan (CEMP) enable remediation works to be undertaken during demolition of the Site i.e. to remove asbestos, PCBs etc.. The CEMP would specify the site specific requirements during demolition of onsite building structures and outline the requirements for sample collection to determine the suitability of the Site for the development.
-

If you have any comments or questions, please to contact the undersigned at Jason.clay@aecom.com or via mobile on 0410 431 674.

Yours sincerely,
On behalf of **Senversa Pty Ltd**

Jason Clay
Senior Principal

Technical Limitations and Uncertainty –

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Schedule A: Previous Investigations

Senversa undertook a review of the following previous investigations and correspondence relating to site contamination investigation and remediation works undertaken within the Site:

- Arrington Pty Ltd (1993); Contractors Certificate, Inflammable Liquid Act 1915 Underground Tanks (Arrington 1993)
- Pfizer Pty Ltd (1994); Letter to NSW WorkCover Authority (Pfizer 1994)
- Groundwater Technology Australia Pty Ltd (1994); Underground Storage Tank Removal and Abandonment, Pfizer Pty Ltd, Wharf Road West Ryde, NSW, 2114 (Groundwater Technology 1994)
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- NSW EPA (2013); Pfizer Australia Pty Ltd at 38-42 Wharf Road, West Ryde (NSW EPA 2013)
- ERM (2014); Divestment Environmental Site Assessment, East Section (Administration and Commercial Operations) 38-42 Wharf Road, West Ryde, NSW Australia (ERM 2014)
- ERM (2014); Divestment Environmental Site Assessment, West Section (Administration and Commercial Operations) 38-42 Wharf Road, West Ryde, NSW Australia (ERM 2014a)
- ERM (2015); Limited Phase II Environmental Site Assessment (ERM 2015)



- ERM (2015); 38-42 Wharf Road: S60 Contaminated Land Management Act 1997 Notification (ERM 2015a)
- Addisons (2015); Constant 21 Pty Ltd purchase from Pfizer ESP Pty Ltd: 38-42 Wharf Road, Melrose Park, Bore Licence No 10BL605685 (Addisons 2015)
- Pfizer (undated); Re DECC Report reference number: 100269, POEO licence number: 2838 (Pfizer 2007)
- Trace Environmental (2015); Detailed Site Investigation, 44A Wharf Road, Melrose Park, NSW (Trace 2015)

Schedule B: Summary of Previous Investigations

Report ID	Objectives and Scope	Results and Discussion	Data Gaps
12 Wharf Road			
Douglas Partners 1996	<ul style="list-style-type: none"> • Douglas Partners provided a letter report (ref # 24204) to Reckitt and Coleman detailing the findings of investigation works undertaken within the vicinity of one fuel and two ethanol Underground Storage Tanks (USTs). • The investigation was undertaken to determine contaminant levels within the vicinity of the USTs and involved the excavation and sample collection from 4 soil bores. 	<ul style="list-style-type: none"> • Fill materials were encountered within bores 2, 3 and 4 • Groundwater was observed at a depth of between 1.5 and 2.5 m bgl (within fill materials) and was assumed to be indicative of a perched aquifer and not representative of regional groundwater conditions • An organic odour (non-hydrocarbon) was detected within bore 3 • TPH C6-C9 was detected above LOR within soil bores 2, 3 and 4 to a maximum concentration of 280 mg/kg (BH3/3.0) • Based on laboratory analysis of CoPCs Douglas and Partners concluded that while TPH C6-C9 was present within 3 soil bores, it was unlikely to be attributable to onsite petroleum or ethanol storage • Following onsite interviews it was the opinion of Douglas Partners that the identified concentrations of TPH C6-C9 were likely to be attributed to historical storage of perfume 	<ul style="list-style-type: none"> • Soil sampling locations were limited in location • Bores 2, 3 and 4 were terminated within fill materials • Groundwater was not investigated as part of the assessment • Ethanol was only analysed from bores 2 and 3



Report ID	Objectives and Scope	Results and Discussion	Data Gaps
Golder 1998	<ul style="list-style-type: none"> • Golder was engaged by Pfizer to undertake a Phase 2 Environmental Assessment of the Site. • The objective of the assessment was to provide Pfizer with more information on potential contamination identified within previous reports (Dames and Moore Phase 1 ESA (1996). <ul style="list-style-type: none"> ▪ Senversa notes that this report was not provided for review • Golder undertook the following scope of works <ul style="list-style-type: none"> ▪ Review existing information and undertake an inspection of the Site ▪ Drilling of ten boreholes within the manufacturing area • Excavation of 25 test pits within “the fill area of the Site” 	<p>Results of site inspection</p> <ul style="list-style-type: none"> • Ethanol tanks within the north eastern portion of the Site were in the process of being removed. An additional tank was identified during excavation works • A bunded area was located within the south western portion of the site adjacent to the former pine oil tank. No staining was noted within this area • The concrete floor in the vicinity of the former castor oil tank was stained with greasy residues • A transformer was located north of the UST area • Mounded fill was identified within the south western portion of the vacant area of the Site. The fill was thought to be from early construction activity within the Site and the adjacent Pfizer facility <p>Results of Intrusive Investigation</p> <ul style="list-style-type: none"> • Fill was identified to a maximum depth of 3.5 m • PID readings returned a maximum concentration of 35.2ppm (BH7 located adjacent to former pine oil tank). • All collected samples returned concentrations of CoPCs less than the adopted assessment criteria with the exception of 1 surface sample from BH7 (0.3 m bgl) which returned concentrations of TPH C10-C36 of 2160 mg/kg 	<ul style="list-style-type: none"> • Limited soil sampling locations adjacent to transformers and USTs • Limited laboratory analysis was undertaken with only 4 samples for OCP/OPP, 1 sample for Chlorinated Hydrocarbons and 2 samples for PAH • No testing for asbestos in fill materials • Groundwater was not investigated as part of the assessment



Report ID	Objectives and Scope	Results and Discussion	Data Gaps
Douglas Partners 1998	<ul style="list-style-type: none"> The report details the methodology and results of the tank pit validation works undertaken at 12 wharf road, West Ryde Following removal of the 2 onsite USTs and associated infrastructure a total of 13 soil samples were collected from the tank pit and excavated material (8 from base and walls + 4 from stockpile) 	<ul style="list-style-type: none"> Golder concluded that the risk of significant contamination within the Site was considered to be low in the context of ongoing industrial land use, however should a more sensitive land use be prepared Golder recommended that additional assessment be undertaken. Approximately 1000 – 2000 L of orange / brown water was encountered at 2.5 m bgl within tank pit. Water was noted to have a “pungent fermenting odour”. The water was removed and allowed to “remediate” for 2 weeks. Following which a second set of soil samples were collected from the base (additional 2 samples) No visual indication of hydrocarbon impact with soil material A “sweet smelling” odour within excavated materials Laboratory analysis of collected samples returned concentrations less than the adopted site assessment criteria with the exception of VS8 (1st round) and VS14 (second round) Douglas and Partners determined that the residual impact (140 mg / mg C6-C9) was considered low risk and would “self-remediate” over time and that the site was considered suitable for ongoing industrial use Should a more sensitive land use be prepared Douglas Partners recommended that additional assessment be undertaken. 	<ul style="list-style-type: none"> Groundwater was estimated to be at a depth of 3 – 6 m bgl however no consideration of impact to groundwater was made No record of backfill material used to re-instate the excavation or fate of excavated tank pit materials
Golder 1999	<ul style="list-style-type: none"> The assessment was undertaken following demolition of the “main building” and conversion of the area to landscaped open space 	<ul style="list-style-type: none"> Fill was encountered to a maximum depth of 0.6 m bgl PID screening did not indicate the presence of volatile hydrocarbons 	<ul style="list-style-type: none"> Assessment criteria used NEPM open space criteria Test pits excavated to 1.0 m bgl



Report ID	Objectives and Scope	Results and Discussion	Data Gaps
	<ul style="list-style-type: none"> The scope involved the excavation of 20 test pits and the collection and analysis of soil samples Test pits were excavated to an approximate maximum depth of 1.0 m bgl 	<ul style="list-style-type: none"> Laboratory analysis of collected samples returned concentrations of all CoPCs less than the adopted site assessment criteria 	<ul style="list-style-type: none"> Groundwater was not assessed
CH2MHILL 2002	<ul style="list-style-type: none"> CH2MHILL (Ross McFarland) undertook a non-statutory audit of the investigation and remediation works undertaken at the Site. The review included a review of the following reports <ul style="list-style-type: none"> Dames and Moore (1996) Draft Phase 1 Environmental Assessment Golder 1998 Golder 1999 Metric Calibration Services (1997) Underground Fuel Storage tank located at 12 Wharf Road, West Ryde Douglas Partners 1998 Noel Arnold and Associates 1999 Noel Arnold and Associates (1999) Asbestos Removal Project – Consumer Health Care Building, 38-42 Wharf Road, West Ryde 	<ul style="list-style-type: none"> Whilst minor non-conformances were noted (primarily QA/QC), the audit concluded that there did not “appear to be any unacceptable risks associated with the proposed continuation of commercial / industrial uses at the site” The audit also noted that the groundwater quality had not been assessed and recommended future investigation of groundwater to be undertaken 	<ul style="list-style-type: none"> Groundwater was not assessed Senversa have not been provided the following reports for review <ul style="list-style-type: none"> Metric Calibration Services (1997) Underground Fuel Storage tank located at 12 Wharf Road, West Ryde Noel Arnold and Associates (1999) Asbestos Removal Project – Consumer Health Care Building, 38-42 Wharf Road, West Ryde
38 – 42 Wharf Road			
Arrington Pty Ltd (1993)	<ul style="list-style-type: none"> Contractor certificate for the removal of USTs including <ul style="list-style-type: none"> 1 x 25,000L 2 x 13,700L 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> NA



Report ID	Objectives and Scope	Results and Discussion	Data Gaps
Groundwater Technology 1994	<ul style="list-style-type: none"> • Groundwater Australia Pty Ltd supervised the removal and abandonment of 5 USTs within the Site. <ul style="list-style-type: none"> ▪ Gauging of all USTs to determine the potential for fluids to be present ▪ A soil gas survey in the vicinity of the diesel and heating oil tanks (beneath the staff canteen and switch room) ▪ Excavation of 2 hand auger holes adjacent to the USTs ▪ Excavation and removal of 3 USTs adjacent to Main Drive ▪ Concrete filling and abandonment of 2 USTs near the staff canteen and switch room 	<ul style="list-style-type: none"> • All tanks were drained of liquid and disposed of at worth recycling • VOCs were recorded as non-detect of low concentrations during the soil gas survey • Groundwater was estimated to be at between 10 and 20 m in depth • Three USTs were removed from the Site. Tanks 4 and 5 located adjacent to the staff canteen were abandoned <i>in-situ</i> via filling with a concrete slurry • Validation samples returned concentrations of CoPCs less than LOR or the adopted site assessment criteria • Tank pit sands were landfarmed, sampled and then re-instated within the excavation. Backfill included concrete anchors and general rubble from the site surface 	<ul style="list-style-type: none"> • Backfill material included non-assessed bricks and rubble from the site • Drilling was terminated at 3.0 m bgl in moist clay however groundwater was not considered to be present until 10 m bgl • Groundwater was not assessed during investigation works
Pfizer 1994	<ul style="list-style-type: none"> • Pfizer provided written advice of UST removal by Groundwater Technology to the WorkCover Authority 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • The letter stated the area was backfilled with clean material. However onsite rubble was used. No assessment was undertaken of the rubble
Golder 2007	<ul style="list-style-type: none"> • Following detection of Sertraline, Dipheptoin and Praziquantel (formulated on the Pfizer site) by DECC in Archer Creek, Golder undertook an assessment to address potential ecological risk • The assessment comprised a desktop assessment of the CoPCs and relevant exposure scenarios 	<p>Based on the reviewed data Golder concluded the following:</p> <ul style="list-style-type: none"> • Sertraline was considered to have impacted aquatic plants in the Archer Creek due to its toxicity. It was assessed as having a low potential to persist and low to moderate risk to bio-accumulate and therefore have limited chronic effects • Dipheptoin was considered to have a low potential to bio-accumulate and was considered unlikely to have impacted fish / invertebrates 	<ul style="list-style-type: none"> • Pathways by which the chemicals reached Archer Creek were not understood • Due to heavy rainfall in 2007 (time of incident) Golder concluded that dilution of CoPCs may have occurred or have resulted in flushing out of Archer Creek. No assessment data was used to support this • The risk assessment was qualitative with no ecotoxicological data being collected and as such no assessment was made of the reported sediment concentrations in Archer Creek



Report ID	Objectives and Scope	Results and Discussion	Data Gaps
Golder 2008	<ul style="list-style-type: none"> A damaged trade waste line was identified in 2007 that was confirmed to be the source of an accidental release of Sertraline, Diphentoin and Praziquantel to the adjacent Archer Creek Enviroacific undertook remediation of the area in 2007 with periodic inspections by Golder. Excavated material was placed in drums and disposed offsite Following remediation works Golder undertook validation sampling via the collection of 16 soil samples (surface only) Samples were submitted for laboratory analysis of Sertraline only 	<ul style="list-style-type: none"> Praziquantel was considered to have a low potential for bioaccumulation and was considered unlikely to have impacted invertebrates / fish in Archer creek. <p>Golder recommended ongoing monitoring of Archer Creek to ensure the source has been appropriately identified and managed</p> <ul style="list-style-type: none"> Following remediation works Golder collected validation samples, on the 30th August, and 20th September to a depth of 0.5 m bgl 30th August results returned concentrations of Sertraline ranging from less than LOR to 4270 mg/kg. Highest reported concentrations were located beneath the suspended concrete floor (4270 mg/kg) and in a location adjacent to the mini conveyor used to transport soil during remediation below the building exterior (1750 mg/kg) Results from samples collected from surface soil adjacent to the storm water pit downgradient of the spill are we all less than LOR Samples collected on 20th September ranged from 0.6 to 61 mg/kg Golder concluded that remediation works removed all “visible traces” of residues Elevated concentrations recorded during validation sampling were not considered to present a risk to human health as they were located beneath a building and a turfed area 	<ul style="list-style-type: none"> Groundwater was not assessed during investigation works Validation samples were only analysed for Sertraline While the half-life of sertraline was estimated at 40 days, elevated concentrations were left <i>in-situ</i> (under building and turfed area)



Report ID	Objectives and Scope	Results and Discussion	Data Gaps
Noel Arnold and Associates (2013)	<ul style="list-style-type: none"> Noel Arnold undertook a hazardous materials survey of 12 Wharf Road including a visual assessment for asbestos and testing of lead paints, synthetic mineral fibre (SMF) and PCBs in light fittings 	<ul style="list-style-type: none"> Investigation found non friable asbestos and SMF in several building structures and PCBs within the WTI and clinical operations demountable No lead paint or friable asbestos was detected 	<ul style="list-style-type: none"> NA
WorkCover (2013) Letter	<ul style="list-style-type: none"> WorkCover letter to Pfizer (March 2013) noting that the underground tanks at the site were no longer in use and requesting information within 3 months on the status of the tanks (abandoned, decommissioned etc) 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> NA
NSW EPA (2013) Letter	<ul style="list-style-type: none"> NSW EPA letter confirming receipt of the Site Contamination Notification dated 20 May 2013 and ERM report (March 2013) in accordance with Section 60 of the CLM Act at the site identified as 38 – 42 Wharf Road 	<ul style="list-style-type: none"> Letter advises that the adjacent Reckitt Benckiser Pty Ltd will have additional investigation undertaken in August 2013 to delineate extent of identified contamination. The Pfizer site has been added to the list of notified site on the EPA website 	<ul style="list-style-type: none"> Senversa has not been provided with the contamination notification or ERM March 2013 report for review
ERM (2014)	<ul style="list-style-type: none"> ERM undertook a divestiture environmental assessment of 38 – 42 Wharf Road East Section that included the following scope of works <ul style="list-style-type: none"> An onsite inspection A review of historical information A review of publically available information 	<ul style="list-style-type: none"> ERM noted that the site had been notified to the EPA due to the adjacent properties Conclusions state that tanks have been removed offsite however a single 5000L UST was abandoned within the Site and remains <i>in-situ</i> 	<ul style="list-style-type: none"> Background review of previous reports only included Golder 1998, Golder 1999 and CH2MHILL 2002 A review of the hazardous materials report stated that no PCBs were detected at the site (incorrect) No information relating to backfilling of USTs with untested materials were noted No intrusive works undertaken within the assessment or recommended for future works
ERM 2014a	<ul style="list-style-type: none"> ERM undertook a divestiture environmental assessment of 38 – 42 Wharf Road West Section that included the following scope of works <ul style="list-style-type: none"> An onsite inspection 	<ul style="list-style-type: none"> ERM noted that the site had been reported to the EPA due to the adjacent property and note that the presence of impacted groundwater may impact re-zoning plans 	<ul style="list-style-type: none"> Background review of previous reports only included Groundwater Technology 1994, Golder 2007 and ERM (2014) review of Reckitt site



Report ID	Objectives and Scope	Results and Discussion	Data Gaps
	<ul style="list-style-type: none"> ▪ A review of historical information ▪ A review of publically available information 	<ul style="list-style-type: none"> • ERM noted that Class 3 substances are held at the site exceeding the requirements for placarding and therefore notification to the EPA is required • Conclusions state that tanks have been removed offsite however a single 5000L UST was abandoned within the Site and remains <i>in-situ</i> • Report discusses the detection of pharmaceuticals from historical leak and notes that following remediation and validation the SMP was prepared and to the satisfaction of the EPA with no penalties levied 	<ul style="list-style-type: none"> • ERM stated that no sources of potential impact from the current land use were identified, however contaminated groundwater from adjacent site is present • No discussion on residual pharmaceuticals within former leak area and the potential risk during divestment (soil under slab and turfed areas) • No information relating to backfilling of USTs with untested materials were noted • No intrusive works undertaken within the assessment or recommended for future works
ERM 2015	<ul style="list-style-type: none"> • ERM undertook a limited Phase 2 ESA of the site identified as 38-42 wharf road • The scope involved the following works <ul style="list-style-type: none"> ▪ Drilling 39 bores across the Site ▪ Conversion of 19 soil bores to groundwater wells ▪ Soil and groundwater sample collection • The assessment targeted the following areas <ul style="list-style-type: none"> ▪ Former UST locations within the southern portion of the Site (A1) ▪ Former UST locations within the northern portions of the Site (A2) ▪ Former Reckitt and Coleman area (A3) ▪ Site drainage features (A4) ▪ Areas potentially impacted by adjacent site (A5) ▪ PGS manufacturing area (A6) ▪ Identified chlorinated solvent plume (A7) ▪ General operational areas including grassed area (A8) 	<ul style="list-style-type: none"> • Fill material was identified to a maximum depth of 3.6 m bgl overlying natural clays, shales and sandstone • PID measurements recorded during drilling works were all less than 2 ppm with no indication of volatile organic compounds • Odours (organic, sulphur and sweet) were noted within 5 monitoring wells sampled within A1, A3, A5 and A6 • Groundwater depth ranged from 0.41 m bgl to 3.17 m bgl • Soil Results <ul style="list-style-type: none"> ▪ Asbestos was identified within 3 surface samples within A1 and A4 ▪ TRH exceeding LOR in A1 and A3 ▪ Chlorinated hydrocarbons were generally below LOR • Groundwater Results <ul style="list-style-type: none"> ▪ Toluene and Xylenes were detected with A3, A6 and A8 	<ul style="list-style-type: none"> • Soil bores across the site, no test pits to test for asbestos in fill • No assessment of former tank pit fill • Soil sampling locations appear to miss the historical pharmaceutical spill locations • No assessment for pharmaceutical products • Limited number of samples analysed for CHCs (soil) • Majority of wells installed to 7 m bgl within shallower aquifer. 4 (of 19) wells were installed at a depth of 12 m located with A5, A6 and A8 • Groundwater bores located downgradient of RB site are not located within the vicinity of the known plume from RB



Report ID	Objectives and Scope	Results and Discussion	Data Gaps
		<ul style="list-style-type: none"> ▪ Chlorinated hydrocarbons were generally below LOR ▪ Metals exceeded EILs and not attributable to background concentrations (Zinc and Chromium) were identified within A8 and A6 	
ERM (2015a) – EPA notification	<ul style="list-style-type: none"> • ERM submitted a letter to EPA requesting advice as to whether the site requires notification under Section 60 	<ul style="list-style-type: none"> • The request was based on the results of the ERM (2015). ERM concluded that the it was unlikely that the contamination would be considered significant enough to warrant regulation 	<ul style="list-style-type: none"> • Section 5.0 (of ERM 2015) <ul style="list-style-type: none"> ▪ A) No consideration of the potential impact from the historical pharmaceutical spills which were known to impact aquatic life in adjacent creek. No assessment of these substances was undertaken. ▪ B) no consideration of pharmaceuticals. Groundwater wells targeting RB migration appear to be in the wrong location for the plume ▪ C) ERM state Andrews Creek is the closest receptor, however previous investigations refer to Archer Creek
Parramatta City Council (2005)	<ul style="list-style-type: none"> • Development application – notice of determination approving the development of a 266 space car park at the rear of the site 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • NA
Addisons (2015)	<ul style="list-style-type: none"> • Addisons provided notification to the office of water of a change of site ownership in relation to bore licence 10BL605685 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • NA
Pfizer (undated letter)	<ul style="list-style-type: none"> • Pfizer notified DECC of an incident involving a pool of water containing white and pink sediment adjacent to the manufacturing building 	<ul style="list-style-type: none"> • The spill was identified residue originating from the discharge of cleaning water from the Diosna granulator 	<ul style="list-style-type: none"> • NA



Report ID	Objectives and Scope	Results and Discussion	Data Gaps
44A Wharf Road	<ul style="list-style-type: none"> • Trace undertook a Detailed Site Investigation of the Site identified as 44A Wharf Road, Melrose Park NSW. The scope included the following: <ul style="list-style-type: none"> ▪ Review of historical information and databases ▪ 20 soil bores and collection of soil samples ▪ Conversion of 6 soil bores to groundwater monitoring wells and sampling (including 1 additional existing well) 	<ul style="list-style-type: none"> • Pfizer initiated processes to ensure no further water was generated and commenced investigation and environmental assessment (Golder 2007) • Three / four USTs are located onsite. Contents are unknown (assumed to be chemical storage) A 27,000 L UST used for fuel storage was located within the northern portion of the Site • Asbestos construction materials were noted to be ageing • All CoPCs within soil and groundwater were less than LOR or the adopted site assessment criteria • Groundwater measured at 0.06 to 2.08 m bgl 	<ul style="list-style-type: none"> • Soil bores within the site (no test pits)– not suitable for asbestos assessment (body report states bores – conclusions states test pits) • SB10 and SB11 adjacent to USTs – soil samples only analysed to a maximum depth of 2.09 m bgl. Egis noted that they may have been used for chemical storage – analysis for standard suite only • No surface samples appear to have been collected from area around trade waste system • No surface samples / inspection around building for asbestos fragments from ageing materials • Sulphur dioxide was a CoPC noted within Egis 2002 (stored onsite). No testing for this material • Groundwater monitoring wells were installed within the shallow aquifer only (maximum 5.9 m bgl) • Groundwater depth of 0.06 m bgl seems unlikely to be accurate. MW7 was the existing onsite well



27 November 2015

Mr Brian Boyd
Payce Consolidated Limited
Level 37 Chifley Tower
2 Chifley Square
Sydney NSW 2000

Our ref: 210917447/interim
audit advice 1
Your ref:

Dear Brian,

Melrose Park, West Ryde, NSW
Interim audit advice – Technical Advice Support Remediation Strategy

1 Introduction

Andrew Kohlrusch of GHD Pty Ltd (an auditor accredited under the *Contaminated Land Management Act* 1997) has been engaged by Payce to conduct a site audit under the provisions of the CLM Act for the Melrose Park development, West Ryde (the site). The site comprises a number of contiguous properties at the following addresses (with former site occupants/users in brackets):

- 38 to 42 Wharf Road, West Ryde (Pfizer (Australia))
- 44 Wharf Road, West Ryde (Reckitt Benckiser (Australia))
- 44a Wharf Road, West Ryde (Big Sister Foods).

All properties are currently zoned Employment 4 IN1 General Industrial under the Parramatta LEP (2011). Payce intends to redevelop the site for residential (generally high rise apartments) and public open space. Given the former industrial uses at the properties that comprise the site, it will be necessary as part of the rezoning process for a planning authority (section 6 of State Environmental Plannign Policy 55) to consider whether the land is contaminated and if contaminated, whether the land is suitable (or can be made suitable) for the all uses under the planned rezoning.

While the engagement of a site auditor is not a requirement by a planning authority, Payce considered that early engagement of a site auditor would assist in the rezoning application given the outcomes of investigations conducted to date at the site. Further details on the nature of the investigations and the approach that is proposed to address the identified (and potential contamination) is presented in the following section.

2 Background

The site comprises a number of former industrial complexes including Reckitt Benckiser, Pfizer and Big Sister. Environmental site assessments have been conducted at these properties, some of which have identified the presence of contaminated soil, groundwater and soil vapour. The most significantly contaminated area is a chlorinated solvent plume originating in the Reckitt Benckiser site and migrating



to the east into the Pfizer property. A remedial action plan has been prepared to address the chlorinated solvent plume and is currently being audited on behalf of Reckitt Benckiser by Andrew Lau of JBS&G.

Given the industrial use of the properties that comprise the site, further investigation (and perhaps remediation apart from that proposed for the chlorinated solvent plume) may be necessary before a site audit statement can be issued declaring the suitability of the site for residential purposes. Additional investigation (and remediation if necessary) would focus (at a minimum) on former underground and above ground storage tanks, fill material and process water delivery lines.

A remedial strategy has been prepared by senversa (*Technical Advice Support Remediation Strategy 44 Wharf Road, 44a Wharf Road and 38 - 42 Wharf Road, Melrose Park, New South Wales 24 November 2015*) that outlines the scope of investigations that have been conducted at the site, the proposed remediation of known contamination and data gaps that warrant further investigation. The strategy included:

- a summary of the known areas of concern and the associated chemicals and media of concern;
- a summary of the remedial action plan that has been prepared for the Reckitt Benckiser groundwater plume, including the additional work required to define the boundaries of the plume;
- a conceptual site model that identifies the sources of contamination, the potential contaminant pathways and receptors;
- a construction environmental management plan (CEMP) to be prepared prior to demolition of site infrastructure. The CEMP will have requirements for additional assessment beneath building footprints and unexpected findings.
- objectives for additional investigation and remediation. The strategy will include hazardous buildings surveys, additional soil, groundwater or soil vapour investigations at potential areas of concern – to be supported by sampling, analytical and quality plans and preparation of remedial action plans. Following completion of remediation of identified contaminated media, validation reports will need to be prepared that document the work has met the requirements of any remedial action plan(s) and state the suitability of the site.

Senversa concluded that the strategy would enable residential to proceed and a NSW EPA site auditor to certify that the site is suitable for mixed use development (including residential and commercial premises).

3 Auditor comments

The remedial strategy prepared by senversa is a systematic, staged approach that is consistent with the data collection (and assessment) and remediation methods presented in guidelines made or endorsed by the NSW EPA.

Given there are some activities still operation on the sites, it will be more appropriate and safer if investigations (and remediation if necessary) are conducted following the site being vacated and infrastructure (including building footprints) being demolished. The CEMP will provide the necessary protocols to collect additional site data to allow conclusions to be drawn regarding site suitability.



The site audit process could form conditions of consent for subsequent development applications and can be applied to additional investigations, remediation and validation. On the basis of the information and program articulated in senversa's remediation strategy, the site can be made suitable for the proposed residential rezoning following completion of all necessary assessment, remediation and validation works.

Yours sincerely
GHD Pty Ltd

A handwritten signature in black ink, appearing to read 'Andrew Kohlrusch', written in a cursive style.

Andrew Kohlrusch

02 9239 7187