

FINAL

Voluntary Remediation Proposal for
60 Charlotte Street, Campsie NSW

Prepared for

NSW EPA on behalf of

Sunbeam Corporation Ltd

12 June 2003

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URS

13 June 2003

Project No. 31503-011-558

NSW Environment Protection Authority
59 - 61 Goulburn Street
Sydney NSW 2000

Attention: Caroline Strange

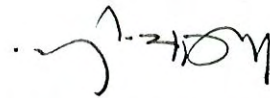
Dear Caroline,

**Subject: Voluntary Remediation Proposal
60 Charlotte Street, Campsie**

On behalf of Sunbeam Corporation and Corrs Chambers Westgarth I have pleasure in submitting the Voluntary Remediation Proposal for 60 Charlotte Street, Campsie.

Yours sincerely,

URS AUSTRALIA PTY LTD



Mike Hayter

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1.1 Proponent

The proponent is Sunbeam Corporation Ltd, ABN 45 000 006 771

1.2 Land

The land to which this proposal relates is located at 60 Charlotte Street, Campsie, NSW (Lot 1 in DP721721), shown on the attached Figures 1 and 2 and referred to in this proposal as "the site". The land is owned by Parkview Sydney Developments Pty Ltd (Parkview).

1.3 Contamination

Soil and Groundwater on parts of the site (Figures 1 and 2) is contaminated with Volatile Halogenated Compounds (VHCs) including Trichloroethene (TCE), Tetrachloroethene (PCE) and degradation bi-products including Dichloroethene (DCE) and Vinyl Chloride (VC), Petroleum Aromatic Compounds (Benzene, Toluene, Ethylbenzene and Xylene) and Petroleum Hydrocarbon Fractions – referred to in this proposal as "the contaminants".

The following Reports are relevant to the site:

- *Environmental Risk Control, ChemCARE Consulting, 14 Sept 1995;*
- *Preliminary Environmental Assessment for GUD Holdings, Dames and Moore, 5 May 1997;*
- *Preliminary Contamination Assessment of 60 Charlotte Street, Campsie, Environmental & Earth Sciences, 5 Oct 1999;*
- *Stage II Environmental Site Assessment, IT Environmental (Australia) Pty Ltd, 7 May 2001;*
- *Additional Environmental Site Assessment, IT Environmental (Australia) Pty Ltd, 7 August 2001;*
- *Soil and Groundwater Contamination Assessment, 60 Charlotte Street, Campsie, URS Australia Pty Ltd, 30 August 2002;*
- *Underground Storage Tank Removal, 60 Charlotte Street, Campsie, April 2003.*

The following is a synopsis of the present situation with regard to the contamination:

2.1 TCE Impacted Area in Northwest Section

An area in the vicinity of a former TCE storage tank on the northern perimeter of the site has been contaminated. URS investigations have delineated the area and depth impacted. The impacted area can be divided into the following two zones:

- Source Area – a localised area immediately below and in close vicinity of the original release defined by groundwater VCH concentrations exceeding about 100 mg/L and soil VCH concentrations exceeding 60 mg/kg. This zone is characterised by the possible presence of dense non-aqueous phase liquids (DNAPL) above and below the water table and by high concentration of TCE and degradation products extending from the surface in both soil and groundwater;
- Plume – a larger diffuse area extending about 60m down gradient of the source area characterised by lower and more variable concentrations of dissolved phase VCHs and degradation products ranging from 1 mg/L to 100 mg/L in the groundwater. The plume is “fed” by solution of TCE in the source and is slowly migrating and extending down gradient over time.

- Offsite migration in the upgradient direction below Troy Lane has also occurred due to gravity flow of TCE from the former storage tank. The extent of upgradient migration has not been confirmed but is expected to be limited and is unlikely to have reached residential houses north of Troy Lane.
- The extent of the downgradient VCH plume (60m) is small relative to the size of the site. The plume has not approached or migrated across the down gradient site boundary and short term risks to human health and the environment due to down gradient migration are assessed to be low.
- Preliminary human health risk assessment indicates that there would be a potential for health risks to residents of some houses in Troy Lane (close to where TCE contamination has migrated off site) assuming an unconfirmed (and unlikely) worst case scenario that concentrations of VCHs in groundwater below the houses equal the concentrations in Troy Lane; and

2.2 Remainder of the Site

- Based on concentrations of TCE in MW-8, there is an indication of TPH and TCE impact associated with possible former drum storage and/or former hydrocarbon and TCE storage to the north – that is to the west of and separate from the currently identified TCE contaminated source area. Further investigation and delineation is required to establish requirements for remediation.

- There is evidence of some TPH and TCE contamination exceeding relevant guidelines in soil below the former oil/water separator, which warrants some further investigation to determine whether remediation is necessary.
- Previously there was evidence of some TPH contamination in soil and groundwater down gradient of the underground fuel oil tanks near the gate house, indicative of some leakage or historic spills from the tanks. Removal of these tanks has been completed and remediation of associated contamination has already been conducted as part of this programme.
- No contamination was detected by URS in any other areas of the site that would present risks to human health or the environment. However, additional sampling will be conducted in the vicinity of the former water treatment plant to assess whether the area is contaminated.

2.3 Risk of Harm

An assessment of Risk of Harm under the Contaminated Land Management Act (1997) was conducted. The assessment concluded that the identified area of VHC contamination adjacent to the northern boundary of the site would be likely to be considered a Significant Risk of Harm under the Contaminated Land Management Act. The site was therefore notified to the EPA as required under the Act.

The objectives of this proposal, in line with the requirements of the NSW EPA, are as follows:

- Identify and remove any potential impact that site contamination may have to the residential dwellings located at the opposite side of Troy Lane. This will likely require substantial removal of the contaminated material already identified or to be identified underneath and to the north of Troy Lane;
 - Remove any free phase product (DNAPL), either found on the site or off site to the extent practicable;
 - Demonstrate that residual contamination that may be left in situ will not pose an unacceptable risk to the site occupier, having considered the current and approved use of the site;
 - Demonstrate that as a result of the proposed remediation, the size of the contaminated groundwater plume will either decrease or will be stabilised over time. This will likely require medium to long term monitoring of the groundwater along the fringe of the plume;
 - Provision of a contingency plan in case the contaminated groundwater plume is found to be moving or expanding faster than the anticipated natural attenuation of the concerned contaminants.
- To achieve these objectives, the following tasks are to be completed within the timeframes specified in the proposal:

- Further investigation and delineation of the levels of the contaminants in soil and groundwater onsite and off site;
- Site specific risk assessment to confirm risks to human health on-site and offsite to the north to determine appropriate risk based cleanup criteria for soil and groundwater remediation;
- Groundwater modelling and monitoring to assess potential future downgradient migration and attenuation of the contaminants in groundwater and to determine appropriate risk based cleanup criteria for soil and groundwater remediation;
- Preparation of a remediation action plan (RAP) detailing the works to be conducted;
- Obtain regulatory approvals for the work;
- Remediation of the contaminants in soil and groundwater offsite to the north, in the source area and elsewhere on the site as specified in the RAP;
- Remediation of the groundwater plume by monitored natural attenuation or other means as necessary;
- Monitoring and reporting on the effectiveness of the remediation strategy and obtain auditor sign off that all the tasks have been completed satisfactorily and the objectives have been met

The proposed remediation strategy combines further delineation and remediation of contaminants that have migrated offsite to the north under Troy Lane, remediation of soil and groundwater contamination in the source area and remediation of soil and groundwater elsewhere on the site in a staged programme outlined below.

4.1 Approach

In approaching the remediation, a number of important site specific factors need to be considered:

- Site conditions are constrained by adjacent buildings, a public road and the proximity of local residents. Excavation and treatment/disposal of contaminated soil and groundwater has the potential to affect local residents (access to some houses, odour and noise). There will be a need for demolition of some site buildings and consideration of health and safety issues for residents and personnel involved in remedial work;
- The chemicals involved at this site are highly volatile and are therefore potentially well suited to in-situ vacuum extraction techniques. The site ground conditions are unfavourable for vacuum extraction because the permeability of the clay soil and the underlying shale at this site is low and the water table is shallow. Application of vacuum extraction at this site is considered likely to be feasible but will be slow;
- The site investigations have indicated the presence of some localised mobile free phase liquids (DNAPL) in the source area. It is desirable to drain as much as practicable of the mobile free phase liquid before attempting to remediate the residual chemicals in the soil and groundwater.

- Due to the contrasting characteristics of the source area and groundwater plume, a differing remedial approach is usually appropriate for each zone. A range of remedial options for the source area and for the groundwater plume, which could be implemented after drainage of mobile free phase liquids in the source area have been assessed, and the selected techniques proposed for this site are described below.

4.2 Stage 1 - Further Investigations

The programme of further investigations will comprise:

1. *Further human health risk assessment, supported by a programme of shallow offsite drilling and fluxhood measurements in gardens of residential properties north of Troy Lane. The purpose of this programme is to define the extent of offsite migration north of the property and establish baseline conditions and provide a basis for setting site specific cleanup targets and remediation goals.*
2. *Further definition of the boundaries/depth/thickness of the source area and groundwater plume, including possible preferred pathways along buried services, the geotechnical properties of the soil and the requirements for building demolition. The purpose of this programme is to provide information for design and staging of the remediation works and the associated costs.*

3. Obtaining a bulk sample of the contaminated material in the source area for testing to assess the requirements for treatment and/or offsite disposal;
4. Further investigations and delineation of contamination and requirements for remediation elsewhere on the site including:
 - The area in the vicinity and to the north of BH8;
 - The area in the vicinity of the former oil water separator (MW111);
 - The area in the vicinity of the former water treatment plant;
 - The area below the former brazing and metal plating area.
5. Definition of remediation goals and site specific cleanup targets based on the groundwater modelling and risk assessment. This will involve further groundwater sampling, groundwater flow and contaminant transport modelling, human health and environmental risk assessment.

4.3 Remediation Action Plan (RAP)

On completion of the investigations a remediation action plan (RAP) will be prepared. The RAP will include, in accordance with EPA guidelines, the following:

- A summary of previous investigations;
- Details of the results of the further investigation programme and risk assessments;
- Definition of the location and extent of the remedial works, the remediation goals, site specific clean up targets and validation criteria;
- Discuss options for remediation, define the selected options and specify the works to be conducted and the procedures to be followed during remediation and validation;
- Site Environmental Management Plan and Occupational Health and Safety Plan;
- Monitoring and contingency plans;
- List regulatory approvals required for the works.

Following review by the site auditor, the RAP will be submitted to key stakeholders, the EPA and other relevant regulatory authorities to obtain any necessary approvals to commence the works.