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Chairperson
Ministerial Advisory Committee
Inquiry into the Environment Protection Authority
P.O. Box 21428
Little Lonsdale Street VIC 8011

(by email: info@epa-inquiry.vic.gov.au)

Attention: Ms Penny Armytage

Dear Ms Armytage,

Submission by Anthony Lane to EPA MAC

I am writing to make a submission in relation to a number of matters relevant to the Terms of Reference for your enquiry into the Environment Protection Authority of Victoria.

The opinions expressed in this submission are not those of Cardno Limited or any of its affiliated entities. They are the personal view of the author Anthony Lane.

My Qualifications

My qualifications for making this submission are as follows:

- My name is Anthony Lane and I am a professional Hydrogeologist and Certified Environmental Practitioner with over 35 years' experience in the environmental protection field, commencing in the Victorian public service in the mid-1970s.
- My current position is Director, Environment - Asia Pacific at the global environmental and engineering services firm, Cardno.
- I am an EPA-appointed Environmental Auditor for Contaminated Land, initially appointed in 1994. I have performed numerous audits under s53X (Certificate or Statement of Environmental Audit) and s53V (Risk of Harm Audits).
- I am also accredited as an auditor in NSW, SA and WA.
- I have been active in my professional capacity as a contributor to a number of policy and guidelines developed by EPA including:
    - Draft SEPP Groundwater of Victoria prior to 1997
    - Draft Industrial Waste Management Policy (Landfill)

  - Guidelines for Hydrogeological (Water Quality) Assessment – EPA Pub 668, 2006
  - Environmental Audit System Improvement Group
  - Groundwater Approvals Working Group (EPA)
  - EPA Landfill Licence Modernisation - Revision of Landfill Licence conditions (in response to VAGO report August 2014)
  - Draft Landfill Buffer Encroachment – Guideline for Planning and Responsible Authorities (August 2015).
- I have engaged with various community groups as auditor or consultant to communicate about site contamination hazards and risks.
- I have taught hydrogeology and contaminated land management at RMIT since 1984 (now casual).

Key Issues in Submission

The key issues I have included in this submission are summarised in the following statements:

- *The Environmental Audit System:* the audit system is robust and effective and the envy of many international jurisdictions – it needs to be retained and improved.
- *The Clean Up to Extent Practicable process:* The CUTEP process is an effective risk-based process to determine acceptable completion of remediation. It should be extend to all environmental media but the groundwater CUTEP process needs further simplification.
- *Groundwater Quality Restricted Use Zones:* The GQRUZ is an important mechanism for recording environmental hazard and also protecting future users of groundwater (including the ecological), however its use has become ineffective, too limited and disconnected from the groundwater licencing system.
- *Community Right to Known & Engagement:* The principal of community right to know must be supported by improved risk communication processes. In many cases the health and environmental risks of contamination are overstated and in many others the known contamination is not communicated and may present potential health risks. Both the regulatory response and stakeholder communication need to be in proportion to the risks.
- *Landfill Gas Risk is not appropriately Managed:* The intolerable imposition of risks to the residents beside the Stevensons Road Closed Landfill, have resulted in a number of improvements to the management of landfills. However, little has changed in the regulatory response (in the planning system) to the conflict between development and potential risks in proximity to landfills. The response is often disproportionate to risk and moves the onus from the landfill owner to the developer. In addition, much of the response work is inadequate and identification of risks and proportionate responses, such as gas mitigation measure, are not regulated - the UK has developed mechanisms that should be adapted with minor changes to Victoria.
- *The Environmental Protection Act is inadequate*: The Environment Protection Act is most inadequate to regulate contaminated sites and landfills, compared with

regulation applying in SA, NSW & WA. Extensive amendments or new laws may be required to achieve a "21st century" regulatory approach to these matters.

- *The Expectations on EPA are not matched by its Powers or Resources*: The expectation of the community and review bodies seem to be unrealistic in breath of issues, focus on inspections and prosecution as opposed to risk-based regulation. This is especially so given the purpose and scope of the Environment Protection Act and the inadequate level of resourcing of EPA.

The Environmental Audit System

The Environmental Audit System is robust and effective and the envy of many international jurisdictions – it needs to be retained and improved.

The environmental audit system is robust and it relies on a rigorous accreditation system. Accreditation is becoming harmonised between states to promote consistent and high technical standards, and to the extent possible, consistency between auditors in their discharge of duties. The system is also continuously monitored by EPA who provides coaching to Auditors at 6 monthly conferences and more regularly by broadcast communications on any 'tweaks' needed to the practice of auditing or interpretation of guidelines, for example. Audit reports are checked and auditors must be re-accredited periodically. Some Auditors have been disciplined by EPA or placed into on-going coaching regimes to address specific areas of unsatisfactory performance.

A key strength of the Victorian Environmental Auditing system is the use of two different types of audits; one (issued under s53X of the Act) for 'suitability for use' of a parcel of land was the first such system adopted in Australia in 1989 and similar audits have been adopted in most other states in Australia. This has facilitated safe development of hundreds of former industrial "brownfield" sites in Melbourne and regional centres in Victoria. While there is room for improvement (discussed later in this submission), this system has served Victoria very well over the last 25 years and its abandonment would create chaos in the orderly development of brownfields in this state. If the system was abandoned, the question I would ask is "if EPA-accredited Environmental Auditors were not used to sign-off sites for redevelopment, who would perform this function, how long would it take and who is liable for mistakes in audit outcomes?"

A particularly innovative use for the environmental audit system in Victoria, which is not available in other state jurisdictions, is the "risk of harm" audit (issued under s53V of the Act). This can be designed to investigate any aspect of any actual or potential risk to the environment (including human health risks) arising from any human activity. It does not provide a "suitability for use" certification of a particular site but can flexibly assess risks over wide areas such as neighbourhoods, linear infrastructure corridors, waste disposal landfill sites and affected areas off-site, water catchments and forestry activity zones. The outcome of these audits can allow EPA to appropriately regulate the activity or site in order to prevent or manage risks to the environment. This flexible audit tool is the envy of other state jurisdictions who have limited environmental audits to be "site audits" also generally for the purpose of brownfield redevelopment.

In recent times, EPA has applied either s53X and s53V audits to some large and complex industrial sites or where controversial issues have arisen. Some examples where audit has been used and my opinion on the suitability of these audits types include:

- A former chemical plant in the northern suburbs of Melbourne where a s53V audit completed by me in 2007 identified the risks as well as data gaps and the scope of further investigations necessary to fill these gaps. Subsequently, the owner undertook voluntary s53X audits (some still in progress by myself) of parcels of land certified suitability for future use following progressive remediation. This was, in my view, a very effective use of the audit system.
- More recently, is the case of another large industrial sites subject to closure, EPA issued Clean Up Notices which requires a s53X Audit over the entire property encompassing complex industrial areas as well as greenfields. In my view a s53V audit would be a more appropriate tool as it can be based on a 'focussed assessment' rather than a 'total assessment' and would result in a valuable report on risk much sooner than can be achieved in the s53X audit type.
- CFA Fiskville where, in response to an EPA Clean Up Notice, an initial s53V audit based on an assessment by Cardno, identified the risks and scope of further investigation to satisfy the requirements of an EPA notice to conduct a subsequent s53X audit of the entire site. Given the nature of the risks assessed, I question the value of the s53X audit over the majority of this site which is occupied by agricultural pasture and which cannot address the off-site risks which are amply documented in the s53V audit report.

The Clean Up to Extent Practicable (CUTEP)

The Clean Up to Extent Practicable process (CUTEP) process is a risk-based process used by EPA to determine acceptable completion of groundwater remediation in the case of sites where a s53X environmental audit is being completed. A separate submission has been made on this issue by a group of EPA Environmental Auditors to which I have contributed.

While the CUTEP process has been effective in avoiding interminable and wasteful remedial work on groundwater pollution at many sites and contributes to a ration and risk-based determination of sufficiency of remediation, the system is flawed in some aspects and needs improvement. The main improvement is that the CUTEP concept should be extended to situations other than s53X audits including s53V audits and indeed any instance where an applicant undertaking groundwater remediation should be able to seek a CUTEP determination.

In my view the key reason why EPA is reluctant to determine CUTEP outside a s53X audit is because of the shortage human resources with hydrogeological expertise in EPA. If more polluted groundwater occurrences were to be documented in this manner, then EPA would need to be commensurately resourced.

Another aspect of CUTEP that I find ironic is that a great deal of effort and money is expended on achieving a high level of certainty about the acceptability of ceasing remediation of what are generally small scale (corner service station) pollution events,

whereas many much larger and more serious occurrences are not given such attention on because they do not need to go through the s53X audit system (see further comments on Groundwater Quality restricted Use Zones).

The determination of CUTEP is also linked to the identification of Groundwater Quality restricted Use Zones (GQRUZ), address in the following section.

Groundwater Quality Restricted Use Zones

The GQRUZ is an important mechanism for recording environmental hazard and also protecting future users of groundwater (including ecological uses), however its use has become ineffective, too limited and disconnected from the groundwater licencing system.

The GQRUZ term appeared in the 2004 variation to the SEPP Groundwater of Victoria when the term "Polluted Groundwater Zone" was renamed, unhelpfully in my view. The meaning of the former term is clear – the groundwater is polluted at least to the extent that one or more beneficial use is precluded, therefore pollution exists.

The application of GQRUZ is limited to occurrences where polluted groundwater has been remediated or assessed for remediation feasibility and found by EPA to have reached CUTEP. This is also limited to those sites subject to a s53X audit. Curiously, the GQRUZ is only identified following exhaustion of the remediation effort which is often months to years after the pollution was first identified. Consequently, this process is not protective of the community or the environment in a sufficiently timely manner.

All other polluted groundwater zones known to EPA, the consulting community or the public due to monitoring and sometimes publication of data on the public record through s53V audit reports remain undeclared as GQRUZ. While I find this unsatisfactory, it is not surprising as the declaration of GQRUZ requires technical and administrative review by EPA, requiring resources that they may not have. I find this disappointing as much of the information about the oldest and largest polluted groundwater zones has been on the public record since the mid-1970s when I worked in the Groundwater Section of the Mines Department on the original EPA funded Groundwater Pollution Program. Much of the information from this program was subsequently documented in a report by the then Department of Water Resources (Shugg, 1999)[1] which I was engaged to edit in first draft. This report and the information contained is not widely known to either environmental practitioner or regulators.

In the EPA Groundwater Pollution Program of the 1970s and 1980s, we installed monitoring bores at most of the major industrial, petrochemical and waste disposal sites across Melbourne and some in country Victoria. Many of these encountered gross pollution of groundwater, LNAPL, gas emission and also exposed several of us to a wide range of then unknown chemicals as we had little personal protective equipment and no OHS training. The laboratory testing regimes available at that time were very rudimentary for organic chemicals and only indicator parameters were tested.

[1] Shugg, A. (1999) *A Statewide Framework for Groundwater Contamination Assessment and Management in Victoria*, Dept. Water Resources ISBN 0_7306_3456_6

Another interesting aside to the history of polluted grounder investigation in Victoria is that the SEPP Groundwaters of Victoria, when drafted in the late 1980s, was intended to include two Schedules:

- Schedule A – Protected Groundwater Zones – the most highly valued groundwater resources in the state and most vulnerable to contamination, and;
- Schedule B – Polluted Groundwater Zones – the large plumes of contaminated groundwater known at the time and needing to be put on the public record to be avoided by prospective users of groundwater.

This did not survived the legislative drafting process other than Schedule A which simply states "None currently prescribed".

Examples of unrecognised or unregistered GQRUZ I have some familiarity with include those down-gradient and off-site from:

- Several closed chemical plants in West Footscray, Laverton North and Altona.
- The Former Tullamarine Landfill
- An industrial effluent disposal facility at Mount Derrimut

Each of these sites has been investigated in great detail since the early 1990s and had s53V environmental audits completed. The information in these reports should be on the public record however the full extent of the GQRUZ potentially associated with each has not been officially determined or put on the public record[2].

I understand that a possible objection to using old or somewhat semi-quantitative information on groundwater pollution occurrences in Victoria would be that the determination of a GQRUZ requires a geographic area (based on land title boundaries) to be mapped and recorded. This could present a real or perceived legal liability exposure for parties involved with the source sites, so accuracy is important. However, this challenge of accurately plotting GQRUZ already exists with those determined from CUTEP decisions. I do not see this as an obstacle as the parties involved in CUTEP- derived GQRUZ have not expressed this concern in my experience.

In my opinion, it should be possible to identify the sources sites where polluted groundwater is known even if the full extent off-site is not delineated, these should be mapped as GQRUZ and put on the public record (which can be revised as further information comes to hand).

In addition, I understand that information on GQRUZ has been provided by EPA to the Rural Water Authorities who licence construction of water bores and extraction of groundwater. Until recently this was used by these authorises when applications were made by the public to use groundwater. This would have avoided many instances of innocent parties drilling bores to find that the groundwater was contaminated. I understand

that the licencing administration system changed in July 2015 and the GQRUZ information is no longer used in this process by the authorities. This situation needs rectification so members of the public (or corporations) do not inadvertently intercept polluted groundwater in their existing or proposed new bores.

Community Right to Known & Engagement

The principle of community right to know must be supported by improved risk communication processes. In many cases the health and environmental risks of contamination are overstated and in many others the known contamination is not communicated and may present potential health risks. Both the regulatory response and stakeholder communication need to be in proportion to the risks.

As discussed above, the knowledge of groundwater contamination in Victoria is not well documented or shared with the community. While this may be a professional concern to me, it may be quite shocking and alarming to members of the public who are not well equipped to interpret or filter the technical information on such contamination. Typically, the public confuse 'hazard' and 'risk' and often over-estimate the significance of environmental contamination hazards, reasonably expecting their immediate environment to be free of 'toxic chemicals'.

A recent example of this was the declaration by IARC of processed and real meat as a potential human carcinogen. This must be very perplexing to the public and does not help the cause of risk-based communication of environmental risks.

In my experience, the communication of risks due to environmental contamination is often compromised either by political interventions or similarly by professional activists who may do more harm than good by enflaming community outrage at the presence of an unwanted chemical hazard in their midst. EPA in discharging its statutory duty must also use the best available scientific knowledge and advice in assessing risks and informing the community accordingly. EPA needs to be given the 'time and space' to apply science-based management of these instances. Examples where the risk communication challenge has occurred include:

- TCE contamination and vapour intrusion in the Sunshine area
- Landfill gas at all active or closed landfills following Stevensons Rd Closed Landfill Cranbourne case

Landfill Gas Risk is not appropriately managed

The imposition of health and safety risks due to landfill gas (LFG) under the residents beside the Stevensons Road Closed Landfill in Cranbourne, resulted in a lengthy, litigious and very expensive emergency response and remediation program. It also resulted in a number of improvements to the management of landfills in Victoria. However, little has changed in the regulatory response in the planning system, to the best of my knowledge, to

[2] A GQRUZ has been declared on a site near the closed Tullamarine Landfill following a s53X Audit I completed.

manage situations where development is planned in proximity to landfills so as to avoid LFG risks. The planning response is often disproportionate to risk and moves the onus from the landfill owner to the developer instead of the landfill site owner. In addition, much of the LFG risk assessment work and identification of proportionate responses, such as gas mitigation measure, is not regulated and of highly variable quality.

In relation to the changes to environmental or planning regulation since the Stevensons Road Landfill emergency in 2006, I am unware of any material change to the law that would prevent such a recurrence. What has changed is that local councils have been put on notice by EPA that any planning or building approvals with a 500m "buffer" of an existing or closed landfill should trigger a s53V environmental audit of the proposed development site. This has triggered numerous detailed and costly investigations of such developments without directly assessing the risks potentially presented by the LFG hazard source site – the landfill itself, unless it is an operating landfill in which case the assessment would be undertaken as part of the EPA licence audit process.

Recently EPA, with assistance from Cardno, developed a draft guideline for assessing LFG risk in the 'buffer' of former and operational landfills. This is for the purpose of informing council planers of mechanisms other than a full s53V audit for assessing these risks. I would encourage government to finalise and adopt such guidance and make whatever regulatory changes necessary to enforce such protocols in local government planning processes to ensure another Cranbourne is impossible.

Another aspect of management of LFG risks proximal to landfills is the use of guidelines for selection of gas mitigation measures in new developments. Examples of these can be found mainly in UK publications such as CIRIA 665[3], British Standard BS8485[4] and more recently in a NSW EPA guideline (EPA NSW 2012)[5]. I recommend that EPA adopts a protocol similar to that in NSW which is based on the best of the UK guidance. Cardno is using the UK guidelines on a daily basis to specify suitable LFG mitigation measure in new developments across Victoria.

The Environmental Protection Act is inadequate

The Environment Protection Act is most inadequate to regulate contaminated sites and landfills compared with regulatory regimes in other states including SA, NSW and WA. Extensive amendments or new laws may be required to achieve a "21st century" regulatory approach to these matters.

In my view, as and environmental practitioner, the key changes to regulation need to better manage contaminated sites and landfill risks in Victoria include:

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[3] *Assessing Risks Posed by Hazardous Ground Gases to Buildings* (CIRIA665), CIRIA (2007).

[4] British Standard, 2015, BS8485:2015, *Code of Practice for the Design of protective Measures for Methane and Carbon Dioxide Ground gases for New Buildings*

[5] NSW EPA, *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases,* 2012

- Alignment of definitions of pollution, contamination , remediation and clean up with other states if possible
- Mandatory classification and notification of potential contamination status of all scheduled sites upon commencement of the new regulation
- Mandatory notification to EPA if an owner/occupier becomes aware of pollution of land or groundwater at a site
- Registration of audit reports and site environmental reports against title (as occurs in SA)
- Obligation to remediate and have registered any polluted groundwater zones.
- Identification of responsible parties and apportionment of liability
- Transfer of liability by contract with EPA consent
- Registration of voluntary remediation agreements
- Avoidance of use of triggers or investigation levels as environmental objectives such as use of HILs in SEPP Prevention and Management of Contamination of land (2002)
- The concepts and rules for CUTEP and GQRUZ should be in the Act
- CUTEP should be applicable in all polluted groundwater cases.
- Change from an audit as a "total assessment" and align with other states to be "a review" – still maintaining both "Risk of Harm" and "Suitability for Use" audit types.

The Expectations on EPA are not matched by its Powers or Resources

I note from a number of early submissions to the MAC published on the website, the community expectation of EPA is well beyond its remit under the Environment Protection Act – for example, climate change and terrestrial ecology management. I would expect that the MAC could make a recommendation about the existing and potential future scope of EPA's remit.

I am concerned that the popular public view of EPA, perhaps prompted by the changes since Cranbourne landfill, is that it is primarily a police force and that fines and prosecutions are the main methods of protecting the environment. While I support the swift and decisive administration of justice to flagrant offenders, especially where actual harm (ecological, human health and economic) occurs, I believe that EPA needs to be given the space to monitor, report on and proactively protect the environment rather than focus on police work. Examples of proactive protection could include:

- Development of existing staff and recruiting additional specialists in each element of the environment (air, water, land, waste, noise etc) to act as an advisory team to the regulators managing risks.
- Develop/upgrade information systems:
    - Developing and maintaining web-based GIS databases on contaminated sites, landfills and GQRUZ.
    - Expanding the on-line report repository to include all s53V audit reports (with legal protections for clients of older audits not intended to be public).
    - Adoption of a universal data transfer format (such as ESDAT) for submissions of all monitoring and site assessment data in audit reports to be available from the EPA website.
- Monitoring, modelling and publication of data on air-shed conditions, catchment water quality, water supply aquifers, etc.
- Declaration of GQRUZ and enforcement to prevent persons using polluted groundwater.

In order to meet these and other expectations of the community, it seems to me that EPA will need more resources including sufficient technical specialists.

I would be pleased to meet with the committee to discuss the matters raised in this submission.

Yours faithfully,

[redacted]

Anthony Lane *DipAppSc(Geol) MSc(Hydrogeol) CEnvP (No.20)*